Measuring Income and Financial Indicators Through Surveys

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Abstract

Researchers and policy makers use a lot of financial indicators collected both from official returns and surveys for induction and policy formulation. However, definition and interpretation of these indicators matter most in understanding the underlying phenomena. This paper discusses how various financial indicators are defined and collected. Two of the NSSO surveys – All India Debt Investment Survey (AIDIS) and Situation Assessment Surveys (SAS) help us understand financial aspects of rural households. Both these surveys collect information about certain common indicators but with slightly different definitions. Measuring financial transactions and variables is difficult in view of their complexity and velocity of transactions during the year. This paper also discusses NABARD All India Rural Financial Inclusion Survey (NAFIS), another survey in financial inclusion space. The paper highlights that understanding the correct interpretation and limitations thereof of financial indicators would help us design better surveys and finer outcomes.

1   Introduction

Indian statistical system is very robust collecting and compile wide array of information on various aspects of the economy. The range of statistics collected, and the sectors covered touch all walks of life. Perhaps, the system must be the largest in the world. One can browse through the Report of the National Statistical Commission of 2001 prepared under the Chairmanship of Prof. Rangarajan to sense the complexity of the statistical system and understand the depth and the breadth of its coverage. The system collects agricultural, industrial, trade, services sector, infrastructure, socio-economic, financial and external sector, price, corporate sector, national accounts, and so on. The main features of the Indian Statistical System are:

- The Administrative Statistics System is its major component;
- It is laterally and vertically decentralised;
- States carry out not only data collection but also compilation, processing and preparation of results for most of the sectors; and
- It is the State-wise results, which flow to the Centre, and statistics at the all-India level are obtained as the aggregates of State-level statistics.

Financial statistics occupy prime of place among various statistical sub-systems. As the economy has moved towards more monetized and financialised system, the importance of

financial statistics increased in research and policy. They are collected through official mechanisms through various returns prescribed as also through large sample surveys. And, accordingly, they help us understand both supply and demand side aspects. National Sample Survey Office (NSSO) has been in the forefront, of late, in conducting large sample surveys collecting farm/agricultural household level information on various financial aspects. They conduct All India Debt Investment Survey (AIDIS) and Situation Assessment Survey (SAS) at 10-year interval[1].   There are several agencies such as NCAER who are conducting large scale surveys of households covering financial aspects. Recently, NABARD also undertook a large survey of rural households in 2016-17, known as NABARD All India Rural Financial Inclusion Survey (NAFIS). For a list of various surveys and the agencies conducting them in the financial inclusion space, refer Satyasai (2018). In this paper, the objective is to list out various financial aspects/indicators collected in various surveys and examine the scope and interpretation of these indictors in understanding the financial behaviour of farm/agricultural households. Though important and complementary, we are keeping the bank/branch level statistics and indicators out of the scope of this paper.

The objectives of this paper are:

- To discuss various financial aspects/indicators collected in various surveys.
- To understand their definitions and measurement in surveys and suggest improvements.
- To make a couple of suggestions that may help better understanding and use of survey based indicators.

The rest of the paper covers: Financial aspects measured under various surveys and definitions, Differences in coverage and definition of the indicators over time and across the surveys, Designing Questions to elicit information and minimise misinterpretation and other data issues and the Conclusions.

2   Financial Aspects Measured Under Various Surveys and Definitions

For the purpose of this paper we consider the following surveys:

- NSSO
  - Situation Assessment Survey (SAS) – done at 10-year interval
  - All India Debt Investment Survey (AIDIS) - done at 10-year interval

- NABARD
  - All India Rural Financial inclusion Survey (NAFIS) – first one done during 2016-17

- NCAER

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[1]After its 70th Round survey in 2013, 77th Round is being done in 2019.

o National Survey of Household Income and Expenditure (NSHIE) – previously Market Information Survey of Households (MISH) -initiated in 1984-85 and NSHIE was conducted in 2004-05 and then 2011.

These surveys differ vary in coverage, sample frame and design, concepts, definitions and hence are not comparable between and even, with different rounds of the same survey (Kumar, 2016). For instance, the major differences in SAS of farmers (farmer households) conducted in 59th round and SAS of agricultural households conducted in 70th round are: a) A farmer (farmer household) in 59th round is defined as one who possesses land, but an agricultural household in NSS 70th round may or may not possess land; b) In 59th round, farmers having insignificant farming activities, like kitchen garden, etc. were excluded from the survey coverage. In 70th round, households with at least one member self-employed in agriculture either in principal status or subsidiary status and having total value of produce during last 365 days more than Rs. 3000 were only considered as agricultural household; c) In 59th round data was collected for 'kharif' and 'rabi' seasons from each sample household, whereas in 70th round data was collected for two halves of the agriculture year 2012-13 as July to December, 2012 and January to June, 2013 from each sample household; and, d) In 70th round actual expenditure (out of pocket expenditure) incurred by the agricultural household for running farm and non-farm business was collected. Similarly, successive rounds of AIDIS have differences in concepts and definitions. Rajakumar et al.(2018) charts out various changes in AIDIS over time. This paper benefited from the report in highlighting some of the arguments.

Various financial aspects covered in the major surveys considered here are assets, liabilities and income. We discuss a few aspects about how they are defined in different surveys and definitional changes over time in these surveys.

Assets

Household assets represented all that were owned by the household and had money value. AIDIS 2012-13 covered physical assets like land, buildings, livestock, agricultural machinery & implements, non-farm business equipment, all transport equipment, and financial assets like dues receivable on loans advanced in cash or in kind, shares in companies and cooperative societies, banks, etc., national saving certificates and the like, deposits in companies, banks, post offices and with individuals. However, it does not include standing crops and stock of commodities held by households.

Asset	Valuation method in 70th round of AIDIS, 2012-13	Remark
Land & Building	As per their normative value	In earlier rounds, these were derived based on the information provided by households
Other Assets	Market price or cost of construction or purchase price	
Currency notes and coins in hand as on the day of survey	Considered assets	Considered assets only since 1991-92
Bullion and Ornaments	Not considered assets	Considered Assets in 59th round, AIDIS

		2003
Household durables	Not considered assets	Considered assets in earlier rounds
Standing crops & stock of commodities held	Not considered assets	-
Shares and Debentures		In previous round, value of financial assets on the date of survey and disposal and acquisition during reference date to date of survey had been recorded, and finally value as on reference date had been derived.
Owned on the date of survey(*dos*)- if purchased before reference date[2]	market price on *dos*	
Acquired during ref period	Purchase price	
Acquired during ref period but by other than purchase	Market price	
If it is difficult to ascertain market price	Paid up value or value paid if purchased	
Certificates, Annuity schemes	Amount paid at the time of purchase	
Insurance Premium	Total of the premium paid up to the reference date	
Unit Linked Insurance plans (ULIP)	As product of number of units and net asset value (NAV) of the unit	

However, several methodological concerns remain. Inclusion of items such as currency and coins, exclusion of items such as bullions and ornaments and changes in valuation over time, such as that of land value, makes it difficult to compare estimates with earlier rounds.

Liabilities

All claims against a household held by others were considered liabilities of the household. Thus, all loans payable by the household to others, irrespective of whether they were cash loans or kind loans were deemed as liabilities of the households. Unpaid bills of grocers, doctors, lawyers, etc., were also considered liabilities of the household. How liabilities are treated is given below:

Liability	AIDIS 70th round, 2012-13	Remarks
Cash loans:	Consists of- All loans taken in cash irrespective of whether those loans were repaid or proposed to be repaid in cash or in kind Dues payable by the household	Cash and kind loans cannot be added as cash loans are taken as on reference date and kind loans as on date of survey. Since AIDIS 1991-92, household

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[2]Reference Date for AIDIS 70th round, 2012-13 is 30.06.2012

	owing to hire-purchase of goods	indebtedness covers only cash loans. Ideally liabilities should include both.
Kind loans	Contains all loans taken in kind (except the cases of hire-purchase), even if repaid in cash on date of survey	
Other liabilities	Contains- All kind loans payable by the household, Liabilities arising out of goods and services taken from doctors, lawyers, etc. Outstanding taxes, rent payable to Government, other public bodies, landlords etc. Trade debt arising out of commercial transactions of the household Goods from grocers, milkman, etc., if not paid before due date	Considered liabilities since 2002-03
Current liabilities	All "kind loans" and "other liabilities" of a household, as defined above, taken together constituted its current liabilities. Measured as on date of survey.	Not considered part of debt since 1991-92

Here also, there are methodological concerns due to exclusion, inclusion and change in valuation. For example -Notable changes were made in the method of deriving debt data in 2002-03, wherein the information collected for outstanding debt was based on reported values, whereas previously they were derived from the data collected from households. Further, while Incidence of Indebtedness (IoI)[3] and Average Amount of Debt (AOD)[4] are collected as on reference date, the same is measured in SAS as on date of survey. Further, Debt-Asset ratio[5] for a

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[3]Incidence of indebtedness (IOI) is the proportion of population having outstanding loan to total estimated population, with and without current liabilities.
[4] Total outstanding debt per household
[5] The 'debt-asset' ratio is defined as the average amount of debt outstanding on a given date for a group of households expressed as a percentage of the average amount of assets owned by them on the given date. Thus, this ratio reflects the burden of debt on any particular group of households on a given date.

decile class of household assets is reported in terms of debt outstanding while failing to consider borrowing.

From AIRDIS[6] 1961-62, debt is measured as outstanding as on 30 June of the reference year. Indebtedness included both cash loans and current liabilities till 1981-82 and from 1991-92, only cash loans are reported. This seriously underestimated the incidence of indebtedness (RBI, 2000).

The Number of interest rate classes has also varied across AIDIS surveys- between 9 in AIDIS 2012-13 to 14 in AIDIS 1981-82. The interest rate intervals followed in both AIDIS 2002-03 and 2012-13 have remained almost the same, except for a category known as 'not reported', which has been dropped in the latter. The existence of open-ended intervals further makes it difficult to compute weighted average rate of interest (WARI)[7].

Income

There are 3 purposes for compiling information on income distribution. First, is the desire to understand how the pattern of income distribution can be related to patterns of economic activity and the returns to factors of production and to the way in which societies are organised. Second, is the concern to determine the need for both universal and socially targeted actions on different socio-economic groups and to assess the impact. And, third, is the interest in how different patterns of income distribution influence household well-being and people's ability to acquire goods and services.

When the goal of doubling farmers' incomes by the year 2022 was announced in the Union Budget during the year 2015-16, the major challenge was to get a benchmark income levels of farmers. To monitor the progress in achieving the goal there is a need for data on income series. Unfortunately, there is a great dearth of reliable longitudinal data on household income in India though we all know that there is a need for better income data for better policy (Deaton and Kozel, 2005).

Over time, there have been several efforts to estimate incomes from surveys as well as macro level statistics. Chand et al (2015) constructed income series for farmers based on the national income statistics. This is an indirect estimation and based on the household level enquiry. The estimates pertain only to income from agriculture and do not include non-farm income farmers earn. Since farmers, especially small, go for multiple livelihood options, income estimated from household level information would likely be more accurate.

NSSO used interview method of data collection in its ninth round (May 1955–September 1955) and fourteenth round (July 1958–June 1959). It undertook collection of data on receipts and disbursements as part of the Integrated Household Survey (IHS) in its 19thround (July 1964–June 1965) and 24th round (July 1969–June 1970) for complete picture of transactions of household income. NSC recommended reintroduction of the receipts and disbursements block

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[6]The round was conducted only for rural areas and hence, AIRDIS.

[7] The WARI can be worked out, first, by arriving at the product of midpoint of an interest range and the weights of cash loans of that interest range, and, then summing up weighted interest rates. The WARI thus worked out is in nominal terms.

with 365 day reference a la 19 and 25th rounds. In 1983–84, the NSSO once again attempted a pilot enquiry on household income by collection of data on household income directly from sources of earnings from one set of household, collecting data on household consumption and saving from a second set of sample households, and, collecting data on income, consumption and saving from a third set of households. The objective was to explore the possibility of evolving an operationally feasible and sound technical methodology.   During 59th (2002-03) and 70th (2012-13) rounds, NSSO has estimated the incomes of agricultural households which were used to assess the possibility of doubling incomes of the farmers by Satyasai and Bharti (2016) and Satyasai and Mehrotra (2016).

Other efforts in estimating incomes was through the Market Information Survey of Households (MISH) of National Council of Applied Economic Research (NCAER) since mid-1980s. MISH, initiated to estimate market size, penetration for a variety of consumer goods, profiling consumer households, is one of the very few consistent sources of income on regular basis. The NCAER surveys suffered from certain deficiencies and hence, led to underestimation (Bakshi *et al*, 2012). ICE 3600 surveys of 2014 and 2016 done by People Research on India's Consumer Economy are other efforts in recent times to estimate household level incomes(PRICE, 2014, 2016). These surveys are basically consumer surveys. The income estimates of these surveys are much higher than the NSSO or NAFIS, though the estimates cannot be compared strictly due to different focus and sample coverage of these surveys.

However, there are several problems in measuring income directly. Some of them are:

- ambiguities in choice of unit of sampling
- the sampling frame
- the reference period of data collection
- items of information.
- Seasonality effect
- lack of availability of accounts from employer households
- significant amount of purchases through credit
- hidden income generated through wages paid in kind

Household income consists of regular receipts such as:

- wages and salaries,
- income from self-employment,
- interest and dividends from invested funds
- pensions or other benefits from social insurance, and,
- other current transfers receivable

In SAS 2012 and NAFIS 2016 – income sources considered are crop cultivation, livestock, non-farm sector, others, and remittances. The income from crop cultivation and livestock is measured as gross receipts minus paid out costs. One limitation of both the surveys is not following the standard cost concepts followed in Cost of Cultivation Surveys of Commission for Agricultural Costs and prices (CACP), which may overestimate incomes (Swaminathan 2018 a). Income estimates can be better derived from a detail cost accounting (Bakshi, 2010) since

memory recall problem can be one issue in getting good estimates. In fact, systematic efforts to measure income from crop cultivation have started from NSSO surveys of 5th to 7th rounds, village studies, Farm Management Studies by Ministry of Agriculture which continued for one and a half decades till 1971 and, Comprehensive Cost of Cultivation Studies under Directorate of Economics and Statistics, Ministry of Agriculture, Government of India with constant improvements in methodology but not reaching perfection still. For detail account of these efforts to estimate crop incomes, see Surjit (2017).   CACP data notwithstanding their comprehensive nature are at crop level and does not estimate household level income.   To fill this gap, Project on Agrarian Relations in India (PARI) through its village studies measured household incomes closely following CACP methodology (Swaminathan, 2017).

One needs to document a range of economic activities and their costs and returns, to estimate income, which the Project on Agrarian Relations in India (PARI)attempted through its village-level surveys. Swaminathan (2018 a),drawing on the PARI experience, points out two problems with the NAFIS data on incomes. The first pertains to the reference period and the other is about limited information collected on costs and returns. The survey for NAFIS was undertaken during January to June 2017 and the reference year for agriculture is July 2015 to June 2016, and for all other information the reference year is the preceding 12 months. The questions raised here are: how one can add crop incomes for an agricultural year can be added to other incomes and, will it not lead to memory recall if we enquire of crop information for the agriculture year 2015-16 during Jan -June 2017.   While the questions were valid, due to certain reasons beyond our control, the field work could not take off in the second half of the calendar year 2016. Hence, NAFIS had to follow mixed reference period and, also measured many aspects as on the date of survey instead of as on a fixed reference date. Another point raised by Swaminathan (2018 a) is about not following the methodology of Commission on Agricultural Costs and Prices to account for all the costs leading to underestimation of costs in the approach used by NAFIS, implying that the incomes from crop production reported are likely to be over-estimated. While the point is well taken, it may be mentioned NAFIS followed methodology followed NSSO 70th round for some of these estimates. These methodological issues would be taken care of in subsequent survey. Another criticism of NAFIS methodology is based on the finding that lower decile classes of consumption expenditure have surplus income over expenditure while it is usually expected that poorer households would have deficit. This is a problem of perception. The incomes derived from wage labour, MGNREGA scheme, cheaper food through PDS, etc during recent years are likely to augment the incomes of poorer sections, which can be one reason behind surplus incomes over consumption of poorer sections.

Savings and Investment

Saving is the surplus of income over consumption expenditure. This is expenditure (or income account)approach. This measure of savings is sensitive to measurement errors in income and/or consumption. As a result, even small errors or revisions in income and expenditure can produce large errors or revisions in savings estimates. Rural household saving survey taken up by the NCAER in 1963 followed balance sheet (asset account) approach. In this method, savings are measured through changes in physical and financial assets.

Savings can be estimated through aggregative or the sample survey approach. The former makes use of institutional data on saving in different forms, in respect of both physical and financial

components. The survey method measures household saving as the difference between changes in physical as well as financial assets minus changes in liabilities adjusted for net capital transfers and net gains. Survey information covered: 1) housing and buildings, 2) fixed farm investment, 3) fixed farm business investment, 4) changes in inventories, 5) changes in livestock and 6) consumer durables. Besides these, data were also collected on the financial assets of households. For example, composition of saving and investment in the total rural household sector:

Item	Amount (in Rs. Crores)
1) land	67
2) residential and non-residential housing and buildings	243
3) fixed farm investment	218
4) fixed business investment	37
5) net acquisition of consumer durables	37
6) changes in stocks other than livestock	76
7) changes in livestocks	88
8) financial assets	179
9) gold and silver	39
10) Gross savings (total of 1 to 9)	984
minus 11) increase in liabilities	219
12) capital transfers	29
13) Net saving and investment (10 – 11 - 12)	736

Here saving and investment are treated synonymously. This conceptualization though relevant from economic sense, cannot reveal savings behaviour enough from a banking perspective. Hence, we measured savings behaviour differently in NAFIS where savings are defined as "any money deposited with bank, post office, SHGs, chit funds or money kept aside for emergencies even at home." Investment is measured separately as sum of financial and physical assets. Amount in saving bank account is treated as savings and term deposits are treated as financial investment. Physical assets are on construction and repair of residence, farm buildings, acquiring equipment, tractors, machinery, etc. Following NSSO methodology, bullion is not added.

It is difficult to estimate and interpret savings amount, as either a stock or flow.   If a household reports savings of Rs.10000 during the year, the amount may be interpreted as the total of series of saving over the year. This is one view. Some of the episodes of the savings may be for very short term and may not be considered as savings since money is deposited and withdrawn frequently. Alternatively, savings can be measured in stock terms, as on a given date. When savings are measured as on, say, 31 March 2018, the amount reported may be result of series of transactions and hence, cannot reflect the true savings behavior of a household over the year. It depends on the purpose of the survey as to what definition and aspects of savings shall be considered. For example, in NAFIS we wanted to capture savings habits and patterns household members display. Hence, we went by the first approach and measured who in the household saved and where and how many times money deposited, how many had bank accounts, etc. Similarly, investment pattern is measured by soliciting information on various

items of investment during the year following the methodology of AIDIS. Swaminathan (2018 b), however, favours measuring savings as difference between income and consumption and also points anomaly between savings and investment estimates. NAFIS followed the methodology as it did for the reasons mentioned above. It went beyond measuring the income-consumption difference.

3   Questionnaire

Questionnaire is an important tool for large sample surveys which employ investigators of varying experience. Also, the line of control between investigator on one end, the principal survey coordinator and the report generator on the other is quite long and hence, lot of information can be lost. Therefore, questionnaire and reference manual should be clear. Single question approach does not work. Straight questions too may not work as in several cases. For example, see the following example to collect information on crop insurance.

Q. Did you have crop insurance?   Yes/No

Many farmers may not be knowing the answer as crop insurance premium is deducted by the banker out of crop loan. Such a question should be preceded by a few other questions such as:

Q. Do you know that crop insurance premium is deducted from the bank loan account automatically?

Q. Do you know that you can buy crop insurance even if you have not taken any crop loan?

Often, a complex aggregate like income is estimated based on straight question as is done by MISH of NCAER where income data was obtained by asking a single question: 'What is your annual household income from all sources?' Similar, consumption estimates are obtained in surveys, other than NSSO consumer expenditure surveys, through less detailed questionnaire. While the precision of such estimates can be low leading to overestimation of savings/surplus, one must keep the trade-off between the precision and costs of making the survey too exhaustive to be unwieldy. The survey needs to stay focused on the core purpose. The problems of underestimation of income from surveys can be minimised through designing appropriate questionnaire (Bakshi *et al,* 2012).

Various surveys follow various questions to collect data depending on the scope and focus of the survey. There can be series of seminars/workshops to discuss the concepts, definitions and standardise common minimum questions so that any survey covering a particular financial indicator should follow common concepts, definitions and questions to build a comparable data base.

4   Conclusions and Suggestions

There is variation across surveys on definition and measurement of financial aspect of households. Comparability across surveys and over years, vanishes, due to exclusion, inclusion and change in valuation items. There is no consensus and codified common understanding on methodology. Thus,

- We may have a series of colloquiums on concepts of financial indicators used in surveys.

- We may review the evolution of definitions, scope and methodology for various estimates and come out with a consensus on adoptable approach. For instance - EPWRF (Economic and Political Weekly Research foundation) surveyed AIDIS over the rounds. Similarly, Review for Agrarian Studies during 2017 published research on income from farming which covers concepts of farm income and the methods followed over time besides discussing income patterns based on village studies.

- We may standardize modules for various lines of enquiry. For instance - If any one surveys household savings, a standard template with common minimum approach and coverage may be prescribed.

- A regulatory body, such as NSC may coordinate various surveys done across the country.

References

Bakshi, Aparajita (2010). *Rural Household Income.* PhD thesis submitted to the Department of Economics, University of Calcutta, Kolkata.

Bakshi, Aparajita, Rawal, Vikas, Ramachandran, V.K. and Swaminathan, Madhura (2012). *Household Income Surveys in India: Lancunae and Illustrations from Village Surveys*. Paper Prepared for the 32nd General Conference of The International Association for Research in Income and Wealth, Boston, USA, August 5-11. http://www.iariw.org/papers/2012/SwaminathanPaper.pdf

Chand, Ramesh, Saxena, Raka and Rana, Simmi (2015). Estimates and analysis of farm income in India, 1983-84 to 2011-12. *Economic and Political Weekly*, May 30, **50**(**32**).

Deaton, A. and Kozel, Valerie (2005).*Data and Dogma: The Great Indian Poverty Debate*. Oxford University Press, 20:177-199.

EPW Research Foundation (EPWRF) (2014).*Agricultural Credit in India: Trends, Regional Spread and Database Issues.* Occasional Paper 59, NABARD, Mumbai.

Kumar, Mohinder (2016). Concept of farmer in NSSO's situation assessment surveys of 2003 and 2013: Incomparability issues and implications. *Rural Pulse*, Issue - XVI, July - August 2016, NABARD, Mumbai.

National Bank for Agriculture and Rural Development (2018*). All India Rural Financial Inclusion Survey 2016-17.* NABARD, Mumbai.

National Sample Survey Organisation (NSSO) (2014).*Key Indicators of Debt and Investment in India.* NSS 70TH Round, Ministry of Statistics and Programme Implementation, Government of India.

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

PRICE(People Research on India's Consumer Economy) (2014). *National Survey of Indian Consumers* (ICE 360[0] Survey, 2014), Household Data Code Book. New Delhi.

PRICE (People Research on India's Consumer Economy)(2016). *Household survey on India's citizen environment and consumer economy* (ICE 360[0] Survey, 2016).   Url:

http://ice360.in/uploads/files/ice360-survey-2016-design-and-validation_1.pdf accessed on 23 Jan 2019.

Rajakumar, J. Dennis, Mani, Gyanendra, Shetty, S.L. and Karmarkar, Vishakha M. (2018). *Household Indebtedness and Assets in AIDIS: A Critical Exposition and Review*. Occasional Paper No: 65, NABARD, Mumbai.

Roy, Bina (1975). A study of the survey data used in India to estimate saving, capital formation and allied aggregates. In Dandekar, V.M. and P. Venkataramaiah (Editors)*Data Base of Indian Economy: Role of sample surveys*, Volume II, Statistical Publishing Society, Calcutta and Indian Econometric Society, Hyderabad

Satyasai, K.J.S. and Bharti, Sandhya (2016). Doubling farmers' income: way forward. *Rural Pulse*, Issue - XIV, March-April 2016, NABARD, Mumbai.

Satyasai, K.J.S. and Mehrotra, Nirupam (2016). Enhancing farmers' income. Paper presented in Foundation Day Seminar of NABARD, New Delhi.

Surjit, V. (2017). The evolution of farm income statistics in India: A review. *Review of Agrarian Studies*, July–December, 2017,**7**(**2**), 39-61.

Swaminathan, Madhura (2017). In focus: Crop incomes in India. *Review of Agrarian Studies*, July–December,**7**(**2**), 1-3.

Swaminathan, Madhura (2018 a). NABARD National Financial Inclusion Survey (NAFIS) – 1&2. http://fas.org.in/blog/nabard-national-financial-inclusion-survey-nafis-1/ accessed on 8 Oct 2018.

Swaminathan, Madhura (2018 b). NABARD National Financial Inclusion Survey (NAFIS) – 2: Are Rural Households Really Saving? http://fas.org.in/blog/nabard-national-financial-inclusion-survey-nafis-2/ accessed on 8 Oct 2018.