# Situation Assessment Survey of Agricultural Households 2019

A Statistical Note

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https://doi.org/10.25003/RAS.11.02.0009

## *Introduction*

The National Statistical Office published the results of the Situation Assessment Survey of Agricultural Households 2019 (SAS-77) in September 2021. This survey, conducted as part of the 77th round, was the third Situation Assessment Survey (SAS) of the National Sample Surveys (NSS). The first Situation Assessment Survey of Farmer Households was conducted by the National Sample Survey Organisation (presently National Statistical Office) in 2004 (SAS-59) to provide various estimates related to the economic conditions of farmer households, including incomes, productive assets, debt, farming practices and awareness, and access to agricultural technology. A second Situation Assessment Survey of Agricultural Households was conducted in 2013 (SAS-70). Even though the methodology and coverage of the surveys have changed across the three rounds, the objectives of the surveys and indicators on which data are collected have remained roughly the same.

One of the notable promises made by the BJP government when it assumed office in 2014 was that of doubling farmers' incomes by 2022. At a farmers' rally in Bareilly on February 27, 2016, the Prime Minister disclosed his "dream" of doubling farmers' incomes by the 75th year of India's independence.[1] The announcement, and the Budget of 2016-17 that followed, were unclear on several technical details and did not offer a clear roadmap of how the government planned to achieve the goal. For example, the government did not clarify how they intended to measure farmers' incomes. The very definition of a 'farmer' and her 'income' are fraught with ambiguities in the pluriactive lives of the farming population in India.

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[1] IANS (2016).

An Inter-Ministerial Committee on Doubling Farmers' Income, headed by Ashok Dalwai, was formed in April 2016. The Committee submitted its report with policy recommendations in September 2018. It noted the importance of adopting a "suitable income measurement mechanism" to evaluate the income of farmers at regular intervals. It recommended an increase in the frequency of SAS to once in five years, instead of the decade-long gap between the first and second surveys. Based on this recommendation, SAS-77 was conducted after a gap of six years from the previous survey, SAS-70.

This statistical note reviews the report "Situation Assessment of Agricultural Households and Land and Holdings of Rural Households in India, 2019" and discusses some methodological issues and results from the report.

## *Comments On Methodology*

There are several changes, big and small, in the methodology adopted in the SAS-77 as compared to its predecessors. Here I highlight four major changes that have implications for analytical studies and future research using this data.

### *Combination of SAS and Land and Livestock Holdings Surveys*

The Land and Livestock Holding Surveys were conducted in the same rounds as the Situation Assessment Surveys in the past. However, these two surveys were conducted separately in the 59th and 70th rounds, using separate interview schedules canvassed across two different samples of households. In the 77th round, the two surveys were integrated. A single schedule combining questions on land and livestock holdings and situation assessment was canvassed on the same sample. While the sections on Land and Livestock Holdings were canvassed across the full sample of rural households, agricultural households were identified by field investigators from among the rural households "on the basis of their receipt from the 'self-employment activities in agriculture' during the 365 days prior to the date of survey," and the extended schedule including questions on situation assessment was canvassed among agricultural households alone.

The integration of the two schedules may be appreciated, as this provides a more holistic picture of agricultural households. It enlarges the scope of understanding the interrelationship between the variables of land and livestock ownership that define the varying property rights on the one hand, and the economic aspects of agriculture such as incomes, input use, adoption of modern technology and access to markets on the other. The integration of the two schedules may also lead to more accurate reporting of crop and animal incomes. The detailed reporting of land and livestock holdings at the beginning of the interview may well facilitate better recall of production and input use on the part of respondents, and facilitate methods of cross-checking responses by the investigators.

However, the integration of the two schedules has also resulted in the simplification of the land and livestock holdings interview schedule and the consequent loss of relevant information. In earlier rounds, data on each parcel of land was reported separately, which gave a better estimation of crop acreage and irrigated area, and the fragmentation of land holdings.

### *Definition of Agricultural Households*

The current survey uses the same definition of 'agricultural households' as that followed in SAS-70. Agricultural households are defined as an 'agricultural production unit' that produce field crops, horticultural crops, livestock and the products of any of the other specified agricultural activities, with or without the possession and operation of any land, and which received a value of agricultural produce more than Rs. 4,000 from agricultural activities in 2019. Apart from an upward revision of minimum income from agriculture from Rs. 3,000 in SAS-70, to account for inflation, the definition of agricultural household remains identical in the two rounds. For this reason, estimates in SAS-70 and SAS-77 pertaining to statistics relating to agricultural households would be broadly comparable and progress made in different indicators can be assessed. We can compare income growth and changes in the income portfolio of agricultural households between the two rounds. Such an analysis was not possible in the earlier rounds of SAS, since the target population for SAS-59 was 'farmer household', which was different from 'agricultural household' in SAS-70.

### *Costs of Agriculture and Livestock Production*

One of the major contentions of the farmers' movement spokespersons in recent years in India has been to do with the estimation of minimum support prices of major crops. The farmers' movements have insisted on the implementation of the recommendation of the Swaminathan Commission, which recommended minimum support prices be set 50 per cent above the total cost of production, defined as the sum of all paid out costs and imputed costs (such as cost of family labour and rental value of own land). The official estimation of cost of cultivation in India is done by the Commission for Agricultural Costs and Prices (CACP). The CACP uses nine different cost concepts. The most basic of these concepts are paid-out costs A1 and A2, which includes all out-of-pocket expenses, and imputed values of owned animal and machine labour for owner-cultivator and tenant-cultivator respectively. The total cost concept C2 includes imputed costs on owned land and family labour, while cost C3 also includes value of management input. Thus, we see, each cost concept used by CACP includes some type of imputed cost. Both SAS-59 and SAS-70 reported accounting costs, that is, actual expenses made by agricultural households, and did not include imputed costs in estimates of cost of cultivation and farm incomes.[2] Sarkar (2017b)

[2] Certain imputed costs such as value of home-produced seeds and manure were included in SAS-59 but excluded in SAS-70.

has shown that the exclusion of important components of imputed costs resulted in an underestimation of cost of cultivation in SAS-70.

In the context of the current debates on remunerative farm incomes and demands by farmers' unions for implementation of MSP as recommended by the Swaminathan Commission, SAS-77 does try to capture imputed costs. The interview schedule recorded the imputed costs of agricultural production for the following inputs: home-grown seeds, manure, bio-pesticides, irrigation, human labour, animal labour, repair and maintenance of machinery, and rent for land used for crop production. In the same manner, imputed expenditures on labour and rent for land used for farming of animals were included in the schedule. The costs of home-grown inputs such as seeds, manure and bio-pesticides, as well as rent on land, have been valued at prevailing market rates, and family labour is valued at market wages. Costs of irrigation, and the maintenance of machinery and animals are valued at actual expenditures incurred. CACP also uses similar methods of imputing costs for non-purchased inputs. With the inclusion of these costs, the SAS estimates can now replicate the cost concepts used by CACP.

A weakness of the estimation of costs of production in the previous round was that data on costs were collected for the entire agricultural season, and not for individual crops grown in the season. Thus crop-wise estimates of cost of cultivation or farm incomes were not possible with data from SAS-70.[3] This weakness remains in the present round. We can obtain estimates of total farm business incomes from SAS, but cannot estimate profitability of individual crops. The other gap in information is the absence of data on quantities of inputs used.[4]

### *Incomes*

There are two types of improvements in the income data collected in SAS-77 as compared to previous rounds. First, SAS-77 captures imputed costs of crop production and animal farming instead of out-of-pocket expenditures alone. This makes it possible to estimate farm business incomes at the household level, using cost definitions broadly similar to that used by the CACP. The CACP method gives a clearer picture of incomes of agricultural households, accounting for different kinds of hidden and non-monetised costs.

Secondly, there is an expansion of the categories of income for which data is collected. New income categories, such as incomes from leased-out land and incomes from pensions, remittances have been included in the questionnaire. However, estimates of pensions and remittances are not reported separately in the published reports. Data on wage earnings, however, are collected as a single category, with no distinction being made between agricultural and non-agricultural wages. This was

[3] SAS-59 provided input use separately for each crop.
[4] See Sarkar (2017b) for a comprehensive analysis of the methodology of Situation Assessment Surveys.

the case in the previous round of SAS as well. In the absence of segregated data on agricultural and non-agricultural wages, it is not possible to analyse the income share of households from the agricultural and non-agricultural sector (Bakshi 2010).

The continuation of the Situation Assessment Surveys and the estimation of incomes of agricultural households by the NSS is an important milestone in the country's statistical journey. As I have argued earlier, although India has a long and well-established system of statistical data collection, there are no regular surveys on incomes, whether in rural or urban areas (Bakshi 2010). The absence of data on incomes constrains systematic research on income inequalities and patterns of income generation in the country. The National Sample Survey Organisation (NSSO) made a few attempts to conduct household income surveys but could not evolve an acceptable methodology and therefore no longer conducts them (Bakshi 2010, Rawal *et al.* 2012).[5]

*Consumption expenditure*

SAS-59 and SAS-70 provided estimates of consumption expenditure of farmer and agricultural households respectively. In SAS-59 data on consumption expenditure was collected using the methodology and questions similar to those used in the NSS Consumption Expenditure Surveys (NSSO 2005). In SAS-70, the detailed consumption list was discarded and data was collected on five broad categories of consumption expenditure. The reference period for the reported consumption expenses was the last 30 days. The questions on consumption expenditure formed a separate section in the schedule, and the estimates of monthly consumption expenditure were presented in the published report. In SAS-77, consumption expenditure data was collected on four broad categories. These were (a) the usual consumption in a month for household purposes out of purchase, (b) usual imputed consumption in a month from home-grown stock, (c) usual consumption in a month from wages in kind, free collection and gifts, and (d) expenditure on household durables in last 365 days. Thus, a very detailed list of consumption articles that NSS uses in its estimation of consumption expenditure was collapsed into very broad categories. Further, the reference period for reporting consumption expenses was also changed from 'last 30 days' to 'usual expenses in a month'. These two changes in the schedule have implications for the accuracy of data collected and estimation of consumption expenditure, which in turn affects the measurement and understanding of consumption poverty of agricultural households. The instruction manual for field investigators however specifies that "Household consumer

[5] As part of its Integrated Household Surveys in the 19th (1964-65) and 24th (1968-69) rounds, NSSO collected data on receipts and disbursements, that is, data on income flows of households. However, these efforts were not continued as it was found that the estimates of income were lower than estimates of consumption and savings put together (NSSO 1993). In 1983-84 the NSSO attempted a pilot enquiry on household incomes in rural and urban areas in five States (Haryana, Maharashtra, Tamil Nadu, Orissa, Uttar Pradesh) and the metropolitan cities of Delhi and Calcutta. The NSS concluded that rural incomes were seriously underreported and not consistent with estimates of consumption and savings.

expenditure (HCE) is the sum total of monetary values of all goods and services consumed (out of purchase or procured otherwise) by the household on domestic account during a reference period. Procedure for deciding consumption of goods and services by a household is same as that followed in Consumer Expenditure Survey (Schedule 1.0) of NSSO" (NSSO 2018, p. C-20).

It is evident that consumption expenditure ceased to be among the major variables in SAS-77 from the fact that the questions on 'usual monthly consumption expenditure' were part of the household characteristics block of questions, and did not merit a separate block or section within the questionnaire. The estimates of consumption expenditure were not reported in the published report. The report states that "Since this information on Household Usual Monthly Consumer Expenditure was collected through four questions, it cannot be used to estimate the household consumer expenditure which is generally estimated based on detailed household consumer expenditure survey (Schedule 1.0 of NSS)" (NSO 2021, p.12). From NSSO's conflicting statements in the training manual and report, there is no clarity regarding either the method of data collection, or the quality of the data collected on consumption expenditure.

## *Some Highlights From The Results*

We now turn our attention to some preliminary results of the survey pertaining to the situation of agricultural households. In this section we do not deal with the results on land and livestock, as that merits an independent analysis.

The first important result that this survey throws up is that there is a decrease in the share of agricultural households in rural India, from 57.8 per cent in 2013 to 54 per cent in 2019, even as the number of agricultural households increased from 90.2 million to 93.09 million. This is in congruence with the overall trend of decline in agricultural employment in India noticed from various rounds of the Census of India.

Cultivation and livestock remain the principal sources of income for a majority of agricultural households. In 2013, 63.4 per cent agricultural households reported cultivation as the principal source of income, and another 3.7 per cent reported livestock incomes as the principal income source. In 2019, the corresponding proportion was 68.9 per cent and 2.3 per cent respectively.

However, the share of income from crop production has declined in the overall income portfolio of agricultural households (Table 1). In 2013, income from crop production was the single largest source of income of agricultural households, constituting 47.9 per cent of average monthly household incomes. In 2019, the share of crop production in income portfolios declined to 37.7 per cent, a decline of 10.2 percentage points. What is more striking is the fact that now agricultural households

**Table 1** Average monthly household income of agricultural households, by source, 2013 and 2019, *in rupees and per cent*

| Income source | 2012-13 | | 2018-19 | | |
|---|---|---|---|---|---|
| | In Rupees | Share | In Rupees | Share | Share excluding income from leased out land |
| Wages/Salaries | 2,071 | 32.2 | 4,063 | 39.8 | 40.3 |
| Cultivation | 3,081 | 47.9 | 3,798 | 37.2 | 37.7 |
| Animal farming | 763 | 11.9 | 1,582 | 15.5 | 15.7 |
| Non-farm business | 512 | 8.0 | 641 | 6.3 | 6.4 |
| Income from leased out land | - | - | 134 | 1.3 | - |
| Total | 6,427 | 100.0 | 10,218 | 100.0 | 100.0 |

*Source*: NSSO (2014), NSSO (2021)

receive more incomes from wages and salaries than crop production. The share of incomes from wages and salaries, and animal farming has increased in the six-year period.

The decline in the share of crop incomes and the low absolute levels of crop incomes of agricultural households have gained some media attention since the results of SAS-77 were published. It has been argued that the daily earnings from crop production are lower than wages paid by Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS) (Kishore and Jha 2021).

It is a fact that income from crop production has not only declined as a share of total income, but it has declined in real value if we adjust for inflation (Table 2). Adjusting 2012-13 incomes to 2018-19 prices using the consumer price index (rural) with base year 2012, we find that average monthly incomes from crop production declined by 10.4 per cent in six years.[6] The index number for agricultural production for all crops in India increased from 129.8 to 138.1 between 2012-13 and 2018-19, hence there was no fall in agricultural production in this period.

The decline in crop incomes, even when there was no apparent decline in production points to persistent problems of price realisation and high cost of inputs in the farm economy. Studies conducted by the Foundation for Agrarian Studies have consistently shown that prices received by farmers, particularly small farmers, were well below the Minimum Support Prices (MSP) and that MSP of crops often did not cover paid-out input costs incurred by farmers (Sarkar 2017a, Bakshi and Munjal 2018). The income crises faced by farmers in India has to be addressed on two fronts – by improvement in conditions of agricultural marketing that give farmers better prices for their products on the one hand, and by keeping input prices in

[6] If all imputed costs are included, average monthly income from crop production reduces further to Rs. 3,058 and income from animal farming reduces to Rs. 441 at 2018-19 current prices.

**Table 2** Average monthly household incomes of agricultural households, by source, at 2018-19 prices, *in rupees and per cent*

| Income source | 2012-13 | 2018-19 | Growth (%) |
|---|---|---|---|
| Wages/Salaries | 2849.4 | 4063 | 42.6 |
| Cultivation | 4239.0 | 3798 | -10.4 |
| Animal farming | 1049.8 | 1582 | 50.7 |
| Non-farm business | 704.4 | 641 | -9.0 |
| Income from leased out land | | 134 | |
| Total | 8842.6 | 10218 | 15.6 |

*Note*: Consumer price index (rural) with base year 2012 is used for price adjustment.
*Source*: Calculated from Table 1.

check on the other. The farmers' protests around the three farm laws highlighted the differences in the viewpoints of the current government and farmers organisations on how the issue of price realisation and low farm incomes of farmers need to be addressed.

The SAS data does not show any remarkable change in respect of awareness about and functioning of the government procurement system in the country (Table 3). There were some improvements in the awareness levels of agricultural households regarding MSP and procurement agencies in case of *kharif* paddy, but not so in the case of *rabi* wheat. However, this did not translate to a higher proportion of households selling to procurement agencies, or a higher portion of the produce being sold. Given the current context of agricultural marketing reforms, it would be interesting to analyse what proportion of households received prices above MSP for their crops in private markets. Such an analysis will be possible with unit-level data.

While crop incomes declined after 2012-13, SAS-77 records an increase of 50.7 per cent in incomes from animal farming. If we take the two components together, income levels have remained roughly the same in real terms. Does this indicate a diversification happening within the farm sector in the Indian economy? It may well be the case, as the livestock sector has shown rapid growth in recent years and increased its share in Gross Value Added in agriculture and allied activities.

**Table 3** Awareness of MSP and procurement agencies among agricultural households (AH), 2013 and 2019, *in per cent*

| Description | Kharif paddy | | Rabi wheat | |
|---|---|---|---|---|
| | 2013 | 2019 | 2013 | 2019 |
| AHs aware of MSP | 32.3 | 40.7 | 39.2 | 37.1 |
| AHs aware of procurement agency | 25.1 | 30.3 | 34.5 | 27.2 |
| AHs that sold at procurement agency | 13.5 | 14.5 | 16.2 | 9.7 |
| Share of output sold at MSP | 27 | 23.7 | 35 | 20.8 |

*Source*: NSSO (2014), NSSO (2021)

The decline in crop incomes and near stagnation of agricultural incomes does not augur well for a government that envisaged the doubling of farmers' incomes by 2022. Even if we consider the fact that the target of doubling is meant for all sources of incomes of farm households, and not agricultural incomes alone, a mere 15 per cent increase in real terms does not offer hope of meeting the target. The Dalwai Committee stated that, "The targeted farmers' income at national level, in 2022-23, shall be Rs. 192,694 (at 2015-16 constant prices) or Rs. 271,378 at current prices" (GoI 2018, p.8). [Note that these figures are for both farm and non-farm incomes.]

I had argued earlier, using data from SAS-70 and village studies, that incomes of a large proportion of agricultural households were inadequate to meet their own consumption needs, or indeed to meet any poverty standard. The SAS-70 data on consumption expenditures and analysis showed that average incomes of agricultural households in the bottom six consumption deciles were lower than average consumption expenditures. Further, annual incomes of 42.7 per cent of agricultural households were below the Tendulkar poverty line. Agricultural incomes (comprising crop and livestock incomes) of 67 per cent households, and crop incomes of 74.5 per cent households were below the poverty line (Bakshi, forthcoming). Average consumption expenditure estimates are not available in the published report of SAS-77; indeed, all attempts to define an official poverty line in India based on consumption expenditure estimates have been abandoned since the Rangarajan Committee report published in 2014. Thus, I am unable to present a quick estimate of poverty among agricultural households in 2018-19. However, the moderate increase in total incomes suggests that the extent of poverty and income-consumption gap may not have improved much.

## *Conclusion*

Situation Assessment Surveys are now part of the regular decadal cycles of the National Sample Surveys, and their frequency has increased. This is the only official data source that provides household-level income data for a significant section of the Indian population. The SAS-77 follows the same definition of agricultural households as SAS-70, making data from the two rounds comparable. There were some changes in methodology in the two surveys and the pros and cons of some of the major changes have been discussed in the paper.

The results show that crop incomes have ceased to be the major source of income of agricultural households, and have been overtaken by incomes from wages and salaries. There was a decline in the level and share of crop incomes between SAS-70 and SAS-77. There is an increase in incomes from animal farming during the same period, suggesting some diversification within the farm sector. On average, the total incomes of agricultural households rose by 15 per cent in real terms, which indicates the near impossibility of achieving the goal of doubling farmers' incomes by 2022.

## *References*


Bakshi, Aparajita (2010) *Rural Household Incomes,* PhD Thesis submitted to the University of Calcutta, Kolkata.

Bakshi, Aparajita (forthcoming), "Inadequacy of Agricultural Incomes in India," in Ramakumar, R. (ed.) *A Hard Time: Indian Agriculture after Liberalisation,* Tulika Books, New Delhi.

Bakshi, Aparajita and Munjal, Kunal (2018), "Caste, Class and the Peasants – Understanding Farmers' Demands for Higher MSP and Loan Waivers in Contemporary India," Paper presented at the "International Seminar on Primordial Institutions and Public Policy: Re-Examining Caste in 21st Century India," Institute of Public Policy, National Law School of India, Bengaluru, December 10-11.

Government of India (GoI) (2018), *Report of the Committee on Doubling Farmers' Income*, Volume 14, Department of Agriculture, Cooperation and Farmers' Welfare, Ministry of Agriculture & Farmers' Welfare.

IANS (2016), "My dream is to see farmers double their income by 2022: PM," *The Hindu*, February 28, available at https://www.thehindu.com/news/national/prime-minister-narendra-modi-addresses-kissan-rally-in-bareilly-uttar-pradesh/article8292286.ece, viewed on January 9, 2022.

Kishore, R. and Jha, A. (2021), "Farmers Earned Rs 27 a day from Cultivation in 2018-19," *Hindustan Times*, Sep 14.

NSO (2021), "Situation Assessment of Agricultural Households and Landholdings of Households in Rural India," NSS 77th Round, Ministry of Statistics and Programme Implementation, Government of India.

NSSO (2018), "Instructions to Field Staff," vol. 1, NSS 77th Round, Ministry of Statistics and Programme Implementation, Government of India.

NSSO (2014), "Key Indicators of Situation of Agricultural Households in India," NSS 70th Round, Ministry of Statistics and Programme Implementation, Government of India.

NSSO (2005), "Income, Expenditure and Productive Assets of Farmer Households," Ministry of Statistics and Programme Implementation, Government of India.

NSSO (1993), "Report on the Pilot Survey of Income, Consumption and Savings," Part I and II, Department of Statistics, Delhi.

Rawal, Vikas, Bakshi, Aparajita, Ramachandran V. K., and Swaminathan, Madhura (2012), "Household Income Surveys in India: Lacunae and Illustrations from Village Surveys," paper presented at the "Annual Conference of International Association for Research on Income and Wealth," Boston, USA.

Sarkar, Biplab (2017a), "Household Crop Incomes Among Small Farmers: A Study of Three Villages in West Bengal," *Review of Agrarian Studies,* vol. 7, no. 2, pp 62-83.

Sarkar, Biplab (2017b), "The Situation Assessment Surveys: An Evaluation," *Review of Agrarian Studies,* vol. 7, no. 2, pp. 111-122.



*Date of submission of manuscript*: October 10, 2021
*Date of acceptance for publication*: December 12, 2021