Indian Household Balance Sheet: Accounting issues and financial wealth accumulation

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Abstract

In this paper, we compile India's household balance sheet (HBS) starting from 1970-71 to 2017-18 and use the compiled HBS to study the accumulation of financial wealth by the Indian household sector. Specifically, we begin by addressing some technical issues faced while compilation, including the definition of "household" sector and assumption regarding the initial value of stock. We cumulate the FoF data to arrive at the final Household balance Sheet. Next, we study the evolution of the structure of Indian household finance over time and the constitution of asset classes making up the asset as well as the liability side of the balance sheet. Using two indicators of risk assessment, viz. liabilities-to-financial assets ratio and liabilities-to-disposable income ratio we observe balance sheet deterioration and increasing indebtedness in the Indian household sector. Unlike other major economies of the world, indebtedness in Indian household sector has continued to climb up even after the global financial crisis of 2008. We find that All India Debt and Investment Survey (AIDIS) grossly underestimates the level of indebtedness in the household sector. We conclude by recommending that India should start an annual publication of Balance Sheet for the household sector within the National Account Statistics.

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1. Introduction

Sectoral balance sheets offer a key stock perspective and shed light on the structure of sectoral finance, wealth accumulation and the associated default risks, along with other statistical and macroeconomic issues. The national accounts are supposed to have balance sheets for each sector. Unfortunately, as far as we know, India does not have an official balance sheet for the household sector. In most high-income countries Household Balance Sheets (HBS) are available quarterly, or at least annually (e.g. OECD publishes this data for its member countries in *'Households' financial assets and liabilities'* (stat.oecd.org)). Recently, an increasing number of economies have begun completing their national accounts by publishing sectoral balance sheets, at least for financial assets and liabilities (Shorrocks et al., 2016). Alternative estimates of the HBS for China have been released, viz. Li (2018) and Piketty et al. (2017). This paper is an attempt in the same direction - here, we compile a balance sheet for the Indian household sector.

Preparing balance sheets for any sector requires the availability of data on its stocks of assets and liabilities. Such data is not available in Indian National Accounts Statistics (NAS) simply because the data collection efforts of Indian Ministry of Statistics and Programme Implementation (MoSPI) focus on data needed to compile the current accounts, rather than on data relevant to accumulation accounts. The approach we use here, to derive the HBS, is a perpetual inventory approach which relies on accumulating Flow of Funds (FoF) while making appropriate technical adjustments and assumptions regarding the initial value of stock. These FoF data are available at least back to 1970-71.

The availability of FoF data is going to form the crux of the methodology employed for the compilation of HBS in this paper. The rest of the paper is organized as follows: Section 2 describes the data sources and major accounting issues related to balance sheet compilation. Section 3 analyses the evolution of the net financial position of India household sector over time and diagnoses the risks arising from increasing household indebtedness. Section 4 concludes with some caveats and suggestion pertinent to future avenues of research.

2. Data and Methodology: Major accounting issues

According to Indian system of National Accounts (CSO, 2012), "household" sector in India comprises of individuals, unincorporated establishments (like sole proprietorships and partnerships), non-profit institutions (like educational institutions, charitable trusts etc.) and all non-government non-corporate enterprises (like farm and non-farm businesses). Technically, this interpretation is slightly different from the definition of "households" as proposed by the UN System of National Accounts (SNA 2008) which includes only individuals and group of persons sharing the same living accommodation or pooling some or all of their income and wealth, and thereby excluding non-profit institutions and unincorporated enterprises. In this article, we will continue to follow the CSO (2012) definition of "household", unless stated otherwise. The data on various balance sheet items presented here has been sourced from DBIE-RBI (Database of Indian Economy as maintained by Reserve Bank of India). The gross financial savings made by the household sector is estimated by net changes in the financial position of households for a list of financial assets: currency, deposits, trade debt, shares and debentures, claims on government, insurance funds, and provident and pension funds. The annual flows for liabilities are also compiled instrument-wise: bank advances, loans and advances by cooperative banks & societies, loans by financial corporations & non-banking companies, loans and advances from government, and loans from insurance companies. Since the household sector is an unorganized sector and its balance sheets are not available, the financial flows for various instruments are either estimated through – (i) residual approach, i.e., after duly accounting for such instruments held by public and private corporate sectors, or (ii) through firm information collected from the accounts of counterpart institutions transacting with the households, or (iii) through existing information on sectoral distributions (direct or survey). The only two instruments for which the flow data is directly available are Pension funds and Life Insurance funds:

$$\Delta(P.F.\,\&\,Pension\ Fund) = Contribution + Interest - Withdrawls$$

$$\Delta(Life\ Insurance\ Funds) = Income - Expenditure$$

The FoF account for the household sector, or for that matter the entire FoF matrix, does incorporate transactions, revaluations and other changes in the volume of assets (OCVA); however, this disaggregation is not compiled separately by RBI as of now. Essentially, Flow-

of-Funds (FoF) accounts, as compiled by RBI, represent annual changes in stock – period to period changes in the outstanding amounts of financial assets and liabilities. This allows us to use perpetual inventory approach to derive HBS from the FoF data for the household sector. The approach relies on accumulating FoF over time while making appropriate technical adjustments and assumptions regarding the initial value of stock.

In this article, we do not attempt to estimate the non-financial component of HBS, mainly due to the paucity of reliable FoF data for physical assets[2], viz. land holdings, dwellings, precious metals, automobiles and other consumer durables.

The FoF data for Net Financial Savings (= Gross Financial Saving – Changes in Financial Liabilities) is available starting from 1950-51. However, constrained by the limitations on the availability of segregated FoF data for individual financial items (except for Currency, Provident & pension funds and Shares & Debentures), we begin cumulating FoF flows starting from 1970-71. The computed household balance sheet is presented in Table 1. The initial stock value for all financial items is assumed to be zero on 31st March 1970. Now using the end-of-year FY 1969-70 stock data as a benchmark position, the subsequent stock data are constructed by incrementing the flow data collected from the net transactions reported in FoF data for each item. Fortunately, there exists FoF data for Net Financial Savings, Currency and Provident fund & pension funds starting from 1950-51 in older CSO records and estimates of stock data on 31st March 1951 for these items by Moore (2007). This allows us to test the validity of our zero initial value assumption and magnitude of deviations caused, if any. Using Moore's estimate for stock of Financial Wealth on 31st March 1951 and FoF data for Net Financial savings from 1950-51 to 2017-18, we are able to compile an alternate time series for stock of Financial Wealth held by Indian households, referred to as "*Financial Wealth (Moore's estimate in 1951)"* in Table 1. As apparent from the last two rows of Table 1, the two series converge and the stock of financial wealth as estimated by the two series differ only by 0.08% in 2017-18. This indicates that our assumption of ascribing zero value to the stock of wealth on 31st March 1970 doesn't cause significant deviations in the recent past as corroborated by Fig. 1, which shows that deviations becomes less than 3% after 1990-91 and

[2] Note that survey estimates for '*household*' holdings in these non-financial assets are available in various rounds of NSSO surveys and All India Debt and Investment Survey (AIDIS) which are conducted from time to time.

further falls below 1% after 1996-97. Therefore, for the rest of the paper our period of analysis will be from 1990-91 to 2017-18 for all HBS items with constraints on FoF time series data availability, i.e., items for which FoF data is not available before 1970-71 in DBIE-RBI.

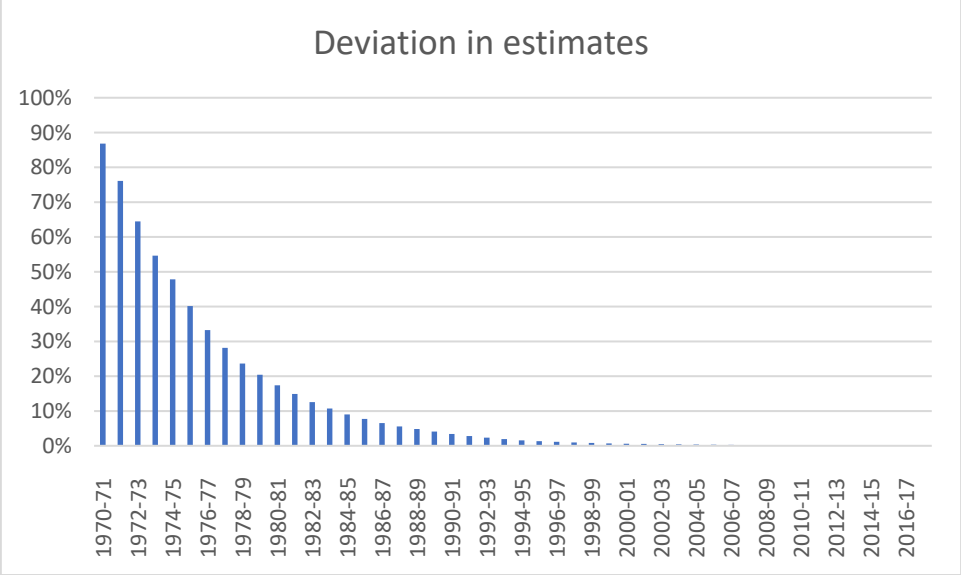

Figure 1. Deviation in Net Financial wealth as estimated by the two series

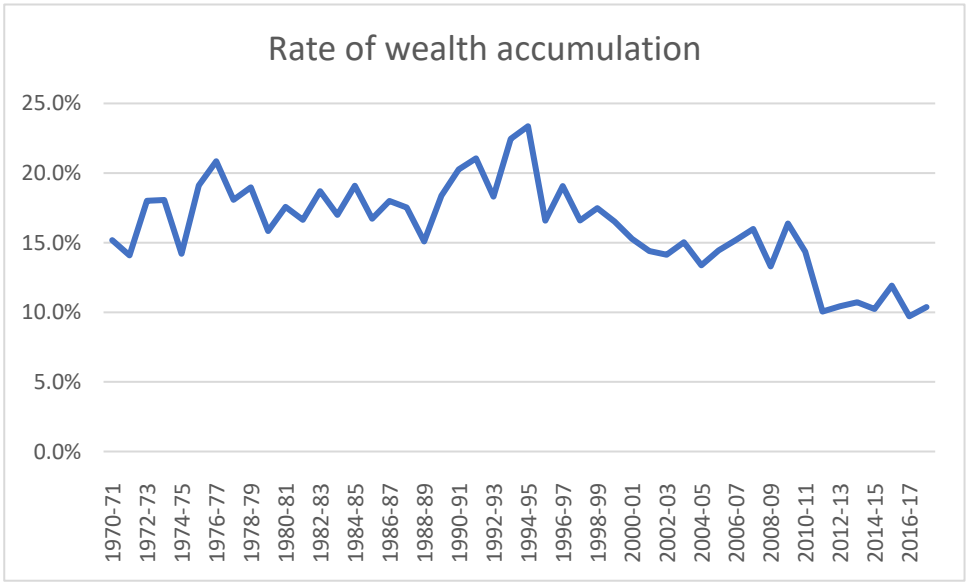

Figure 2. Rate of accumulation of financial wealth

An apparent reason for the validity of our assumption is the consistently high rate of financial wealth accumulation by Indian households which has remained above or close to 10% since 1970-71 as illustrated in Fig. 2. A consistently high accumulation rate implies that absolute value of net financial saving in 2017-18 (₹12,069 bn) will dwarf the net financial savings made

by Indian household in 1970-71 (₹15 bn) thereby trivializing the contribution of savings made way back. Notice that the rate of financial wealth accumulation has dipped significantly post 2008 financial crisis from 15% levels to 10% levels and have since remained there.

The same pattern of convergence is observed for individual items in the household's balance sheet: Currency (see Fig. 3) and Provident & pension funds (see Fig. 4); for both these items, the two estimates have come pretty close in the recent past. In the year 2017-18, the deviation in the two stock estimates for Currency was 0.15% and for Provident & pension funds, it was 0.11%.

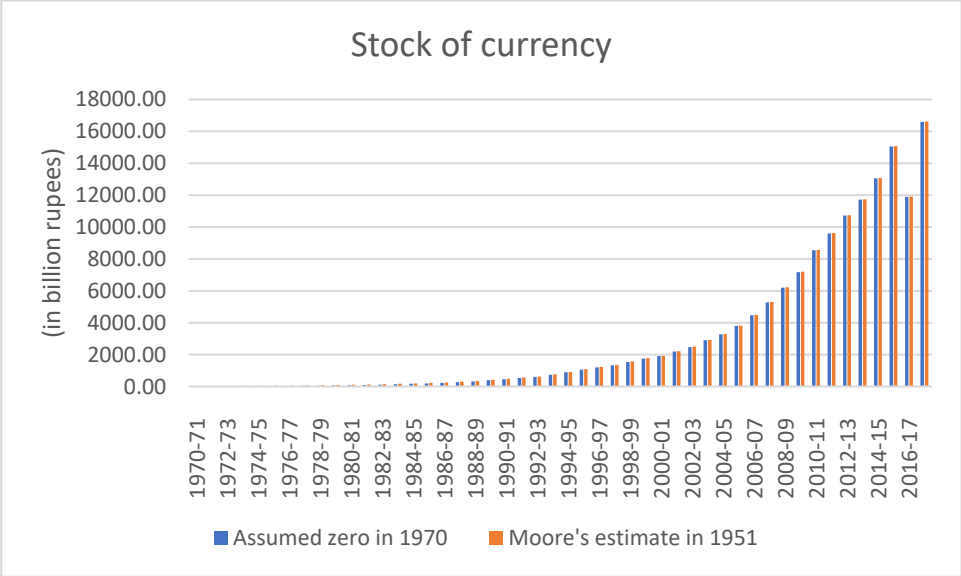

Figure 3. Stock of Currency as estimated by the two series

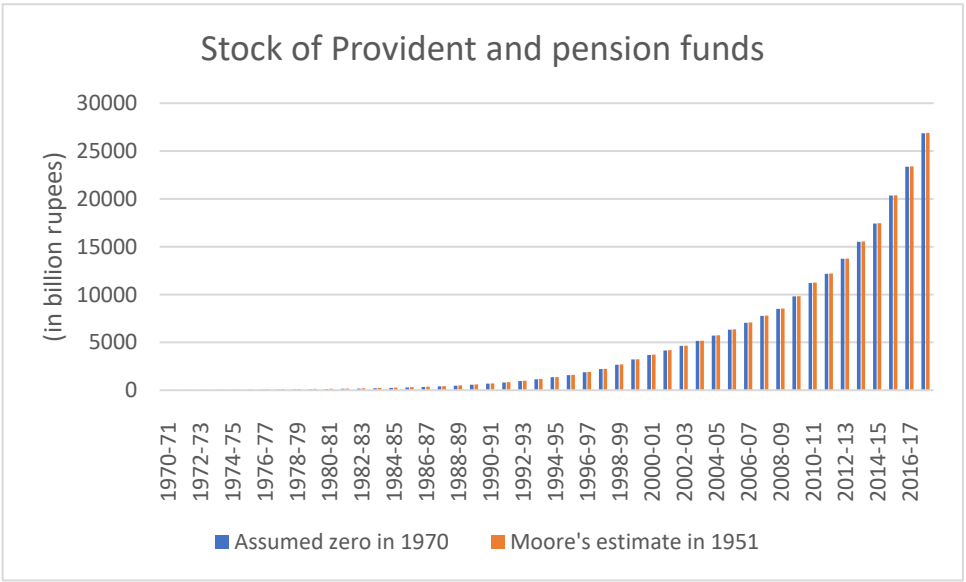

Figure 4. Stock of Provident & pension funds as estimated by the two series

Table 1

India's Household Balance Sheets, 1970-71 to 1981-82

(all figures are in billion rupees, current prices)

	1970-71	*1971-72*	*1972-73*	*1973-74*	*1974-75*	*1975-76*	*1976-77*	*1977-78*	*1978-79*	*1979-80*	*1980-81*	*1981-82*
1. Financial Assets	**21.1**	**44.29**	**74.11**	**109.89**	**143.6**	**194.27**	**260.78**	**332.32**	**427.15**	**529.64**	**650.82**	**787.03**
1.1. Currency	3.45	7.26	13.42	21.54	21.71	24.92	36.22	43.27	58.09	71.47	87.72	97.27
1.2. Deposits	8.71	20.31	34.2	51.75	72.66	93.88	131.69	171.52	224.07	279.78	342.79	410.1
1.2.1. Bank Deposits	7.54	17.78	29.92	45.03	61.57	82.77	121.97	157.18	203.44	250.03	305.53	357.47
1.2.2. Non-banking Deposits	0.67	1.71	2.79	3.24	4.16	5.46	6.6	8.87	11.19	15.96	19.74	28.68
1.2.3. Trade Debt (owned)	0.5	0.82	1.49	3.48	6.93	5.65	3.12	5.47	9.44	13.79	17.52	23.95
1.3. Shares & Debentures	0.94	1.55	1.81	2.25	3.62	4.77	5.64	8.89	10.64	12.78	17.21	22.34
1.4. Claims on government	1.05	1.03	1.83	2.7	3.42	12.41	12.6	15.85	18.12	23.43	30.55	48.39
1.5. Insurance funds	2.07	4.58	7.65	11.21	14.65	18.88	24.12	30.04	36.87	44.6	53.75	64.12
1.6. Provident and pension funds	4.90	10.56	17.03	24.39	34.15	46.39	57.97	71.01	86.81	103.56	124.78	149.64
2. Financial Liabilities	**5.91**	**12.87**	**19.02**	**26.77**	**34.47**	**45.16**	**59.72**	**76.83**	**104.21**	**139.72**	**174.8**	**215.13**
2.1. Bank advances	5.09	10.01	14.94	21.68	27.73	36.72	49.04	63.85	85.1	113.78	144.71	179.78
2.2. Advances from government	0.69	2.01	2.67	2.88	3.48	4.15	5.33	6.28	8.09	10.06	11.57	13.05
2.3. Advances from other financial institutions	0.38	0.91	1.36	1.8	2.59	3.37	4.24	5.49	9.01	12.94	14.76	17.2
2.4. Advances from co-operative non-credit societies	-0.25	-0.06	0.05	0.41	0.67	0.92	1.11	1.21	2.01	2.94	3.76	5.1
Financial Wealth (1-2)	**15.19**	**31.42**	**55.09**	**83.12**	**109.13**	**149.11**	**201.06**	**255.49**	**322.94**	**389.92**	**476.02**	**571.9**
Financial Wealth (Moore's estimate in 1951)	115.25	131.48	155.15	183.18	209.19	249.17	301.12	355.55	423.00	489.98	576.08	671.96

Source: Author calculations

Table 1 (contd…)

India's Household Balance Sheets, 1982-83 to 1993-94

(all figures are in billion rupees, current prices)

Item/*Year*	*1982-83*	*1983-84*	*1984-85*	*1985-86*	*1986-87*	*1987-88*	*1988-89*	*1989-90*	*1990-91*	*1991-92*	*1992-93*	*1993-94*
1. Financial Assets	**948**	**1135.9**	**1371.39**	**1627.01**	**1945.5**	**2306.56**	**2706.14**	**3188.47**	**3777.55**	**4458**	**5261.54**	**6357.72**
1.1. Currency	117.53	145.29	173.83	196.03	226.93	275.08	317.64	394.19	456.7	538.27	603.89	737.56
1.2. Deposits	489.7	578.03	686.63	806.45	963.87	1128.91	1295.77	1446.4	1642.5	1839.02	2180.57	2647.57
1.2.1. Bank Deposits	424.08	503.86	602.45	708.48	853.58	1000.32	1147.79	1287.66	1475.43	1653.91	1949.09	2311.45
1.2.2. Non-banking Deposits	37.38	47.57	57.17	71.4	86.52	99.78	115.58	133.97	146.83	169.01	229.36	345.9
1.2.3. Trade Debt (owned)	28.24	26.6	27.01	26.57	23.77	28.81	32.4	24.77	20.24	16.1	2.12	-9.78
1.3. Shares & Debentures	31.01	38.21	51.41	71.21	98.32	118.41	144.04	192.38	276.48	435.35	573.59	721.31
1.4. Claims on government	60.82	80.58	111.65	145.78	176.7	213.5	268.28	335.86	414.69	463.14	501.99	571.07
1.5. Insurance funds	76.47	90.23	105.79	123.58	145.17	171.06	205.29	249.44	305.43	375.46	446.6	542.08
1.6. Provident and pension funds	178.27	208.81	245.67	287.11	337.66	402.75	478.27	573.35	684.90	810.12	958.62	1141.85
2. Financial Liabilities	**250.44**	**302.82**	**360.15**	**429.98**	**515.08**	**607.95**	**736.21**	**838.09**	**930.76**	**990.73**	**1141.29**	**1289.88**
2.1. Bank advances	209.24	253.93	303.95	364.38	437.83	519.42	633.78	716.81	791.1	827.99	942.2	1061.92
2.2. Advances from government	14.38	16.41	18.38	20.43	24.78	28.25	32.99	40.46	46.57	51.26	55.69	62.79
2.3. Advances from other financial institutions	20.69	25.29	29.49	35.95	41.17	46.72	53.85	64.38	75.92	91.43	120.4	139.07
2.4. Advances from co-operative non-credit societies	6.13	7.19	8.33	9.22	11.3	13.56	15.59	16.44	17.17	20.05	23	26.1
Financial Wealth (1-2)	**697.56**	**833.08**	**1011.24**	**1197.03**	**1430.42**	**1698.61**	**1969.93**	**2350.38**	**2846.79**	**3467.27**	**4120.25**	**5067.84**
Financial Wealth (Moore's estimate in 1951)	797.62	933.14	1111.30	1297.09	1530.48	1798.67	2069.99	2450.44	2946.85	3567.33	4220.31	5167.90

Source: Author calculations

Table 1 (contd…)

India's Household Balance Sheets, 1994-95 to 2005-06

(all figures are in billion rupees, current prices)

Item/*Year*	*1994-95*	*1995-96*	*1996-97*	*1997-98*	*1998-99*	*1999-00*	*2000-01*	*2001-02*	*2002-03*	*2003-04*	*2004-05*	*2005-06*
1. Financial Assets	**7812.73**	**9056.1**	**10641.29**	**12358.69**	**14429.72**	**16791.85**	**19266.6**	**22126.94**	**25360.66**	**29255.39**	**33727.04**	**39568.96**
1.1. Currency	896.72	1061.97	1198.4	1326.2	1544.42	1752.87	1909.19	2190.75	2477.07	2903.82	3273.57	3795.08
1.2. Deposits	3309.91	3838.78	4600.52	5401.14	6203.47	7060.6	8039.56	9164.59	10516.52	12093.94	13844.15	16504.31
1.2.1. Bank Deposits	2869.8	3269.21	3778.23	4519.22	5313.55	6142.47	7089.56	8219.89	9446.86	11006.2	12756.65	15413.81
1.2.2. Non-banking Deposits	461.37	593.35	853.15	920.48	997.18	1035.62	1065.66	1062.19	1187.15	1206.6	1207.43	1212.65
1.2.3. Trade Debt (owned)	-21.26	-23.78	-30.86	-38.56	-107.26	-117.49	-115.66	-117.49	-117.49	-118.86	-119.93	-122.15
1.3. Shares & Debentures	895.12	986.13	1090.20	1140.79	1210.72	1456.22	1544.70	1589.44	1648.73	1688.46	1776.87	2115.44
1.4. Claims on government	702.93	798.81	916.64	1138.26	1420.46	1710.31	2100.38	2619.76	3180.63	4054.35	5118.55	5990.23
1.5. Insurance funds	655.78	794.72	955.93	1150.03	1384.31	1670.75	2009.36	2421.73	2941.82	3464.22	4144.08	4979.02
1.6. Provident and pension funds	1356.00	1579.44	1883.33	2206.00	2670.25	3209.57	3688.71	4154.97	4635.07	5150.51	5709.30	6328.80
2. Financial Liabilities	**1537.58**	**1723.78**	**1892.35**	**2141.54**	**2409.27**	**2769.94**	**3087.73**	**3605**	**4207.74**	**4907.56**	**6108.25**	**7945.75**
2.1. Bank advances	1278.1	1434.15	1570.9	1769.75	1977.68	2276.27	2530.66	2964.2	3508.08	4086.93	5206.64	6962.28
2.2. Advances from government	66.96	69.71	72	76.88	86.32	98.59	111.78	122.89	125.05	122.36	117.21	112.32
2.3. Advances from other financial institutions	163.16	187.14	213.07	255.1	301.98	348.29	395.7	464.48	516.95	639.56	722.66	806.64
2.4. Advances from co-operative non-credit societies	29.36	32.78	36.38	39.81	43.29	46.79	49.59	53.43	57.66	58.71	61.75	64.52
Financial Wealth (1-2)	**6275.15**	**7332.32**	**8748.94**	**10217.15**	**12020.45**	**14021.91**	**16178.87**	**18521.94**	**21152.92**	**24347.83**	**27618.79**	**31623.21**
Financial Wealth (Moore's estimate in 1951)	6375.21	7432.38	8849.00	10317.21	12120.51	14121.97	16278.93	18622.00	21252.98	24447.89	27718.85	31723.27

Source: Author calculations

Table 1 (contd…)

India's Household Balance Sheets, 2006-07 to 2017-18

(all figures are in billion rupees, current prices)

Item/*Year*	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
1. Financial Assets	**47215.67**	**54939.52**	**62208.41**	**72106.39**	**82905.06**	**92232.34**	**102872.75**	**114780.46**	**127352.93**	**142560.2**	**156608.67**	**175417.41**
1.1. Currency	4467.02	5279.80	6201.68	7171.08	8542.39	9604.81	10720.02	11715.22	13048.67	15053.85	11889.12	16593.26
1.2. Deposits	20908.2	24948.79	29359.42	33508.15	39110.36	44515.36	50577.1	57246.68	63370.32	69827.07	79540.02	84544.76
1.2.1. Bank Deposits	19706.63	23596.71	27775.04	31756.45	37239.44	42499.14	48249.94	54642.98	60435.7	66668.86	76087.6	80841.34
1.2.2. Non-banking Deposits	1258.49	1271.35	1418.77	1603.93	1654.92	1755.13	2034.24	2262.4	2551.55	2734.48	2985.09	3194.08
1.2.3. Trade Debt (owned)	-56.92	80.73	165.61	147.77	216	261.09	292.92	341.3	383.07	423.73	467.33	509.34
1.3. Shares & Debentures	2623.91	3366.99	3343.66	3792.07	3809.36	3974.58	4144.85	4334.15	4537.79	4986.72	5349.37	6858.85
1.4. Claims on government	6182.21	5898.94	5623.43	6058.18	6353.63	6134.74	6063.65	6294.18	6303.87	6983.26	7608.78	8430.3
1.5. Insurance funds	6127.53	7826.01	9354.62	11952.83	14053.85	16010.58	17810.07	19854.76	22847.98	25547.58	29039.56	32311.89
1.6. Provident and pension funds	7053.83	7769.27	8503.25	9801.74	11213.13	12169.93	13734.72	15513.13	17421.96	20339.38	23359.48	26856.02
2. Financial Liabilities	**10771.81**	**12653.62**	**14289.6**	**16324.08**	**19103.83**	**22005.03**	**25309.28**	**28896.07**	**32664.39**	**36575.28**	**40322.29**	**47061.51**
2.1. Bank advances	9698.94	11493.96	13041.31	14985.74	17675.84	20400.93	23488.4	26511.76	29336.19	32084.06	34593.1	38897.37
2.2. Advances from government	105.82	103.34	101.35	99.88	98.89	101.9	103.58	110.23	112.16	116.11	124.61	126.6
2.3. Advances from other financial institutions	900.26	987.08	1075.2	1164.19	1252.23	1425.33	1640.43	2197.21	3139.17	4298.24	5527.71	7960.68
2.4. Advances from co-operative non-credit societies	66.81	69.26	71.76	74.28	76.88	76.88	76.88	76.88	76.88	76.88	76.88	76.88
Financial Wealth (1-2)	**36443.86**	**42285.9**	**47918.81**	**55782.31**	**63801.23**	**70227.31**	**77563.47**	**85884.39**	**94688.54**	**105984.92**	**116286.38**	**128355.90**
Financial Wealth (Moore's estimate in 1951)	36543.92	42385.96	48018.87	55882.37	63901.29	70327.37	77663.53	85984.45	94788.60	106084.98	116386.44	128455.96

Source: Author calculations

3. Household's Net Financial Position: Wealth Analysis and Risk Diagnosis

The Net Financial Position (net of liabilities) of Indian Household sector in 2017-18 was +₹128 trillion. The net financial wealth per capita has grown significantly from ₹208 in 1970-71 to ₹95,921 in 2017-18, as depicted in Fig. 5.

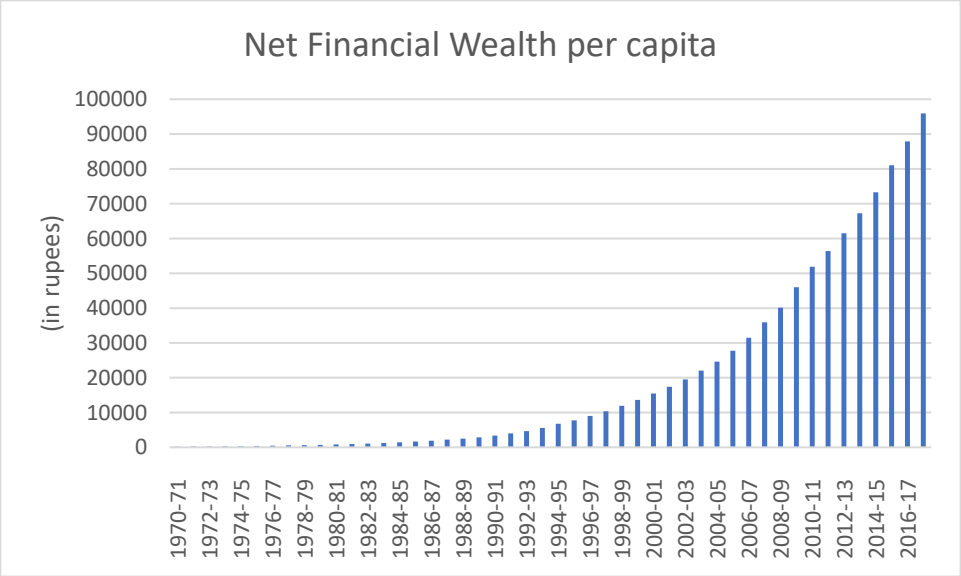

Figure 5. Evolution of Net Financial Wealth per capita

The pattern of ownership of financial assets has varied widely owing to a few asset classes as depicted in Fig. 6. The share of Life Insurance funds has increased consistently from 8.1% in 1990-91 to 18.4% in 2017-18, whereas the share of Provident & pension funds in the total stock of financial assets owned by household sector has declined gradually from 18.1% in 199-91 to 15.3% in 2017-18. The asset class of Shares & Debentures offers a surprising observation – its bit in the total household holdings of financial assets was increasing in the early 1990s (from 7.3% in 1990-91 to 10.9% in 1995-96), but then kept on declining and has been in the range of 3% - 4% in the last five years.

As per our HBS estimates in Table 1, the stock of financial liabilities or indebtedness of the household sector has risen significantly over time in absolute terms from ₹931 bn in 1990-91 to ₹47,062 bn in 2017-18. In per capita terms, the indebtedness if Indian household sector has risen from ₹1,070 in 1990-91 to ₹35,412 in 2017-18 as illustrated in Fig. 7. However, the

rate of growth of indebtedness has fluctuated wildly over time with a huge spike in the period building up to the global financial crisis of 2008.

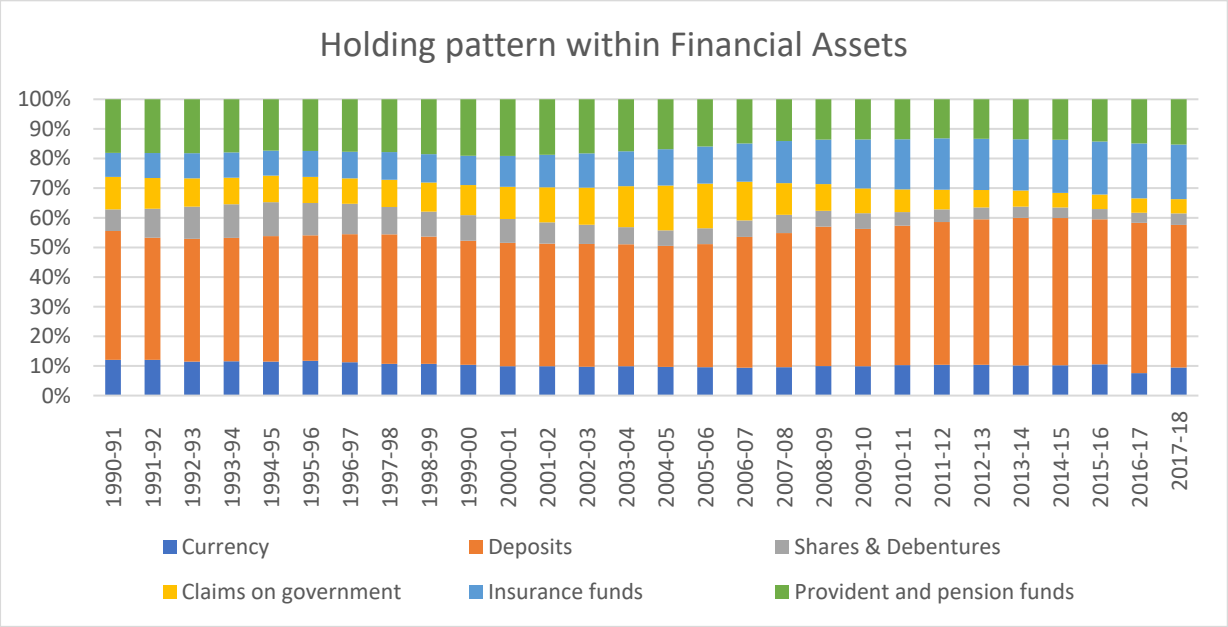

Figure 6. Structure of Financial Asset ownership for Households

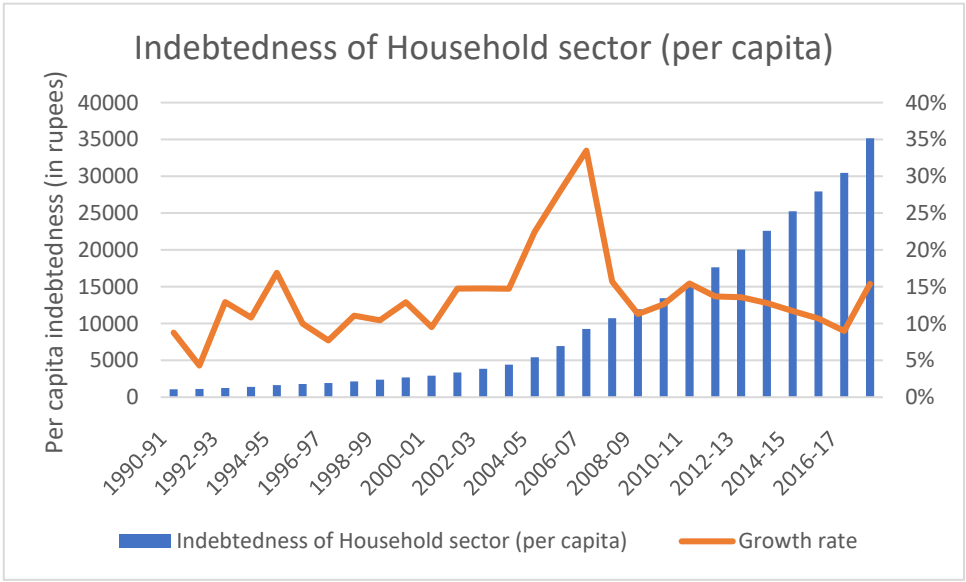

Figure 7. Evolution of Household Indebtedness

The structure of household financing has changed over time as reflected in Fig. 8, with loans from cooperative non-credit societies and government vanishing almost completely from HBS

and Bank loans dominating even more. However, in the last five years or so, other financial institutions (such as NBFCs) have snatched some share of household debt from traditional banks.

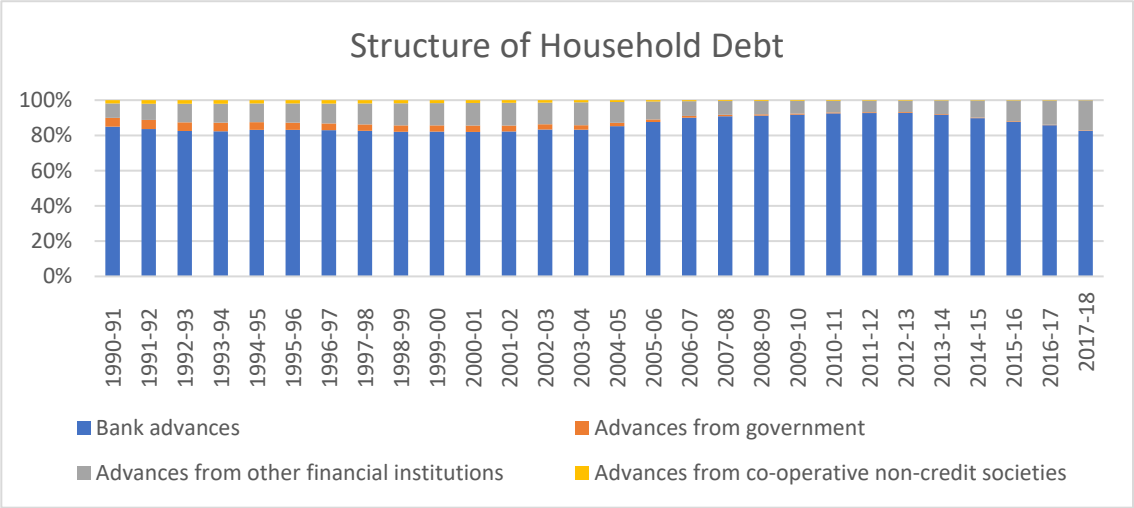

Figure 8. Evolution of composition of Household Debt

The risks associated with this increasing household indebtedness could be judged by the ratio of liabilities-to-household disposable income, which is a fundamental measure of debt repayment capacity of households and thus has direct application in the assessment of default risks and solvency of household sector (Li, 2018). As shown in Fig. 9, the Indian household sector has been in an upward leveraging cycle beginning from the period building up to the global financial crisis and has remained at higher levels since. The increasing debt-to-income ratio is certainly a cause of worry about the sustainability of household debt.

The financial soundness of the household sector can also be assessed by liabilities-to-financial assets ratio. It is important to note that the liabilities-to-financial assets ratio is a better measure of risk assessment than liabilities-to-assets ratio which also includes non-financial assets in the calculation. Non-financial assets, except for gold, are plagued with liquidity risks mainly due to high trading costs, as in the case of real estate, and Akerlof's "lemon law" of information asymmetry, as observed in the market of consumer durables such as automobiles. A similar picture of worsening debt stress in the Indian household sector emerges in Fig. 10, which shows a rising liabilities-to-assets ratio in the last 15 years after a decade of balance sheet consolidation in the 1990s. Notice that this worsening of the household balance sheet was also observed in Fig. 2, which showed a significant dip in the

rate of financial wealth accumulation after the financial crisis of 2008. Strikingly, this is not a global phenomenon – all major economies, except China, have witnessed falling (or stagnant) liabilities-to-financial assets ratio (or liabilities-to-disposable income ratio) on their Household Balance Sheets (Li, 2018).

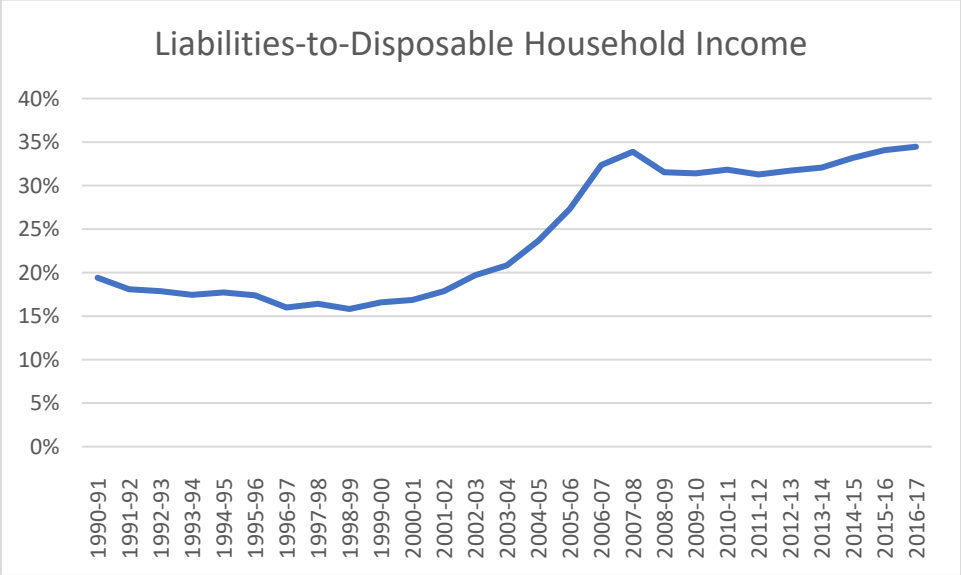

Figure 9. Evolution of Liabilities-to-disposable household income ratio

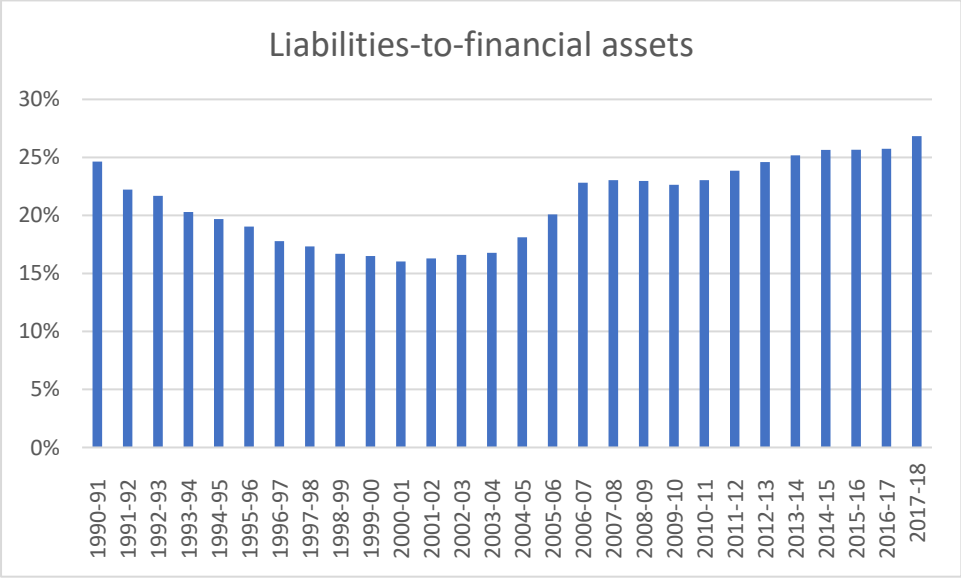

Figure 10. Evolution of Liabilities-to-financial assets ratio

It would be interesting to compare our household indebtedness estimates with estimates from decennial rounds of All India Debt and Investment Survey (AIDIS). As apparent from Fig. 11, our estimates of household indebtedness are fairly large than those of AIDIS (by order of

2 or 3). This is possibly due to two main reasons: first, the differences in the definition of 'household'. As explained in Section 2, we have followed the CSO (2012) definition of household while constructing the balance sheet, which includes individuals, unincorporated establishments, non-profit institutions and all non-government non-corporate enterprises, whereas, AIDIS definition of 'household' draws from the concept of common kitchen and is very similar to SNA (2008) interpretation of what constitutes a household. To be precise, AIDIS considers 'household' to be "a group of persons normally living together and taking food from a common kitchen" (NSSO, 2013), and thus can't include any business or other kind of organizations. Technically, the size of the household sector as per CSO (2012) definition would be larger than the size of the household sector arrived from AIDIS definition, and hence the larger estimates of household indebtedness. Secondly, it is entirely possible that AIDIS is underestimating household indebtedness, especially in rural areas, as have been accused of repeatedly by researchers (Gothoskar, 1988; Prabhu et al., 1988; Rao and Tripathi, 2001), for various reasons. Rao and Tripathi (2001) blames this underestimation on the method of sampling and reduction in the sample sizes of villages and households. Bell (1990) argues that an increase in the State sample as compared to the Central sample has adversely affected the quality of AIDIS data as the State government agencies are less equipped in undertaking surveys than NSSO. Chavan (2012) shows that AIDIS underestimates rural household debt by about 46% in 1991 round and by around 35% in the 2002 round. A higher figure of underestimation (63% to 73%) is reported by Rajkumar et al. (2019) over the various decades at all-India level; however, they also criticize the RBI supply-side data on household credit, which we have used to construct HBS in this paper. Rajkumar et al. (2019) concludes that there are substantial margins of errors on both the estimates.

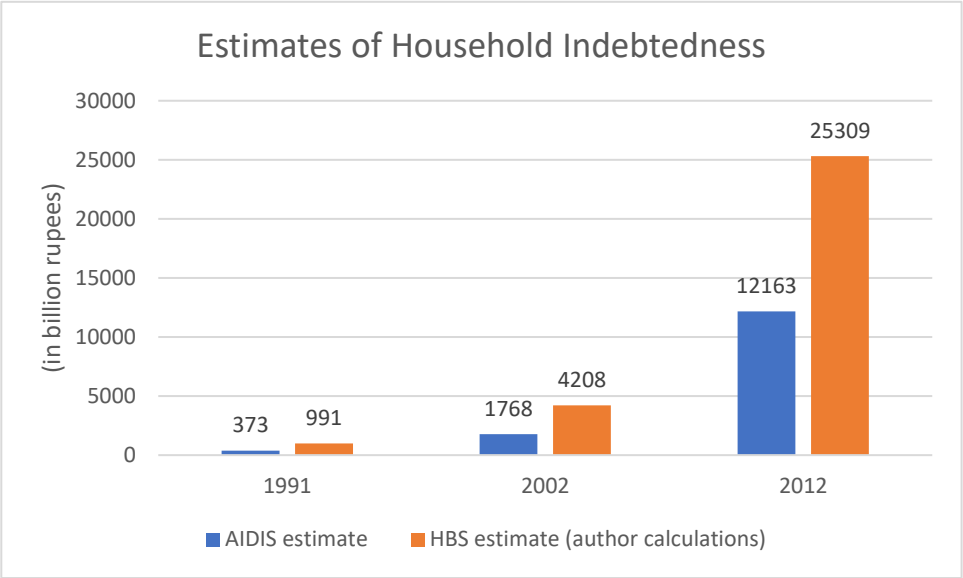

Figure 11. Comparison of Household Indebtedness estimates

But in our opinion, the supply-side household credit data collected from various banks and financial institutions is more reliable than AIDIS data collected directly from households, after correcting for the "true" size of the household sector. It is justified to assume that debt is recorded accurately in the accounting books of banks and other financial institutions, whereas the outstanding stock of debt reported by households at the time of survey might be affected by memory lapse problem due to which the respondent may fail to recollect the exact details (such as interest rates and maturity period) of outstanding loans which were taken way back in the past. Even if these details are known, correct calculation of principal and interest outstanding is needed from either the respondent or the surveyor to arrive at a reliable estimate of total debt outstanding; banks are well-versed in such calculations. Moreover, it is important to keep in mind that debt is a sensitive issue in Indian society and therefore, it is highly possible that some households might be underreporting the levels of debt owed and causing a downward bias in the AIDIS estimates.

4. Conclusion

In this paper, we compile India's household balance sheet (HBS) starting from 1970-71 to 2017-18 and use the compiled HBS to study the accumulation of financial wealth by the Indian household sector. Specifically, we begin by addressing some technical issues faced while compilation, including the definition of "household" sector and assumption regarding the initial value of stock. Next, we cumulate the FoF data to arrive at the final Household balance Sheet presented in this paper. We study the evolution of the structure of Indian household finance over time and the constitution of asset classes making up the asset as well as the liability side of the balance sheet. Using two indicators of risk assessment, viz. liabilities-to-financial assets ratio and liabilities-to-disposable income ratio we observe balance sheet deterioration and increasing indebtedness in the Indian household sector. Unlike other major economies of the world, indebtedness in Indian household sector has continued to climb up even after the global financial crisis of 2008. Concurring with many other studies on Indian household finance, we too find that AIDIS grossly underestimates the level of indebtedness in the household sector. In view of that, synchronized efforts of MoSPI, RBI and academia are urgently needed to collect more and better data for compiling household balance sheets. As a first step, HBS should be regularly published with yearly NAS. On the policy front, the increasing indebtedness of Indian households needs to be paid utmost attention.

Finally, we would like to offer some caveats and suggestion which have direct implications for future avenues of research. Due to data constraints, we had made a zero-value assumption for the initial value of stock while cumulating the FoF data for some items in the balance sheet. In light of that, the reader should focus more on the *trends* in the *levels* than the magnitude of the *level* itself. The household balance sheets compiled in this article should be

considered as an indicator of order of magnitude of financial wealth allocated across different instruments and certainly not as a substitute to (or an approximation of) official balance sheet estimates, which, unfortunately, remain unavailable at the time of writing. The HBS compiled here could be further extended to include non-financial assets, viz. real estate, precious metals and household durables. The biggest hurdle in this exercise is going to be lack of land records and the rampant usage of *'black money'* in the real estate and gold market. It is important to note that the exclusion of non-financial assets from HBS is a serious limitation as an average Indian household has 77% of its total assets in real estate, 11% in bullion, 7% in durables and just 5% in financial assets (RBI, 2017). On the liabilities side, the HBS estimates compiled from FoF data fails to capture the entire stock of debt as uninsured households borrow frequently from non-institutional sources.

The aggregated data, as provided by HBS, does not allow an investigation into the distributive aspects of wealth and debts (and the associated risks) across regions and income cohorts, however, household balance sheets could help in this process. Currently, AIDIS data is the only official source of measuring wealth distribution/inequality in India. However, wealth surveys are subject to misreporting (generally under-reporting) of assets and debts by respondents, and differential response according to income or wealth level. To this end, HBS data could be used to adjust and improve AIDIS data and correct for non-sampling error. There are different approaches to this: one, which has been applied by Wolff (2017) on US data, is to "align" the survey data with the HBS data, which means adjusting all holdings of a particular kind of asset or debt in the survey data in order to make its aggregate the same as is observed in the HBS data. This essentially ignores the differential response problem and maintains the hypothesis that all respondents misreport by the same percentage. The second approach relies on the assumption that irrespective of the source of shortfall (of survey

aggregates below HBS totals), the error due to under-reporting mainly affects mean wealth in the top X% of the distribution; followed by fitting a Pareto distribution[3] to the upper tail that is consistent with the adjusted survey estimate of the mean wealth of the top X% households.

Once compiled, HBS numbers could be used by researchers at RBI, Finance Ministry or from academia to study various unrevealed aspects of Indian economy, e.g. they can be used in empirical macroeconomic work to study issues such as the impact of changes in household-sector wealth, or particular components such as real estate wealth, on final consumption expenditure of private households.

[3] Pareto distribution often approximates the top tail of wealth distribution quite well (Davies, 2008 p. 412).

References

1. Bell, C. (1990). Interactions between institutional and informal credit agencies in rural India. *The world bank economic review*, *4*(3), 297-327.
2. Chavan, P. (2012). Debt of Rural Households in India: A Note on the All-India Debt and Investment Survey. *Review of Agrarian Studies*, *2*(1), 151-161.
3. CSO (2012). National Accounts Statistics: Sources and Methods. Central Statistics Office, Ministry of Statistics and Programme Implementation, Government of India. New Delhi
4. Davies, J. B. (Ed.). (2008). Personal wealth from a global perspective. Oxford University Press.
5. European Commission, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations, and World Bank. (2009). System of national accounts 2008.
6. Gothoskar, S. P. (1988). On some estimates of rural indebtedness. *Reserve Bank of India Occasional Papers*, *9*(4), 299-325.
7. Li, C. (2018). China's household balance sheet: Accounting issues, wealth accumulation, and risk diagnosis. China Economic Review, 51, 97-112.
8. Moore, T. (2007). *India's emerging financial market: A flow of funds model*. Routledge.
9. NSSO (2013). Household Indebtedness in India, NSS 70th Round (January - December 2013). National Sample Survey Office, Ministry of Statistics and Programme Implementation, Government of India. New Delhi.
10. Piketty, T., Yang, L., and Zucman, G. (2017). Capital Accumulation, Private Property and Rising Inequality in China, 1978-2015 (No. w23368). National Bureau of Economic Research.
11. Prabhu, K. S., Nadkarni, A., & Achuthan, C. V. (1988). Rural credit: mystery of the missing households. *Economic and Political Weekly*, 2642-2646.
12. Rajakumar, J. D., Mani, G., Shetty, S. L., & Karmarkar, V. M. (2019). Trends and Patterns of Household Indebtedness. *Economic & Political Weekly*, *54*(9), 41.
13. Rao, K. R., & Tripathi, A. K. (2001). Indebtedness of households: Changing characteristics. *Economic and Political Weekly*, 1617-1626.
14. RBI (2017). Indian Household Finance. Report of the Household Finance Committee. Reserve Bank of India. Mumbai.
15. Shorrocks, A.F., Davies, J.B. and Lluberas, R. (2016). Global Wealth Databook 2016, Credit Suisse Research Institute, Zurich.
16. Wolff, Edward N. (2017). A Century of Wealth in America. The Belknap Press of Harvard University Press.