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Indian household balance sheet: accounting issues and wealth estimation

AKASH MALHOTRA (1)

Abstract: This paper presents a novel estimate of the Indian household balance sheet (HBS) starting from 1970/71 to 2017/18 and studies the evolution of Indian household finance in an international context. Comparative analysis suggests that the Global Wealth Databook (an annual publication of Credit Suisse Research Institute), has been significantly underestimating both the stock of financial assets and liabilities. By contrast, the Reserve Bank of India, in its recent publication, is marginally overestimating the stock of financial assets and institutional liabilities. An analysis of the net financial position of the Indian household sector reveals that India is presently facing what may be called a five balance sheet challenge — critical HBS leverage ratios have continued to climb even during the recovery period post-2010 (following the global financial and economic crisis). The author recommends close monitoring and more frequent releases of the Indian HBS.

JEL codes: D14, E01, E21, G51, O57

Keywords: household balance sheet, wealth accumulation, household debt, financial sectoral accounts, India

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1. Introduction

Sectoral balance sheets offer a key stock perspective. They shed light on the structure of sectoral finance, wealth accumulation, and the associated default risks, along with other statistical and macroeconomic issues. National accounts are supposed to have balance sheets for each sector. Unfortunately, at the time of writing, 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 (for example, the OECD publishes these data for its member countries in Households' financial assets and liabilities). There is certainly a very high user demand for such data (Shorrocks et al. (2019)). 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. (2019)). Alternative estimates of the HBS for China have been released, namely by Li (2018) and Piketty et al. (2019). India has endorsed the second phase of the G20 Data Gaps Initiative (DGI-2) and accordingly, NSC (2018) made recommendations related to timeliness and the more frequent release of financial accounts, state-level coverage, and the inclusion of new aspects such as flows versus stocks in the sectoral accounts, among other methodological improvements. This paper is an attempt to move in the same direction — here I compile a balance sheet for the Indian household sector which presents the evolution of the outstanding stock of household wealth and debt.

Compared with debates on income growth, household wealth accumulation in India has received less consideration from academics as well as policymakers. This is partly because, in policy circles and academic debates alike, income — particularly GDP figures — commands more attention than wealth. But it is also because of the dearth of appropriate data on household wealth or debt in the country. Even though India has a long history of collecting data on household debt through its decennial wealth surveys, indebtedness in the household sector continues to be underestimated, or at least to be perceived as less of a problem. Presently, the decennial all India debt and investment survey (AIDIS) serves as the lone source of primary data for household wealth in India. The Credit Suisse Research Institute has been publishing an annual Global Wealth Databook (GWD) since 2010. This contains estimates for the stock of household wealth and debt starting from the year 2000 for a large number of countries, including for India based on the AIDIS data. The estimates of the HBS provided in the GWD are widely-used in policy and journalistic circles. However, as I illustrate in this paper, the GWD has been misjudging the financial position of Indian households. For the first time (²), a preliminary estimate of the HBS has been released by the Reserve Bank of India (RBI (2019)) for the period (3) 2011/12 to 2017/18. However, as I show in this paper, the HBS presented in RBI (2019) is plaqued with accounting errors and, as a consequence, overestimates the stock of household financial assets and liabilities alike.

Preparing balance sheets for any sector requires data on its stocks of assets and liabilities to be available. Such data are not available in the Indian national accounts statistics (NAS) simply because the data collection efforts of the Indian Ministry of Statistics and Programme

⁽²⁾ Prior to RBI (2019), a partial balance sheet for the household sector was released with RBI (2018), which reported data on outstanding positions for a select few financial instruments but did not report the stock of gross financial assets and liabilities or the net financial position of the household sector.

^{(&}lt;sup>3</sup>) The Indian Fiscal Year begins on 1st April and ends on 31st March of the next calendar year. For instance, fiscal year 2011/12 represents the year starting on 1 April 2011 and ending on 31 March 2012.

Implementation (MoSPI) focus on data needed to compile the current accounts, rather than on data relevant to accumulation accounts. The approach I use here, to derive the HBS, is a perpetual inventory approach that relies on accumulating the flow-of-funds (FoF) while making appropriate technical adjustments and assumptions regarding the initial value of stocks. The FoF data are available back to at least 1970/71. The availability of FoF data is going to form the crux of the methodology employed for the compilation of the HBS here. All things considered, this paper attempts to create a paradigm for future studies aimed at improving the reliability of the Indian HBS data and estimation methods. The rest of the paper is organised as follows: Section 2 describes the data sources and major accounting issues related to the HBS compilation for India. Section 3 highlights the deficiencies in the extant HBS estimates and analyses the development of the net financial position of the Indian household sector over time and the composition of household wealth and debt, based on the HBS computed for this paper. Section 4 compares the structure of Indian household finance with that found in other regions/economies of the world and diagnoses the risks arising from increasing household indebtedness. Section 5 presents some concluding reflections and suggestions pertinent to future avenues of research.

2. Data and methodology: major accounting issues

According to the Indian System of National Accounts (CSO (2012)), the 'household' sector in India comprises of individuals, unincorporated establishments (like sole proprietorships and partnerships), non-profit institutions serving households (like educational institutions, charitable trusts, non-governmental organisations (NGOs) political parties, and so on) and all non-government non-corporate enterprises (like farms and non-farm businesses). Thus, in addition to individuals, the household sector also includes all enterprises/economic units that are not covered in the other three domestic sectors (4) of the economy. Technically, this interpretation is different from the definition of 'households' as proposed by the United Nations System of National Accounts — SNA 2008 (United Nations (2009)), which includes only individuals and groups of persons sharing the same living accommodation or pooling some or all of their income and wealth, wherein each member of the household has some claim upon the collective resources of the household; it thereby excludes non-profit institutions. In this article, I will continue to follow the Central Statistics Office (CSO (2012)) definition of 'households', unless stated otherwise (⁵). In NAS, the gross financial savings made by the household sector are estimated by net changes in the financial position of households for a list of financial assets: currency, deposits, trade debt, shares & debentures, claims on government, insurance funds, and provident & pension funds. The annual flows for liabilities are also reported instrument-wise: bank advances, loans and advances by cooperative banks and societies, loans by financial corporations & non-banking companies (for example, nonbanking financial corporations (NBFCs)), loans and advances from government, and loans from insurance companies. Since the household sector is not an organised sector and direct

^(*) The Indian FoF categorises the economy into four domestic sectors: financial corporations, non-financial corporations, general government, households; and one external sector: rest of the world (RBI, 2015).

⁽⁵⁾ The size of the household sector produced from the CSO (2012) definition is likely to be larger than that from the SNA 2008 definition.

estimates of its balance sheets are not available, the financial flows for various instruments are either estimated through (i) a residual approach, in other words, after duly accounting for such instruments held by public and private corporate sectors, or (ii) through business/ enterprise information collected from the accounts of counterpart institutions transacting with households, or (iii) through existing information on sectoral distributions (direct or survey). The only two instruments for which data on flows are directly available are provident & pension funds and life insurance funds:

Δ (provident & pension funds) = contribution + interest - withdrawal

Δ (*life insurance funds*) = *income – expenditure*

Unless stated otherwise, the data on various balance sheet items presented in this paper have been sourced from NAS Statement 5.3: changes in *Financial assets and liabilities of the household sector*. Presently, there is an internal arrangement to supply input data for the preparation of Statement 5.3 from the RBI to the CSO. For a detailed exposition of the methodology employed by the RBI in the compilation of FoF accounts, the reader may refer to RBI (2015). In line with the extant practice, changes in financial assets and liabilities of the household sector are estimated in the form of financial flows based on counterparty sector data, in other words, from the central bank, commercial banks, NBFCs, insurance companies, housing finance companies, mutual funds, the general government sector, non-financial iabilities specific to the household sector to the RBI. In such cases, flows are estimated using multiple rates and ratios based on various sectoral reports. At times, this also involves the logical judgement of RBI staff. In a personal correspondence with the Reserve Bank of India (dated 26 July 2018) under the *Right to Information Act, 2005*, I was let known that the stock data are neither published nor preserved by the RBI exactly for the above reasons.

However, in my opinion the above-mentioned circumstances do not pose any serious limitation to the reconstruction of a time series of stock data by accumulating the flow data over time, as 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 was not compiled separately by the RBI until recently (⁶). Essentially, the FoF accounts, as available in NAS, represent annual changes in stock, in other words, period to period changes in the outstanding amounts of financial assets and liabilities. This allows me to use the perpetual inventory approach to derive the HBS from the household FoF data. The approach relies on accumulating flows over time while making appropriate technical adjustments and assumptions regarding the initial value of stocks.

^{(&}lt;sup>6</sup>) With the release of balance sheet data (2011/12 to 2017/18) for institutional sectors, RBI (2019) attempted the bifurcation of financial flows into transactions and valuation changes for mutual funds, insurance, provident & pension funds, households and the central bank.

(INR billion, current prices)															
	2003/04	2004/05	2005/06	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	29 255	33 727	39 569	47 216	54 940	62 208	72 106	82 905	92 232	102 873	114 780	127 353	142 315	156 699	175 395
1.1. Currency	2 905	3 274	3 796	4 468	5 281	6 202	7 172	8 543	9 6 0 6	10 721	11 716	13 049	15 055	11 890	16 598
1.2. Deposits	12 094	13 844	16 504	20 908	24 949	29 359	33 508	39 110	44 515	50 577	57 247	63 370	69 815	79 495	84 848
1.2.1. Bank deposits	11 006	12 757	15 414	19 707	23 597	27 775	31 756	37 239	42 499	48 250	54 643	60 436	66 659	76 045	81 147
1.2.2. Non-banking deposits	1 207	1 207	1 213	1 258	1 271	1 419	1 604	1 655	1 755	2 034	2 262	2 552	2732	2 983	3 192
1.2.3. Trade debt (owned) (')	-119	-120	-122	-57	81	166	148	216	261	293	341	383	424	467	509
1.3. Shares & debentures	1 633	1 683	2 017	2 522	3 262	3 211	3 660	3 677	3 842	4 012	4 202	4 4 0 5	4 689	5 132	5 762
1.4. Claims on government	4 054	5 119	5 990	6 182	5 899	5 623	6 058	6354	6 135	6 0 6 4	6 294	6 304	6 983	7 614	8 436
1.5. Insurance funds	3 464	4 144	4 979	6 128	7 826	9 355	11 953	14 054	16 011	17 810	19 855	22 848	25 490	29 033	32 537
1.6. Provident & pension funds	5 105	5 663	6 283	7 008	7 723	8 457	9 756	11 167	12 124	13 689	15 467	17 376	20 283	23 535	27 214
2. Institutional financial liabilities	4 908	6 108	7 946	10 772	12654	14 290	16 324	19 104	22 005	25 309	28 896	32 664	36518	41 205	48 610
2.1. Bank advances	4 087	5 207	6 962	6696	11 494	13 041	14 986	17 676	20 401	23 488	26 5 1 2	29 336	32 030	35 490	40 429
2.2. Advances from government	122	117	112	106	103	101	100	66	102	104	110	112	116	116	124
2.3. Advances from other financial institutions	640	723	807	006	987	1 075	1 164	1 252	1 425	1 640	2 197	3 139	4 295	5 522	7 980
2.4. Advances from co-operative non-credit societies	59	62	65	67	69	72	74	22	17	27	22	17	27	22	77
3. Non-institutional liabilities	2 618	3 144	3 940	5 138	5 798	6 278	6 8 6 5	7 675	8 426	9 692	11 065	12 508	13 984	15 778	18 614
4.a. Net Institutional financial wealth (1-2)	24 348	27 619	31 623	36 444	42 286	47 919	55 782	63 801	70 227	77 563	85 884	94 689	105 797	115 494	126 784
4.b. Net institutional financial wealth (Moore's estimate in 1951)	24 448	27 719	31 723	36 544	42 386	48 019	55 882	63 901	70 327	77 664	85 984	94 789	105 897	115 594	126 884
5. Net total financial wealth (4.b-3)	21 830	24 575	27 784	31 406	36588	41 740	49 017	56 226	61 901	67 972	74 919	82 281	91 913	99 816	108 270
(¹) A positive (or negative) sign before the r	net stock po	osition of tr	ade debt i	mplies tha	at the hous	sehold sec	tor, as a wl	nole, is act	ng as a net	: sundry cr	editor (or c	lebtor) to i	the other s	ectors.	

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Table 1: India's household balance sheets, 2003/04 to 2017/18 ⁽¹⁾

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2.1 Initial value assumption: robustness checks

The FoF data for net institutional financial savings (= gross financial savings – changes in institutional financial liabilities) are available starting from 1950/51. However, constrained by the availability of segregated FoF data for most of the individual financial items (except for currency, provident & pension funds, and shares & debentures), I begin cumulating FoF flows starting from 1970/71. A link to the computed HBS is provided in the Appendix at the end of this article and an excerpt from the same is presented in Table 1. The initial stock value for all financial items is assumed to be zero on 31 March 1970. Using the 1969/70 stock data as a benchmark position, the subsequent stock data are constructed by incrementing the flow data collected from the net changes reported in FoF data for each item. Fortunately, there exist FoF data for net institutional financial savings, currency, and provident & pension funds starting from 1950/51 in older CSO records and estimates of stock data on 31 March 1951 for these items in Moore (2007). These allow me to test the validity of my zero initial value assumption and compute the magnitude of deviations caused, if any. Using Moore's estimate for the stock of institutional financial wealth on 31 March 1951 and FoF data for net institutional financial savings from 1950/51 to 2017/18, I am able to compile an alternate time series for the stock of financial wealth (net of institutional liabilities) held by Indian households, referred to as net institutional financial wealth (Moore's estimate in 1951) in Table 1 (4.b.). As apparent from Table 1, the two series (4.a. and 4.b.) converge and the stocks of net institutional financial wealth as estimated by the two series differ from each other only by 0.08 % in 2017/18. This indicates that my assumption of ascribing zero value to the stock of institutional financial wealth on 31 March 1970 does not cause significant deviations in the recent past as corroborated by Figure 1, which shows that deviations become less than 3 % after 1990/91 and fall below 1 % after 1996/97. Therefore, for the rest of the paper, my period of analysis will be from 1990/91, at the earliest (7) for all HBS items with constraints on FoF time series data availability, in other words, items for which FoF data are not available before 1970/71 in NAS

100 90 80 70 60 50 40 30 20 10 0 П 2012/13 974/75 978/79 980/81 990/91 992/93 66/866 006/07 2014/15 970/71 972/73 976/77 982/83 984/85 986/87 988/89 994/95 79/966 000/01 002/03 004/05 008/00 010/11 2016/17

Figure 1: Deviation in net institutional financial wealth as estimated by the two series (%)

(7) Determining whether an error lies within a tolerable margin is, ultimately, a subjective exercise. Therefore, I leave the choice of the earliest year (starting from which the compiled HBS could be considered reliable) to the judgement of future users of this HBS data. Accordingly, deviations reported in Figures 1 and 3 shall come in handy while making such judgement calls.



Figure 2: Rate of accumulation of net Institutional financial wealth (Moore's estimate in 1951) (%)

An apparent reason for the validity of my assumption is the consistently high rate of financial wealth (net of institutional liabilities) accumulation by Indian households which has remained above or close to 10 % (in nominal terms) since 1970/71, as illustrated in Figure 2. A consistently high accumulation rate implies that the absolute value of net institutional financial savings in 2017/18 (INR 11 290 billion) dwarfs the net institutional financial savings made by Indian households prior to 1970/71 (less than INR 15 billion annually), thereby trivialising the contribution of savings made a long time ago. Notice that the rate of financial wealth accumulation dipped significantly after the 2008 global financial and economic crisis, from levels around 15 % to levels around 10 %, and has since remained at this lower level.



Figure 3: Deviation in currency and provident & pension funds as estimated by the two series (%)

The same pattern is observed for currency and for provident & pension funds (P&PF) items in the HBS; for both these items, the two estimates have converged in recent years. The deviations for both currency and for P&PF have been less than 5 % since 1990/91 (see Figure 3). In 2017/18, the deviation in the two stock estimates for currency was 0.15 % and for P&PF it was 0.10 %. The convergence observed in these series further supports my assumption of ascribing zero value (on 31 March 1970) to the stock of those financial assets/liabilities for which flow data are not available prior to 1970/71.

2.2 Estimating non-institutional credit

In this article, I do not attempt to estimate the non-financial component of the HBS, mainly due to the paucity of reliable flow/stock data for physical assets (8), namely land holdings, dwellings, precious metals, automobiles and other consumer durables. I do, however, estimate the stock of outstanding cash loans borrowed by households from non-institutional credit agencies such as moneylenders, landlords, traders, input suppliers, and so on. The FoF data made available in NAS do not include credit from non-institutional sources and an estimate of the stock of debt obtained from FoF data represents only the debt raised from institutional agencies. To produce a reasonable estimate of the stock of non-institutional debt, I compute the ratio of non-institutional to institutional household debt at the all-India level from various rounds ⁽⁹⁾ of AIDIS and apply these ratios on the stock of institutional debt estimated from the RBI's FoF data. The under-reporting of household debt in India's wealth survey is widely recognised in the literature (Shorrocks et al. (2019)) and is discussed in Section 3.2 in detail. However, it is likely that survey participants would under-report institutional and noninstitutional debt by roughly the same factor, as there is no apparent reason for significant inequality in the magnitude of under-reporting among these two types of debt. The ratios for years between various rounds of AIDIS surveys — 1981 to 1991, 1991 to 2002, and from 2002 to 2012 — are estimated from three separate linear interpolations, and the ratios for years post-2012 are ascribed the same value as that in 2012 (see Figure 4). This imputation is admittedly crude but better than simply disregarding the entire non-institutional debt owed by households. The net total financial wealth, as reported in Table 1 (5.), is computed by subtracting the outstanding institutional and non-institutional household debt from the stock of financial assets.





Source: AIDIS (1981, 1991, 2002 and 2012 rounds)

- (*) Note that survey estimates for *household* holdings in these non-financial assets are available in various rounds of NSSO surveys and AIDIS which are conducted from time to time.
- (9) I use data from the last four rounds of AIDIS, namely 1981, 1991, 2002 and 2012. The AIDIS data represent the value of stocks on 30 June of the corresponding year. I ascribe the computed ratios for a particular round of AIDIS to 31 March of the corresponding year. For example, the ratio computed from the 1991 AIDIS is ascribed to the stock at the end of fiscal year 1990/91.

3. Indian households' net financial position: wealth and composition analysis

The financial position (net of total liabilities) of the Indian household sector in 2017/18 was INR 108 trillion (¹⁰). The net total financial wealth per capita, in 2017/18 prices and as adjusted by the GDP deflator, grew significantly from INR 16 720 in 1990/91 to INR 82 272 in 2017/18 (see Figure 5). In the last three decades, the per capita financial wealth (net of total liabilities) grew on average by 6.2 % annually in real terms. This accumulation was supported partly by an average 4.1 % annual growth in per capita real household disposable income (see Figure 5). After adjusting for changes in price levels, the stock of financial assets owned by Indian households rose from INR 21 trillion in 1990/91 to INR 175 trillion in 2017/18, whereas the outstanding stock of household debt increased from INR 8 trillion to INR 67 trillion in the same period (see Figure 6).



Figure 5: Evolution of per capita net total financial wealth (NTFW) and household disposable income (HDI)

 $(^{10})$ A trillion is a million million or 1 000 000 000 000.



Figure 6: Stock of financial assets and liabilities (in 2017/18 prices) (INR trillion, in 2017/18 prices)

> The pattern of ownership of financial assets varied widely owing to a few asset classes as depicted in Figure 7. The combined share of currency and deposits, the most preferred financial instruments, remained more or less constant (55 % on an average) over time. The share of life insurance funds (¹¹) increased consistently from 8.1 % in 1990/91 to 18.6 % in 2017/18, whereas the share of provident & pension funds (12) in the total stock of financial assets owned by the household sector declined gradually from 18.1 % in 1990/91 to 15.5 % in 2017/18. The asset class of shares & debentures (13) offers a surprising observation — its weight 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 declined and remained in the range of 3-4 % in the most recent five years. This observation is contrary to the everyday reporting by the financial press and also to the claim made by RBI (2019, p. 51) that currency and deposits combined had been losing their share in the portfolios of Indian households to equities and debt securities over time. Interestingly, the share lost by the asset class shares & debentures between 1995/96 and 2017/18 was commensurate with the share gained by life Insurance funds over the same period. This is not a dramatic shift as the reserves of life insurance funds comprise equities, bonds, and other financial instruments that are in effect being held on behalf of the household sector.

^{(&}lt;sup>11</sup>) The heading of life insurance funds includes central or state government employees' insurance funds and postal insurance funds. The asset position is estimated from actuarial reserves and other technical reserves for entitlements relating to individual life insurance policies (RBI (2018)).

^{(&}lt;sup>12</sup>) The asset position for provident & pension funds is estimated from entitlements relating to funded retirement benefits for employees of the government and non-government sectors (RBI (2018)).

^{(&}lt;sup>13</sup>) The heading of shares & debentures includes investment in shares & debentures of credit/non-credit societies and investment in mutual funds.



Figure 7: Structure of financial asset ownership for households (%)

Figure 8: Evolution of household indebtedness



Based on my HBS estimates in Table 1, the stock of total financial liabilities or indebtedness of the household sector rose significantly over time (in nominal terms) from INR 1.4 trillion in 1990/91 to INR 67.2 trillion in 2017/18. In per capita terms, the real indebtedness of the Indian household sector rose from INR 9 460 in 1990/91 to INR 51 082 in 2017/18. However, the rate of growth of indebtedness fluctuated wildly over time with a huge spike in the period building up to the global financial and economic crisis of 2008 and a pronounced fall thereafter as depicted in Figure 8.

The structure of household financing (from institutional sources) has changed over time as reflected in Figure 9, with loans from cooperative non-credit societies and government vanishing almost completely from the HBS and bank loans dominating even more. Commercial banks and cooperative banks and societies remained the preferred credit institution for Indian households, with the share of bank advances (¹⁴) varying in the range of 80-90 % of total household debt. However, in the most recent five years other financial institutions (¹⁵) such as NBFCs (whose share rose from 7.6 % in 2013/14 to 16.4 % in 2017/18) have taken some share of household debt from traditional banks, with their share falling from 91.7 % to 83.2 % between 2013/14 and 2017/18. In the context of Indian household finance, there exists a complementarity between the banking sector and non-banking financial companies in their financial intermediation roles, which was also reported by RBI (2019). As can be seen from Figure 9, during the periods in which the share of loans and advances from banks rose (83.3 % to 91.7 % between 2003/04 and 2012/13) the share of other financial institutions declined (13 % in 2003/04 to 7.6 % in 2012/13), while the reverse was true between 2013/14 and 2017/18.

Figure 9: Evolution of the composition of household debt from institutional sources (%)



3.1 Comparison with other estimates of India's HBS

Historically, the preferred estimate of balance sheet data for Indian households has been based on the AIDIS, which is carried out every 10 years, the most recent round being the 2012-round (NSSO (2013)). Apart from the long gaps in data release, household wealth surveys are generally not a reliable source for estimating wealth levels due to sampling and non-sampling errors which get magnified in the case of countries with high wealth inequality, such as India. The high skewness of wealth distribution makes the sampling error more pronounced. Further, the non-sampling errors, arising due to differential response rates (¹⁶) and under-reporting (¹⁷), make it difficult to extract an accurate representation of the upper tail of wealth distribution — where the bulk of wealth lies in the case of unequal societies. Consequently, household surveys usually produce lower wealth totals, especially in the case of financial assets and liabilities, when compared with the HBS data (Shorrocks et al. (2019)).

- (14) The heading of bank advances includes advances by banks and co-operative banks and societies.
- (¹⁵) The heading of loans and advances from other financial institutions includes advances by financial corporations & nonbanking companies and insurance corporations.
- (16) Wealthier households are less likely to participate in the survey.
- (¹⁷) Households are likely to under-report their financial assets and liabilities.

Since 2010, the Credit Suisse Research Institute has published the *Global Wealth Databook* annually; it contains estimates of global household wealth covering all regions and countries. The most recent edition, GWD 2019, puts the total net wealth (financial plus non-financial, net of total liabilities) of Indian households at INR 875 trillion (¹⁸) (Shorrocks et al. (2019)). As compared with the HBS compiled in this paper, GWD 2019 underestimates household gross financial wealth by around 50 % from 2000/01 to 2009/10. The estimates provided by GWD 2019 and the computed HBS series converge after 2010/11, and in the last two years of the analysis period are similar (see Figure 10 and Table 2). However, GWD 2018 severely underestimates gross financial wealth owned by Indian households, by 72 % on average for all the years reported (see Figure 10 and Table 2). The reason behind this discrepancy between the two GWD editions is a change in methodology for estimating Indian household financial wealth by the authors of the GWD while advancing from the 2018 to the 2019 edition. The authors of GWD create an econometric model (elucidated in Davies et al. (2017)) of per capita wealth using data from countries with HBS or survey data in at least one year. They use this

	HBS (author's estimate)	GWD 2019 estimate (1)	GWD 2018 estimate (²)	RBI 2019 estimate (³)
2000/01 (4)	19.3	9.7	1.6	
2001/02	22.1	9.8	7.6	
2002/03	25.4	12.3	9.6	
2003/04	29.3	15.2	11.5	
2004/05	33.7	16.6	12.3	
2005/06	39.6	19	12.7	
2006/07	47.2	18.5	16.3	
2007/08	54.9	29.7	19.4	
2008/09	62.2	30.8	16.2	
2009/10	72.1	29.6	14.1	
2010/11	82.9	47.9	17	
2011/12	92.2	63.4	23.9	105.7
2012/13	102.9	75.4	28.1	116.5
2013/14	114.8	93.9	29.2	129.6
2014/15	127.4	98.7	33.6	145.5
2015/16	142.3	122.5	38	161.6
2016/17	156.7	150	39	179.5
2017/18	175.4	186.1	40.7	202.6

Table 2: Estimates of gross financial wealth (INR trillion, current prices)

(1) Source: Shorrocks et al. (2019). For 2000/01 to 2016/17, the tabulated data represent the outstanding stock on 31 December in the given fiscal year. For 2017/18, the data represent the average of the stocks on 31 December 2017 and 30 June 2018.

(?) Source: Shorrocks et al. (2018). For 2000/01 to 2015/16, the tabulated data represent the outstanding stock on 31 December in the given fiscal year. For 2016/17, the data represent the average of the outstanding stocks on 31 December 2016 and 30 June 2017. For 2017/18, the data represent the stock on 30 June 2018.

(3) Source: RBI (2019)

(4) The relative change in stock of financial assets between 2000/01 and 2001/02 in the GWD 2018 estimate appears to be unrealistic. GWD (2018) use adjusted survey means from the last two AIDIS rounds, namely 2002 and 2012, and accordingly extrapolate the data for the remaining years in the sample. It seems that the methodology employed in GWD (2018) is producing spurious backcasts for years before 2002.

model to estimate per capita wealth levels in countries lacking direct data on household wealth; separate regressions are run for financial assets, non-financial assets and liabilities. In the model, a dummy is included for cases where the data source is a survey instead of an HBS. The coefficient of this dummy has been reported as negative and highly significant in the regression for financial assets (Shorrocks et al. (2018 and 2019)), indicating that the average levels of financial assets tend to be much lower when the data are derived from a survey rather than an HBS.

All the editions of GWD before the 2019 edition, including therefore GWD 2018, used AIDIS data on financial assets owned by Indian households. These data were adjusted upwards using the coefficient of the dummy to get an estimate of gross financial wealth in the survey year. For all years, except the survey year, the final totals are compiled by making forward projections based on estimated relationships between asset/debt totals and variables like house price indices, market capitalisation data, and GDP per capita growth in preceding years. Shorrocks et al. (2019) argue that the above methodology leads to underestimation of financial wealth, primarily because of the under-reporting of owned financial assets by Indian households in its decennial wealth survey. Therefore, GWD 2019 employs a different methodology for estimating financial wealth owned by Indian households, wherein the estimates are based on the econometric model from Davies et al. (2017), which was originally meant to be used in the case of countries lacking aggregate national data on financial assets.

Figure 10: Deviation in estimates of stock of financial assets owned by households (%)



The RBI recently released an estimate of Indian HBS data (RBI (2019)), which consistently overestimate the stock of financial assets owned by Indian households, on average by 14 % when compared with the HBS data compiled in this paper over the period from 2011/12 to 2017/18 (see Figure 10 and Table 2). The FoF data reported within RBI (2019) incorporate changes due to transactions and revaluations; however, from the text, it is not clear whether OCVAs are included in the flow data or not. To determine this, I compare the flow data reported in RBI (2019) with data available in National Accounts Statistics (NAS) and RBI (2017a). As apparent from Table 3, the changes in financial assets reported in RBI (2019) are consistently higher than those made available in NAS; the outcome is similar when RBI (2019) flow data are compared with those of RBI (2017a). Note that the minor discrepancy between RBI (2017a) and

NAS FoF data (which have been used for the compilation of the HBS presented in this paper) is due to the fact that, when released in 2017, the best estimates available with RBI (2017a) were first and second revised estimates for 2015/16 and 2014/15 respectively. NSC (2018) reported some unavoidable statistical discrepancies between FoF accounts compiled by the RBI and the financial accounts released by the CSO. However, the report noted that these discrepancies were not significant in the case of the household sector (ibid, p. 65). If I compare the flow data for 2013/14, the year for which final estimates are available in both NAS and RBI (2017a), it becomes clear that the RBI (2019) flow data are significantly higher (by 10 %) than the official data reported in the NAS (which are, in turn, equal to the data reported in RBI (2017a)).

(
	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
RBI 2019	10 853	13 053	15 856	16 110	17 946	23 060
RBI 2017a (1)		11 908	12 826	15 142		
NAS (²)	10 640	11 908	12 572	14 962	14 384	18 696

Table 3: Estimates of changes in financial assets (INR billion)

() 2014/15: second revised estimate at the time of publication. 2015/16: first revised estimate at the time of publication.

(2) 2015/16: third revised estimate at the time of publication. 2016/17: second revised estimate at the time of publication. 2017/18: first revised estimate at the time of publication.

The methodology for the compilation of the FoF accounts, as listed in RBI (2015), indicates that the Indian FoF accounts published by the RBI do incorporate OCVA, apart from revaluations and transactions, and the same was confirmed after personal correspondence with the Reserve Bank of India under the *Right to Information Act, 2005.* By definition, OCVA include changes in values due to unanticipated or unintentional volume changes that are not related to transactions or revaluation (IMF (2011)). OCVAs occur due to reasons related to the economic appearance and disappearance of assets, reclassifications, and external events such as debt write-offs, wars, or catastrophes (United Nations (2009)). Some common examples of OCVAs related to financial assets are:

- *Liquidations or bankruptcy* when an investor (creditor) recognises that a financial claim can no longer be collected because of bankruptcy, liquidation, or other factors, that claim is removed from his/her balance sheet (¹⁹).
- Uncompensated seizures when a government decides to nationalise/seize certain industries/assets within its jurisdiction without compensation, then the equity/asset position is extinguished through a volume change.
- Destruction of currency notes or bearer securities as a result of a natural catastrophe or political events.
- Reclassification changes in the volume of assets due to changes in demographic assumptions in the case of insurance and pension schemes (van de Ven and Fano (2017)). Migratory flows of people can also result in the reclassification of assets, for example if a household moves from one economy to another, taking its possessions (including financial assets) with it, they are recorded as OCVAs (United Nations (2009)). The reclassification of an entire NPISH (non-profit institution serving households) can occur, probably into an NPI (non-profit institution) serving some other sector of the economy and vice versa; the assets and liabilities of the unit will be transferred between the two sectors of the economy.

^{(&}lt;sup>19</sup>) The corresponding liability must also be removed from the balance sheet of the debtor to maintain a balance in the accounts of the total economy (United Nations (2009)).

The above-mentioned examples indicate that OCVAs have mostly diminishing effects on the stock of financial assets and therefore it is likely that flows which include OCVAs will tend to be smaller than flows which omit OCVAs. If the differences observed in Table 3 are viewed in the same context, it leads me to infer that the OCVAs have not been incorporated into the flow data reported in RBI (2019) and this omission appears to be the primary reason for the deviation in financial wealth observed in Figure 10 and Table 2.

3.2 Household indebtedness in India

The risks associated with household indebtedness could be judged by comparing the stock of debt to the stock of assets or the *flow* of income. The liabilities-to-household disposable income ratio, which is a fundamental measure of the debt repayment capacity of households, has a direct application in the assessment of default risks and the solvency of the household sector (Li (2018)). The financial health of the household sector can also be assessed by the liabilities-to-financial assets ratio, which is a better measure of risk assessment than the liabilities-to-assets ratio, which also includes non-financial assets in the calculation. Non-financial assets, except 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 markets for consumer durables such as automobiles. A still better measure of household liquidity is the ratio of outstanding household debt-to-liquid assets, wherein liquid assets comprise currency and deposits. Both currency and deposits can be liquidated in an event of financial distress without any significant loss of value (²⁰), unlike equities and debt securities whose value can plunge during a fire sale or market crash, or unlike pension and insurance funds which have liquidation restrictions.

By all measures, the Indian household sector has been in an upward leveraging cycle beginning from the period building up to the global financial and economic crisis (GFEC) starting in 2007 and has remained at higher levels since then (see Figure 11). The increasing debt-to-income ratio in recent years is certainly a cause of concern about the sustainability of household debt given the possibility that households might be accumulating debt for supporting consumption — which has risen at a faster pace than disposable income in every year since 2010/11. A similar picture of a worsening HBS emerges from the perspective of the liabilities-to-financial assets ratio, which has been rising in the last 15 years after a decade of balance sheet consolidation in the 1990s. Notice that this worsening of the HBS was also observed in Figure 2, which showed a significant dip in the rate of financial wealth accumulation after the crisis of 2008.

⁽²⁰⁾ Typically, Indian banks allow premature withdrawal of time deposits with a penalty in the range of 0.5-1.0 percentage points on the interest rate.



Figure 11: Evolution of risk measures of household debt

It would be interesting to compare my estimates of household indebtedness with estimates from decennial rounds of AIDIS and other subsequent estimates derived from it. As apparent from Table 4 and Figure 12, my estimates of total household indebtedness are larger than those of AIDIS (by an order of 2 or 3). This is possibly due to two main reasons. Firstly, there are differences in the definition of a 'household'. As explained in Section 2, I have followed the CSO (2012) definition of a household while constructing the balance sheet, which includes individuals, unincorporated establishments, non-profit institutions serving households, and all non-government non-corporate enterprises, whereas, the AIDIS definition of a 'household' draws from the concept of sharing a 'common kitchen' and is very similar to the United Nations (2009) definition. To be precise, AIDIS considers a 'household' to be 'a group of persons normally living together and taking food from a common kitchen' (NSSO (2013)), thus excluding NPISHs and guasi-corporations of business households. Technically, the size of the household sector according to the CSO (2012) definition would be larger than the size of the household sector derived from the AIDIS definition, and hence the tendency to produce larger estimates of household debt (or assets). Secondly, it is entirely possible that AIDIS is underestimating household indebtedness for various reasons, especially in rural areas, as has been alleged repeatedly by researchers (Gothoskar (1988); Prabhu et al. (1988); Rao and Tripathi (2001); Chavan (2012)). Rao and Tripathi (2001) blame this underestimation on the method of sampling and a reduction in the sample sizes of villages and households. Bell (1990) argues that an increase in the state sample as compared with the central sample has adversely affected the quality of AIDIS data as the state government agencies are less equipped to undertake surveys than the NSSO. Chavan (2012) shows that AIDIS underestimated rural household debt from commercial banks by about 46 % in the 1991 round and by around 35 % in the 2002 round. Rajkumar et al. (2019) compiled a supply-side estimate of institutional household debt which includes outstanding credit to individuals for different occupational activities, personal loans, professional services, and all small borrowal accounts (accounts with credit limits of up to INR 200 000) from commercial banks and cooperative banks and societies.

When compared with either Rajkumar et al. (2019) or estimates reported in this paper, AIDIS underestimates household debt owed to banks and cooperatives at the all-India level by roughly the same factor (~70 %) over the last four survey rounds (see Table 5). Rajkumar et al. (2019) also criticise the RBI supply-side data on household institutional credit, which I have used to construct the HBS in this paper, and infer that there are substantial margins of errors on both the supply-side (from RBI data) and demand-side (from AIDIS data) estimates.

	HBS (author's estimate)	AIDIS estimate (1)	GWD 2019 estimate (²)	GWD 2018 estimate (³)	RBI 2019 estimate (⁴)
1980/81	288	92			
1990/91	1 401	373			
2000/01 (5)	4 833		2 653	2 653	
2001/02	5 664	1 768	2 926	1 676	
2002/03	6 532		4 064	2 310	
2003/04	7 525		4 907	2 751	
2004/05	9 252		6 068	3 327	
2005/06	11 885		6 786	3 869	
2006/07	15 910		6 625	4 966	
2007/08	18 451		11 366	6 087	
2008/09	20 568		12 492	5 703	
2009/10	23 189		11 980	7 490	
2010/11	26 779		21 208	8 971	
2011/12	30 431	12 163	28 207	12 636	24 790
2012/13	35 001		33 425	15 920	28 123
2013/14	39 961		39 465	19 348	31 729
2014/15	45 172		40 611	24 666	35 521
2015/16	50 502		49 701	32 451	39 468
2016/17	56 983		56 731	38 745	43 279
2017/18	67 225		70 029	48 587	50 743

Table 4: Estimates of total household debt

(INR billion, current prices)

(1) Source: last four rounds of AIDIS, namely 1981, 1991, 2002 and 2012. The AIDIS data represent the value of stock on 30 June of the corresponding year. The stock of debt at the end of a fiscal year has been approximated by the household debt reported in AIDIS of the corresponding year. For example, the household debt reported in 1991 AIDIS is ascribed to stock at the end of 1990/91.

(2) Source: Shorrocks et al. (2019). For 2000/01 to 2016/17, the tabulated data represent the outstanding stock on 31 December in the given fiscal year. For 2017/18, the data represent the average of the stocks on 31 December 2017 and 30 June 2018.

(3) Source: Shorrocks et al. (2018). For 2000/01 to 2015/16, the tabulated data represent the outstanding stock on 31 December in the given fiscal year. For 2016/17, the data represent the average of the outstanding stocks on 31 December 2016 and 30 June 2017. For 2017/18, the data represent the stock on 30 June 2018.

(4) Source: RBI 2019. The reported data include only institutional household debt.

⁽⁵⁾ The relative change in stock of financial liabilities between 2000/01 and 2001/02 in the GWD 2018 estimate appears to be unrealistic. GWD (2018) use adjusted survey means from the last two AIDIS rounds, namely 2002 and 2012, and accordingly extrapolate the data for the remaining years in the sample. It seems that the methodology employed in GWD (2018) is producing spurious backcasts for years before 2002.



Figure 12: Deviation in estimates of the stock of total debt owed by households (%)

Table 5: Estimates of household debt owed to banks and cooperatives(INR billion)

	1981	1991	2002	2012
AIDIS estimate (1)	47	182	905	7852
HBS (author's estimate) (²)	145	791	2 964	20 401
Rajkumar et al. 2019 estimate	135	684	3 310	19 926

() Source: AIDIS rounds. The AIDIS data represent the value of stock on 30 June of the corresponding year.

(2) Source: author's calculations. The data represent the value of stock on 31 March of the corresponding year.

However, in my opinion the supply-side household credit data collected from various banks and financial institutions are 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 a survey might be affected by problems linked to memory lapses, whereby the respondent may fail to recollect the exact details (such as interest rates and maturity periods) of outstanding loans which were raised a long time in the past. Even if these details are known, the correct calculation of the principal and interest outstanding is needed from either the respondent or the surveyor to arrive at a reliable estimate of the 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 under-reporting their levels of debt owed and causing a downward bias in the AIDIS estimates (Shorrocks et al. (2019)).

The estimates of household debt provided by Credit Suisse's Global Wealth Databook (GWD) include both institutional and non-institutional debt and are derived from AIDIS. Notice that GWD (2018) estimates are fairly close to the AIDIS estimate of household debt (see Figure 12 and Table 4). GWD (2019) estimates of household debt, on the other hand, diverge significantly between 2000/01 and 2010/11 (by -40 % on an average) from HBS estimates presented here. However, in recent times the estimates from GWD (2019) have come quite close to HBS estimates presented here (see Figure 12 and Table 4), with the average deviation between the two estimates falling to -3 % for the 2011/12 to 2017/18 period. The primary methodological difference between the two editions of GWD is that GWD (2018) uses raw AIDIS data on

household debt (Shorrocks et al. (2018)), whereas GWD (2019) acknowledges the underreporting of household debt in AIDIS and corrects the survey estimate of the debt level in India using a consensus factor from the literature (Shorrocks et al. (2019)).

The stock data released along with RBI (2019) and as reported in Table 4 include only institutional household debt and therefore cannot be directly compared with HBS figures (reported in Table 4) which include both institutional and non-institutional debt. Figure 13 shows that RBI (2019) overestimates the stock of institutional financial liabilities over the period from 2011/12 to 2017/18, although to a lesser extent than was observed with financial assets in Figure 10; the deviation between the two estimates narrows over time. The reason for this overestimation of debt appears to be similar to that inferred for financial assets — the omission of OCVAs from flow data that have been used to compile stock data reported along with RBI (2019). If I compare the RBI (2019) flow data with those made available in NAS and RBI (2017a), I observe that the changes in financial liabilities reported in RBI (2019) are most of the time (²¹) higher than those reported in the other two sources (see Table 6).

In the context of debt, the most relevant OCVAs are debt write-offs and write-downs which involve unilateral reductions by a creditor of the amount owed to it (²²). This usually occurs when a creditor concludes that a debt obligation has no or a reduced value because the entire or a part of the debt shall not be paid back because of debtor's insolvency or other reasons. In such cases, the financial asset is removed from the balance sheet of the creditor and the corresponding liability is removed from the balance sheet of the debt rhrough other changes in the volume of assets (IMF (2014)). OCVAs corresponding to debt write-offs or write-downs will tend to diminish the debtor's gross and net debt stock (IMF (2011)). This leads me to suspect that the OCVAs have not been incorporated into the change in financial liabilities data reported with RBI (2019) and this omission appears to be the primary reason for the overestimation of institutional household debt by RBI (2019) as observed in Figure 13.



Figure 13: Estimates of household debt from institutional sources

 $(^{21})$ A possible reason for the reversal in the sign of deviation could be the revision of estimates in national accounts at the time of publication.

(22) Note that these are different from debt forgiveness, which is a mutual agreement, and is therefore classified as a transaction.

(, , , , , , , , , , , , , , , , , , ,						
	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
RBI 2019	3 331	3 606	3 788	3 942	3 806	7 450
RBI 2017a (1)		3 587	3 634	4 318		
NAS (²)	3 304	3 587	3 768	3 854	4 686	7 406

Table 6: Estimates of	of changes	in institutional	financial	liabilities
(INR billion)				

(1) 2014/15: second revised estimate at the time of publication. 2015/16: first revised estimate at the time of publication. (2) 2015/16: third revised estimate at the time of publication. 2016/17: second revised estimate at the time of publication.

2017/18: first revised estimate at the time of publication.

4. An international comparative analysis: broad trends in household finance

In this article, I have not attempted to estimate the stock of non-financial assets owned by households, mainly due to the paucity of reliable flow/stock data for physical assets. However, the AIDIS data contain an estimate for non-financial assets as well. Based on the latest AIDIS data, RBI (2017b) notes that Indian households have, on average, 77 % of their total assets in real estate, 11 % in gold, 7 % in other durable goods, and just 5 % in financial assets. Davies and Shorrocks (2000, p. 630) notice that wealth surveys, in general, do remarkably well for owner-occupied housing — which, as pointed out above, is the main component of non-financial assets in the case of India. Therefore, I accept the estimates of non-financial assets reported in GWD (2019) — which are based on AIDIS data — as fairly reliable and use the same source for the international comparative analyses presented below, by combining the estimates for non-financial assets reported in Shorrocks et al. (2019) with the estimates of financial assets and total liabilities compiled in this paper.

There appears to be a link between the household debt level (as a proportion of gross wealth) and the stage of economic development. As depicted in Figure 14, household liabilities amount to 8 % of gross wealth in India, 6 % in China, and 10 % in Africa, but average more than 13 % in both North America and Europe (²³). The world average is close to 12 %. Globally, wealth is mainly held in financial assets (55%), rather than non-financial assets (45%). In India, non-financial assets form the bulk of household wealth, whereas financial assets account for only 20 % (see Figure 14). This dominance of non-financial assets in India is anomalous even when I take into account global patterns based on the stage of economic development. In general, developing regions such as Latin America or Africa hold around 45 % of their wealth in financial assets. By contrast, in developed regions, such as North America, financial assets are relatively more important and constitute 72 % of gross assets. Chinese households maintain 56 % of their gross wealth in the form of financial assets. If I look at the country-level composition of wealth, it becomes clear that there exists a direct relationship between the share of financial assets in gross household wealth and the level of financial development in a country (as measured by the IMF's financial development index). Figure 15 plots the 3-year average (²⁴) ratio of financial to non-financial assets against the 3-year average (2015 to 2017)

^{(&}lt;sup>23</sup>) In this paper, countries are classified into geographical regions in accordance with the geoscheme of the United Nations Statistical Division.

⁽²⁴⁾ For the financial to non-financial assets ratio, the annual average from 2015 to 2018 is taken for all countries, except for India for which the average from 2015/16 to 2017/18 is considered.

of the financial development index value for 27 selected countries (²⁵). When compared with other countries with similar financial development scores, such as Indonesia and Mexico, the share of non-financial assets in household wealth appears to be disproportionately high in India. However, there do exist other countries within the sample, such as Sri Lanka, Iran, Turkey, and Thailand, which exhibit similar disproportionately high shares of non-financial assets in relation to their respective levels of financial development as is the case in India.





Source: author's calculations and Shorrocks et al. (2019)

Figure 15: Financial to non-financial assets ratio and the financial development index, average 2015-2017



⁽¹⁾ Average 2015/16 to 2017/18.

Source: author's calculations, IMF database and Shorrocks et al. (2019)

(25) The sample represents a mix of leading OECD economies, neighbouring states and emerging economies whose performances are often presented as benchmarks in the Indian economic discourse.

Figure 16 shows the breakdown (²⁶) of gross financial wealth into three categories: liquid assets (currency and deposits); equities (defined as all shares and other equities directly owned by households) (²⁷); and other financial assets (which mainly comprise the reserves of life insurance companies and pension funds). Unlike Chinese households — which have redistributed their portfolio away from liquid assets and towards equities over time, Indian households have maintained their preference for liquid assets. Based on 2018 data, households across the world hold an average of 37 % of their financial wealth in liquid assets, 29 % in equities, and 34 % in other financial assets (Shorrocks et al. (2019)). The share of liquid assets is higher than the world average in all of the emerging (²⁸) market countries in the sample (corresponding to Figure 16). The relatively low share of directly held equities and the higher share of other financial assets observed in India is partly related to a systematic negative association between equities and other financial assets observed across countries in Figure 16 and also reported by Shorrocks et al. (2019). Shorrocks et al. (2019) argue that, in countries where private pension systems are highly developed, other financial assets may tend to crowd out privately-held equities. However, in my opinion, a unique set of factors might be at play in India: the bulk of Indian household savings categorised as other financial assets go primarily into provident & pension funds (48 % of all other financial assets in 2017/18), life insurance funds (40 %) and small savings schemes. Notably, all of these investment vehicles come with income tax exemptions and the majority have either implicit or explicit sovereign guarantees. The two preferred investment instruments of the Indian middle class - the Public Provident Fund (PPF) and small savings schemes - come with income tax exemptions, a guaranteed interest rate and sovereign guarantee (net collections received in the PPF and the National Small Savings Fund are either invested in debt securities issued by central and state governments or lent to public agencies like the Food Corporation of India and the National Highways Authority of India, among others). Moreover, every salaried employee in India is obliged to contribute a defined portion of his income to an Employee Provident Fund (EPF) and a matching sum is contributed to the fund by the employer as well. These contributions are exempt from income tax just like 401(k) in the United States. However, the EPF is different from 401(k) in terms of the flexibility of choosing an investment fund that comes with 401(k) and the variability in returns that results from the performance of the chosen fund; the EPF is managed by a public agency — the Employees' Provident Fund Organisation (EPFO) — that offers a guaranteed return and is perceived as an extension of the government. In the case of insurance funds, the market is dominated by the Life Insurance Corporation of India (LIC), a state-owned corporation with more than 70 % market share. Premiums paid towards life insurance policies enjoy income tax exemption up to a certain limit but, more importantly, investing in LIC policies is considered safe due to an explicit sovereign guarantee provided to policyholders under Section 37 of the Life Insurance Corporation (LIC) Act passed in 1956 by the Indian parliament. Apparently, these sovereign guarantees, tax exemptions, and fixed rates of return offered by most of the investment instruments making up the other financial assets category might be responsible for crowding out direct ownership of shares & debentures by Indian households, alongside other factors such as a preference towards currency and deposits.

⁽²⁶⁾ For the cross-country analyses presented in this section, I have attempted to create a fairly balanced mix of leading advanced and emerging economies. However, the reader might notice that the final set of countries chosen varies from analysis to analysis (refer to Figures 16, 18 and 19) primarily due to restrictions imposed by data availability, such as, a lack of data on the share of liquid assets in the HBS of certain countries, and so on.

⁽²⁷⁾ Due to data restrictions, equities in the case of India include shares & debentures directly held by households.

⁽²⁸⁾ In this article, economies are designated as 'emerging' based on the list of countries included in the MSCI Emerging Markets Index (April 2020 composition).



Figure 16: Evolution of the composition of gross financial wealth (%)

Note: * implies emerging economy. (1) 2015. Estimate.

Source: author's calculations, OECD.Stat and Shorrocks et al. (2019)

Next, I scrutinise the financial soundness of the Indian household sector compared with households in other regions of the world. The first indicator I employ is the liabilities-toassets ratio, which is a useful metric in gauging solvency risks embedded in any sector. As depicted in Figure 17, household debt (as a percentage of gross wealth) in India remained below 10 % over the whole sample period, barring the spike observed during the build-up and peak of the global financial and economic crisis (GFEC). For the world as a whole, the household debt-to-wealth ratio rose from 13.4 % in 2000/01 to 15 % in 2008/09 and then subsequently declined to 11.8 % in 2017/18. Although the debt-to-wealth ratio for Indian households remained at modest levels compared with the world average during the sample period, household debt (as a percentage of gross wealth) had not returned to pre-crisis levels even 10 years after the GFEC, and remained at somewhat relatively elevated levels. A similar development has been observed even more clearly in other developing regions like Africa and Latin America. The household debt-to-wealth ratio in Africa rose from 8.7 % in 2000/01 to reach a peak of 11.8 % in 2011/12 and thereafter settled near 10 % in recent years. Similarly, the household debt-to-wealth ratio in Latin America rose by more than half over the sample period. The most striking rise in household debt (as a percentage of gross wealth) has been noted in China (see Figure 17), where it more than quadrupled from 1.4 % in 2000/01 to 6.3 % in 2017/18, with a peak of 7.6 % coinciding with the 2015/16 stock market crash in China. Although households in developed regions such as North America and Europe have, in general, higher debt-to-wealth ratios than their counterparts in developing regions, households in the former seem to have undergone a course of deleveraging post-GFEC and have repaired their balance sheets to pre-crisis levels. In North America, household debt (as a percentage of gross wealth) rose from 14.2 % in 2000/01 to 20.1 % in 2008/09, but then came down to 13.2 % in 2017/18. A similar inverted V-shaped path was charted by European households over the sample period, as observed in Figure 17.



Figure 17: Evolution of household debt as a proportion of gross wealth (%)

Source: author's calculations and Shorrocks et al. (2019)

A liquidity-adjusted measure of risk associated with household debt is the liabilities-to-liquid assets ratio, which addresses the concerns over the liquidity of non-financial and some other financial assets as discussed in Section 3.2. As depicted in Figure 18, the outstanding stock of household debt has remained lower than the stock of liquid assets in all the emerging economies in the sample (corresponding to Figure 18), except in South Africa. The debt-toliquid assets ratio for Indian households rose from 49 % in 2000/01 to 66 % in 2017/18. This increasing leverage ratio certainly poses a threat to household debt sustainability in India, but the threat is relatively tame when compared with the situation in China, where the ratio has exploded from 5 % in 2000/01 to 33 % in 2017/18. China has witnessed a phase of rapid financial development in the last two decades — its financial development index score rose from 0.43 to 0.64 between 2000 and 2017. Individuals and families have gained greater access to credit, especially to consumption credit and mortgage loans (amidst the boom in the Chinese housing market). Moreover, the share of liquid assets in gross financial wealth held by Chinese households has fallen from 77 % in 2000 to 53 % in 2015, as depicted in Figure 16. Indian households, on the other hand, have increased their allocation in liquid assets modestly from 52 % in 2000 to 58 % in 2017 and the development level of the financial sector has stagnated over the sample period — India started with a financial development index score of 0.42 in 2000 and ended up with the same score in 2017. These factors have probably prevented a China-like eruption of household debt in India. Moving to households in other emerging economies, such as South Africa and Greece (29), I observe these countries charting an inverted V-shaped path, peaking in 2007/08 (around the time of the GFEC) and 2012/13 (during the euro area sovereign debt crisis) respectively, and ending up at a higher household debt-to-liquid assets ratio at the end of the sample period in comparison with their 2000/01 ratios. Developed economies like Australia, Italy and the United States also follow an inverted V-shaped path, peaking in 2007/08, but households in these economies consolidated their balance sheet post-GFEC and ended up with a lower debt-to-liquid assets ratio in 2017/18 as compared with the numbers they had at the beginning of this century. Over the same period, Japanese households significantly deleveraged by steadily reducing their debt-to-liquid assets ratio from 56 % in 2000/01 to 33 % in 2017/18.

Last but not the least, I look at the development of the household debt-to-income ratio — a critical measure of the debt servicing capacity of households. Unlike advanced economies such as the United States and Japan, the outstanding stock of total household debt for all the emerging economies in the sample (corresponding to Figure 19), including India, remained smaller than the flow of household disposable income (HDI) in any year of the sample period (see Figure 19). The debt-to-HDI ratio in India more than doubled from 26 % in 2000/01 to 54 % in 2017/18, indicating a dire collapse in the debt servicing capacity of Indian households. An even more frightening trend emerges in other emerging economies such as China and Mexico. The household debt-to-income ratio snowballed from 9 % to 56 % between 2000/01 and 2016/17 in China, whereas in Mexico it swelled from 7 % in 2003/04 to 38 % in 2017/18. However, this was not a phenomenon repeated across all emerging economies; rather, households in South Africa and Brazil charted a path that was similar to their counterparts in the United States, where the liabilities-to-income ratio reached a peak during the GFEC and then eventually fell back to pre-crisis levels. In my sample, Japan was the only country that systematically reduced its household debt-to-income ratio in the last two decades.

⁽²⁹⁾ It might come as a surprise to some readers that Greece is classified as an 'emerging' market, after it lost its status as a 'developed' market in 2013.

A general pattern of convergence is visible in Figure 19, which shows that households in countries where the debt-to-HDI ratio was high (close to or greater than 100 %) at the beginning of the century have improved their debt-servicing capacity. By contrast, countries that entered this century with a low household debt-to-income ratio have seen a general increase in the ratio and have come closer to the former set of countries in recent years.



Figure 18: Evolution of household debt as a proportion of liquid assets

Note: * implies emerging economy.

Source: author's calculations, OECD.Stat and Shorrocks et al. (2019)



Figure 19: Evolution of household debt as a proportion of household disposable income (%)

Note: * implies emerging economy.

Source: author's calculations, OECD.Stat and Shorrocks et al. (2019)

5. Concluding remarks

In this paper, I compile India's 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, I begin by addressing some technical issues faced during the compilation, including the definition of the 'household sector' and an assumption regarding the initial value of stocks. Next, I cumulate the FoF data to arrive at the final HBS presented in this paper. I study the development of the structure of Indian household finance over time and the constitution of asset classes making up the assets, as well as the liability side of the balance sheet. Contrary to everyday reporting by the financial press and also to the claim made by RBI (2019), I find that there has been neither a systematic decline in the share of currency and deposits (combined) in the portfolios of Indian households nor a shift towards equities and debt securities over time. Interestingly, I found that the share lost by the asset class of shares & debentures between 1990/91 and 2017/18 was commensurate with the share gained by life Insurance funds over the same period. This certainly makes the calculation of total exposure of the household sector to market risk difficult, as the reserves of life insurance funds comprise equities, bonds, and other financial instruments that are in effect being held on behalf of the household sector, but at the same time households also enjoy an explicit sovereign guarantee on their rights to many insurance benefits. More specifically, I find that, in comparison with other parts of the world, households in India hold a very small share of their financial wealth in the form of directly-held equities and debt securities. I observe that this is mainly due to the general preference of Indian households for liquid assets (currency and deposits) and unique benefits, such as implicit or explicit sovereign guarantees, tax exemptions, and fixed rates of return that come with investments in provident & pension funds, life insurance funds and small savings schemes.

I also compare my estimates of the HBS with other estimates for India existing in the literature. Concurring with many other studies on Indian household finance, I too find that AIDIS grossly underestimates the level of indebtedness in the household sector. Moreover, the recently released HBS estimate (2011/12 to 2017/18) along with RBI (2019) seems to have been compiled from FoF data that do not include OCVAs and hence overestimate both the stock of financial assets owned by Indian households and the institutional household debt.

I observe that the Indian household sector, after witnessing a decade of balance sheet consolidation in the 1990s, has been in an upward leveraging cycle since the period building up to the GFEC and that critical leverage ratios have remained at higher levels since then. Strikingly, this is not a global phenomenon; the household sector in many major economies of the world repaired their balance sheets post-GFEC and ended up with either lower or similar levels of leverage ratios (debt-to-liquid assets or debt-to-income ratio) in 2017/18 as compared with the ratios they had at the beginning of this century, whereas indebtedness in the Indian household sector continued to increase, even during the economic recovery post-2010. If I just look at the household debt-to-wealth ratio, India appears to be among the least leveraged countries in the world. However, the picture becomes clearer when I look at the household debt-to-disposable income ratio — a critical measure of household debt-servicing capacity — which has more than doubled in India between 2000/01 and 2017/18. Alarmingly, this steady increase in the debt-to-income ratio might be related to the phenomenon of households

accumulating debt for supporting consumption — which has grown at a faster pace than disposable income every year since 2010/11. Subramanian and Felman (2019) highlight the *Four balance sheet* challenge being faced by the Indian economy in recent years: the stress in infrastructure companies and the real estate sector on the corporate side, and banks and NBFCs on the financial side. However, my findings reveal that there is a neglected, but equally important, fifth dimension to the country's deteriorating balance sheet — the HBS — which is the backbone of domestic consumption. More precisely, a *Five balance sheet* challenge lies before India's growth juggernaut.

On the policy front, the increasing indebtedness of Indian households requires the utmost attention. If ignored, it could catch the central bank by surprise since the data on total household debt are currently disseminated with a less-than-desirable frequency and are not monitored adequately. This holds serious implications for the formulation and efficacy of monetary policy. In view of that, synchronised efforts of the CSO, the RBI and academia are urgently needed to collect more and better data for compiling HBS, both at the national and state levels, and to implement other recommendations of NSC (2018). As a first step, an HBS should be published regularly and in a timely manner with the yearly statement of National Account Statistics. Data on household accounts are critical to identify and understand sectoral linkages and spillover mechanisms, and to map the transmission of potential shocks across sectors. Therefore, higher frequency information on household finance becomes crucial for a more comprehensive macroeconomic assessment. Subsequently, the release of data on household finance should be made a quarterly exercise, at least at the national level. In this regard, it is important for the reader to know that the RBI published guarterly data on changes in household financial assets and liabilities for the first time in RBI (2018) for the period 2015/16 quarter 1 to 2017/18 quarter 2, but did not continue the practice thereafter (as observed at the time of writing).

Finally, I would like to offer some caveats and suggestions which have direct implications for future avenues of research. Due to the paucity of information, NPISHs such as political parties, religious societies, trade unions, social, cultural and recreational sports clubs, and so on are included within the household sector in the national accounts of India. Consequently, estimates for HBS presented in this paper are not corrected for the 'true' size of the household sector. Also due to data constraints, I made a zero-value assumption for the initial value of the stock while cumulating the FoF data for some items in the balance sheet. Moreover, in Section 4 where I compared the financial position of Indian households with those in other countries, I used the 2019 edition of Credit Suisse Global Wealth Databook (Shorrocks et al. (2019)) as the source of data on household accounts for other countries. There do, however, exist other accounts of household wealth, especially for countries with questionable national accounting practices like China or Russia, which might differ from the estimates presented in GWD 2019; for example, the reader may notice that the estimates of household wealth for China presented in GWD 2019 are significantly different from those presented in Li (2018). In light of the above assumptions, the reader should focus more on the trends in the levels than the value of the level itself, especially while interpreting the findings based on international comparative analysis. The Indian HBS compiled in this article should be considered as an indicator of the order of magnitude of financial wealth allocated across different instruments and certainly not as a substitute to official balance sheet estimates (30), which, unfortunately, remain unavailable (or unreliable) at the time of writing.

^{(&}lt;sup>30</sup>) The estimates of household financial wealth and institutional debt presented in this paper are certainly superior to survey estimates provided by the last four rounds of AIDIS.

The HBS compiled here could be further extended to include non-financial assets, namely real estate, precious metals and household durables. At the moment, the only primary source of data for non-financial wealth owned by Indian households is the AIDIS and the subsequent estimates derived from various rounds of it, such as Shorrocks et al. (2019). These estimates are not entirely perfect and could be further improved. The biggest hurdle in this exercise is a lack of land records (³¹) and the rampant usage of *black money* in the real estate and gold markets. It is important to note that any exclusion of non-financial assets from the HBS is a serious limitation as the Indian household sector holds at least 80 % of its wealth in non-financial assets. On the liabilities side, it is important to realise that the share of non-institutional credit is very much significant in Indian household debt as uninsured households borrow frequently from non-institutional sources (RBI (2017b)). I have tried to incorporate the non-institutional debt in the HBS estimates presented in this paper by making some simplifying assumptions.

Although I observed a steady rise in household debt-to-income ratio in India, the Indian household sector, as a whole, emerges financially sound from the perspective of the debtto-wealth ratio (an important measure of solvency risk), and the possibility of widespread household defaults does not seem imminent or likely. However, distributive aspects of household wealth and debt (and the associated risks) across regions and income cohorts are required to get a clearer picture of the extent of debt distress in the sector. Aggregated data, as provided by the HBS, could aid in the investigation of such distributive aspects. Currently, AIDIS data are the only official source for measuring wealth distribution/inequality in India. However, there has been some debate over the reliability of wealth inequality estimates derived from AIDIS (Himanshu (2019)). Wealth surveys are generally 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 errors. There are different approaches to this: one, which has been applied by Wolff (2017) on United States 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. Notice that this approach essentially ignores the differential response problem and maintains the hypothesis that all respondents misreport by the same percentage, irrespective of their wealth level. The second approach relies on the assumption that, irrespective of the source of the shortfall (of survey aggregates below HBS totals), the error due to underreporting mainly affects mean wealth in the top X % of the distribution; this is followed by fitting a Pareto distribution (32) to the upper tail that is consistent with the adjusted survey estimate of the mean wealth of the top X % of households (Blanchet et al. (2017)). It is hoped that my preliminary work would pave the way for further refinements aimed at improving the reliability of the relevant data, concepts, and estimation methods.

^{(&}lt;sup>31</sup>) The reader may note that land administration and record-keeping is a state subject in India as per the Seventh Schedule to the Constitution of India. It is a well-known fact that the land records in India are unclear (especially the cadastral maps) and do not guarantee ownership. In India, there is a system of registered sale deeds and not land titles. Consequently, property and land ownership is established through multiple documents maintained by different departments of state government (which usually work independently of each other), making it cumbersome to collate and access them. For the aforementioned reasons, central government agencies like the CSO depend on household surveys, such as AIDIS, for estimating the contribution of land and dwellings to household wealth.

⁽³²⁾ A Pareto distribution often approximates the top tail of wealth distribution quite well (Davies (2008) p. 412).

Appendix

The household balance sheet for India covering the period from 1970/71 to 2017/18 can be accessed at the following data repository: https://doi.org/10.7910/DVN/DPQPJY.

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