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ABSTRACT

The paper makes an analysis of cash holdings in India and attempts to test its association with tax effort and government spending. The finding arrived is that the ratio of Cash holding to Nominal GDP does not have a statistically significant association with tax GDP ratio, but has the same with government spending. The empirical examination of data leads to a hypothesis that the monetarist approach of taking cash holding as a proxy for either tax evasion or impeding tax effort does not seem to hold good in the Indian context. The paper also makes an attempt to estimate the size of the Tax Evaded Incomes at aggregate level without bifurcation Corporation Tax and Personal Income Tax) in India during the recent period by using data on factor incomes published by the Central Statistical Office. The study estimates the extent of Tax Evaded Incomes, at 26.97 percent of the Gross Value Added at current basic prices. The size of Tax Evaded Incomes estimated does not support the view that by attempting to truncate high value cash in circulation, it can be eliminated. The paper also suggests that there is need for sustained administrative effort, especially, through non-intrusive methods of gathering of information on transactions for checking the Tax Evaded Income.

Keywords: Tax Evaded Incomes, Cash Holding, Factor Incomes, Velocity, Cash-Bank deposit ratio.

General Backdrop

The demonetisation of High Denomination Notes of Rs 500/- and Rs 1000/- on November 8, 2016, has brought the discussion on tax evasion into focus. The generally advanced hypothesis that tax evasion has intimate connection with cash transactions, especially in high denomination currency notes and demonetisation would help to substantially reduce the amount of Tax Evaded Incomes in India.

The discussion on undisclosed money, corruption and tax evasion came to get wide attention since 2011-12, when the movement for enactment of Lok Pal bill, was launched and a number of corruption scandals had rocked the Nation. The Government of India brought out a White Paper on Black Money in 2012. Efforts for sharing information on bank accounts of Indian citizens abroad were also made. Later, in 2014, a Special Investigation Team (SIT) was appointed with a retired judge of the Supreme Court of India, chairing it. Schemes for declaring undisclosed wealth abroad was announced and later Income Disclosure Scheme (IDS), for tapping unaccounted income within the country was launched. Post- demonetisation, another immunity scheme for deposits in Pradhan Mantri Garib Kalyan Yojana (PMGKY) was made operational till 31st March 2017.

In India, rates of direct taxation have come down considerably since the 1960s. Despite this, the evasion of taxes is stated to be

substantial, as can be seen from the policy measures granting amnesty six times since the 1970s[1], for declaration of Tax Evaded Income, by Government of India. During the presentation of Union Budget for 2017-18, the Union Finance Minister stated in the Lok Sabha, that there is high level of tax non-compliance in our society and cited examples of high spending patterns and low level of incomes disclosed. The efforts to overcome this is being based on technology and information based strategies with emphasis on self- compliance. In this context, it is felt that there is need for an empirical enquiry into these issues.

The two issues addressed in this study are

a) Can tax evasion in India be successfully addressed by truncating cash, especially high denomination currencies, in circulation? Is there a significant association between cash holding as a proportion of Nominal Gross Domestic Product and tax GDP ratio? In other words, does the hypothesis that higher cash holdings are a proxy for higher tax evasion, as in Monetarist Approach, hold good in the Indian context?

b) What could be the probable estimate of Tax Evaded Incomes in India and how feasible are the strategies of the tax administration to check tax evasion?

The first issue is relevant due to the underlying assumption behind recent policy measure of demonetisation regarding close association between cash holding (especially holding of high denomination currency) and tax evasion. The second one is pertinent as there is no recent official estimate of the Tax Evaded Income, commonly called ‘Black Money”. There had been several attempts in the past to estimate the extent of Tax Evaded Income, by Government of India appointed committees and other researchers. The major problem faced by all these studies was the need for making several restrictive assumptions, due to non-availability of reliable published data[2]. This study is also compelled

to make a few such assumptions for the same reason. Since the exercise is based on data from National Accounts Statistics, there is no separate estimation of evasion with respect to Corporation Tax and Personal Income Tax respectively.

2. Cash Holdings and Tax Evaded Income - A Overview of Monetarist Approach

The most simple and popular methodology of estimating Tax Evaded Incomes is the monetarist approach, as it uses readily available data. But it also necessitates certain assumptions. In this part, we briefly overview, the monetarist approach to estimate Tax Evaded Incomes. This is done due to the fact, that we test the statistical significance of the association between cash holdings and tax revenue in this study. This is in effect testing the relevance of assumptions of the monetarist approach.

This approach to measure Tax Evaded Income is mainly associated with the names of Feige, Tanzi, Cagan and Guttman. Ferwerda, Delnau and Unger (2010) in a survey of literature on Tax Evaded Income summarise monetarist approach as under:

"Feige *(1979) tried to estimate the size of the US economy from the perspective of payments and transactions. He assumed the aggregate money supply to be a good indicator of the size of the real economy and made estimations based on the Fisher MV=PT equation. This equation says that money M times the velocity V equals the price level P times the level of transactions in an economy. Tanzi (1983) used the constructed aggregate money demand of Feige (1979) and compared it to the recorded money supply. He then suggested that the overall excess of money supply was unrecorded money used in the underground economy*." Feige's method assumes a benchmark year in which cash to bank deposit ratio is normal and considers excess over this ratio in later years as a proxy for underground or parallel economy. Guttman (1977),

also employed monetarist approach and assumed that high cash to deposit ratio is only influenced by high tax taxes and regulations, cash is the only mode of transaction in parallel economy and there is a point in the past when no parallel economy existed and cash- bank deposit ratio of that period can be used to measure the size of parallel economy in future years, which is proxied by higher cash- bank deposit ratio.

Tanzi (1983), proposed a regression model, in which Cash- Bank deposit ratio is the dependent variable and a) weighted average tax ratio b) share of wages and salaries in national income c) interest paid on savings deposits and d) per capita income are the explanatory variables. In this model, it is assumed that there is a significant positive association between cash- bank deposit ratio and weighted average tax ratio on the basis that a higher tax rate induced more parallel economy transactions which is proxied by an increase in cash-bank deposit ratio. A second model is estimated in which the value of dependent variable, cash-bank deposit ratio is arrived at without the explanatory variable, weighted average tax ratio. The income velocity (Nominal GDP divided by Cash in Circulation) in official economy is computed. Assuming the same velocity of cash circulation in parallel economy, as in official economy, output in the former is arrived by multiplying the cash in circulation in parallel economy, (arrived at by subtracting from cash holding estimated in the first regression model the cash holding estimated in the second regression model) with the velocity of money circulation in the official economy. Ahmed and Hussain (2008) estimated the size of parallel economy in Pakistan using the Tanzi approach and found that tax reforms and lowering of tax rates had reduced the size of parallel economy. In the recent demonetisation, the underlying assumption is that cash holding is the primary indicator and reason for Tax Evaded Income. Before examining this hypothesis, let us first analyse the trends in cash holdings and whether it has been a preferred mode of holding by the public in the last fifty-year period.

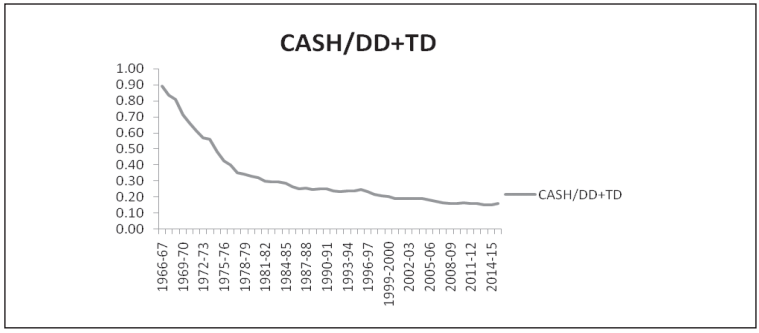
3. Cash Holding and Bank Deposits in India- Trend during 1966-67 to 2015-16

Table 1: Cash- Bank Deposit Ratio- 1966-67 to 2015-16

Period	Cash / (Demand + Time Deposit Ratio)
1966-67 to 1969-70	0.82
1970-71 to 1979-80	0.47
1980-81 to 1989-90	0.28
1990-91 to 1999-2000	0.23
2000-01 to 2009-10	0.18
2010-11 to 2015-16	0.16[3]

Source: Computed from Hand Book of Statistics on Indian Economy, Reserve Bank of India.

Figure 1: Cash Bank Deposit Ratio 1966-67 to 2015-16



Source: Data from Hand Book of Statistics on Indian Economy, Reserve Bank of India.

The cash held by public as a ratio of demand and time deposits has shown a discernible downward trend during the last 50 years, that is 1966-67 to 2015-16, (Table 1 & Figure 1). This period witnessed a substantial expansion in banking, since the nationalisation of banks in 1969 and consequent focus on rural priority sector lending. Despite this, huge gaps in spread of commercial banking still remain. It is

incidental that during this period, the tax rates also came down from expropriatory ones to moderate. If Guttman's monetarist method is adopted, the measure of parallel economy in India will have to be estimated as a miniscule proportion or one which has been eliminated, given the continuous fall in the cash- bank deposit ratio.

To get a better picture, we also look at proportion of Nominal Gross Domestic Product (GDP) to Cash Holding. This would give the trends in velocity of cash circulation in the economy.

4. Ratio of Nominal GDP to Cash Holdings in India – Trend during 1966-67 to 2015-16

In a growing economy in which monetisation takes place, it is natural to witness a growth in currency holdings with the public. But as currency substitutes[4] become available and technology spreads, cash holdings would tend to be less. In such a situation, as nominal GDP grows velocity of currency circulation, which is the ratio of nominal GDP to Currency holding, would rise. In the Indian economy, the size of GDP has expanded faster since the 1980s and still faster in the later periods (Table 2). In this situation, the Nominal GDP to Cash Holding or Velocity of Cash Holdings can decline only if cash holdings grow faster that Nominal GDP. This aspect has been highlighted in Nachane et al (2013). [5]

Intuitively, the higher cash holding since the 1990s cannot be attributed to higher tax tates, as during this period, tax rates were consistently lowered and the lower rates have stabilised since the second half of the 1990s. A probable reason could be higher government spending, especially in the second half of first decade of 2000s, in the wake of global economic slowdown and initiation of programmes like those under Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)[6]. In the recent period, 2010-11 to 2015-16, the growth rate of cash holding has come down to 13.04 percent, which could be due to return to fiscal correction path by containing expenditure on social sector schemes.

Table 2: Trends in Nominal GDP to Cash Holdings

Period	Nominal GDP/ Cash Holding	Cash Holding Growth Rate	Nominal GDPGrowth Rate
1966-67 to 1969-70	7.78	7.69	10.98
1970-71 to 1979-80	7.40	11.44	10.74
1980-81 to 1989-90	7.92	14.84	14.87
1990-91 to 1999-2000	7.36	15.16	15.08
2000-01 to 2009-10	6.03	15.05	12.68
2010-11 to 2015-16	5.98	13.04	13.05

Source: Computed from data available in Hand Book of statistics on Indian Economy, Reserve Bank of India.

From 1970s, there was increasing monetisation of the economy and spread of banking not only caused cash- bank deposit ratio to fall, it also gave easier access to withdraw and hold cash for transactions and precautionary purposes by a larger number of people. When the two phenomena of cash- bank Deposit ratio secularly falling and Cash-Nominal GDP ratio showing a rise, are viewed together, it can be inferred that due to economic growth and increased monetisation, cash in circulation has grown, but among modes of saving it is not the preferred one. In other words, it implies that cash is not held with the main motive of hoarding. A clearer conclusion can be drawn if cash held by different income groups can be analysed, but there are serious data limitations to do this.

To test the hypothesis of whether tax effort or higher government spending is a better explanatory variable for the trend in cash- Nominal GDP ratio, we use a model in which Currency holdings with public as a ratio of Nominal GDP is the dependent variable and the Tax GDP ratio and Total Government spending as independent variables. The tax and

expenditure of the Centre and the States are included. We also test the hypothesis using Revenue Spending by Central and State governments, instead of Total Spending, as independent variable. The time period chosen is 1970-71 to 2015-16. We test the association statistically to see whether the intuitive hypothesis holds good or not. Before proceeding to the interpretation of the results of the Model 1 and Model 2, an explanation of why more explanatory variables were not used would be in order.

Regressions (Ordinary Least Squares OLS) were attempted using explanatory variables like Total Spending of Centre and States, Total Tax Collections of Centre and States, Interest Rate of bank deposits of 1-3 year maturity, Per Capita Income and Dummy Variable for the high tax period up to 1997 and the stable moderate tax period from 1997 to 2016. The overall time period in all the models was 1970-71 to 2015-16. The logarithmic form of the variables and all variables as ratios of Gross Domestic Product were both attempted. While testing for stationarity, it was seen that interest was stationary at levels (I (0)) and all other variables were stationary at first differences (I (1)). Hence, interest rate was omitted and other explanatory variables were considered. Except for Model 1 and Model 2 reported below, no other model could satisfy the residual properties of Normality, Hetroscedasticity, Auto Regressive Conditional Hetroscedasticity (ARCH) and Regression Equation Specification Error Test (RESET). Hence, only the results of Model 1 and Model 2, which satisfy all these tests are reported.

Model 1

Currency with Public/GDP (C/Y) = f [Tax GDP ratio (T/Y), Total Government Spending (EXP/Y)]

Model 2

Currency with Public/GDP (C/Y) = f [Tax GDP ratio (T/Y), Revenue Spending (REVEXP/Y)]

Since the dependent and independent variables are both time series variables the test for stationarity was done using Augmented Dicky-Fuller (ADF) test. It was found that the variables are not stationary at levels, but become stationary at their first difference.

Hence regression is done in Model 1 and Model 2 at first difference.

Table 3: Results of Model 1

	Co-efficient	Std Error	t-value	t-proba-bility	Part. R^2
Constant	0.000321630	0.0006180	0.520	0.605	0.0064
Total Expenditure/ Nominal GDP	0.107154**	0.03723	2.88	0.006	0.1647
Tax/ Nominal GDP	0.0769843	0.07772	0.991	0.328	0.0228

** Statistically significant at 1 percent level

R^2 0. 210157 F(2,42) = 5.588 [0.007]** DW 1.72 No. of observations 45 no. of parameters 3 AR 1-2 test: F(2,40) = 0.59325 [0.5573] ARCH 1-1 test: F(1,40) = 0.28850 [0.5942] Normality test: Chi^2(2) = 9.6464 [0.0080]** hetero test: F(4,37) = 0.83649 [0.5108] hetero-X test: F(5,36) = 0.65112 [0.6625] RESET test: F(1,41) = 0.54026 [0.4665]

Table 4: Results of Model 2

	Co-efficient	Std Error	t-value	t-proba-bility	Part.R^2
Constant	5.95938e-005	0.0006450	0.924	0.927	0.0002
Revenue Expenditure/ Nominal GDP	0.14945**	0.05741	2.60	0.013	0.1389
Tax/ Nominal GDP	0.102278	0.07744	1.32	0.194	0.0399

** Statistically significant at 1 percent level

R^2 0.185775 F(2,42) = 4.791 [0.013]* DW 1.68
No. of observations 45 no. of parameters 3 AR 1-2 test:
F(2,40) = 0.47283 [0.6267] ARCH 1-1 test: F(1,40) = 0.018430
[0.8927] Normality test: Chi^2(2) = 9.5077 [0.0086]**hetero test:
F(4,37) = 0.86021 [0.4968] hetero-X test: F(5,36) = 0.68475 [0.6380]
RESET test: F(1,41) = 2.2142 [0.1444]

The results clearly reveal that Total Government Spending as well as Revenue Spending as a ratio of Nominal GDP has statistically significant relationship with Currency holdings as a proportion of Nominal GDP, while tax- GDP ratio does not have a statistically significant relationship with currency holdings as a proportion of GDP.[7] This is contrary to the Monetarist hypothesis that higher cash holding is a good proxy for Tax Evaded Income[8], with the implicit assumption that higher taxes induce more tax evasion and to avoid detection of transactions, higher levels of cash is held.[9]

The assumption behind measures like demonetisation is that currency holding, especially of high denomination currency notes is a proxy for tax evasion. The Economic Survey (Vol I : 2016-17) has stated that the time taken for return of high denomination notes as soiled ones from the time of issue is at a slower rate than that for other denominations and this could be an indication of hoarding and therefore undisclosed incomes being generated. This proposition, however, ignores the difference in quality of printing of different denominations of notes. The emphasis on rising proportion of high denomination currency in overall currency holding without taking into consideration inflationary trends eroding the purchasing power of the erstwhile higher denominations would lead to drawing not very valid conclusions. Intuitively also the proposition that undisclosed incomes are hoarded in cash at all points of time is not very logical.

5. Estimation of Tax Evaded Incomes- Why and How?

An estimate of the Tax Evaded Incomes would help to explore, what portion of such incomes held as cash is expected to be extinguished or go out of circulation, through the measure of demonetisation. Obviously, the entire value of Rs 500/- and Rs 1000/- notes in circulation was not considered as Tax Evaded. The unconfirmed version was that around Rs 3 lakh crore was estimated as "black money" in this. Notwithstanding the basis for this, it would be interesting to examine what fraction of Tax Evaded Income would this figure of Rs. 3 lakh crore be.

Since fundamental hypothesis of the monetarist measurement of Tax Evaded Incomes, does not seem to hold good in the Indian context, we proceeded to estimate extent of Tax Evaded Incomes by an alternate method. But there are many alternate methods and no method can be stated to yield the best estimate of Tax Evaded Income as there are data gaps necessitating assumptions and extrapolations. Tanzi and Shome (1993) have discussed four methods of estimating tax evasion. They are a) the use of National Accounts b) use of direct controls c) use of household budget surveys and d) use of direct surveys. These four are called direct methods. The indirect method largely relates to estimates of the underground economy. The study states that National Accounts method is the commonest and most often used method for assessing the size of tax evasion and it is done by comparing the base made by the National Accounts authorities and the base reported to the tax authorities after making appropriate adjustments. In the second method, a random sample of tax payers is selected from data available to the tax authorities and the sample is examined for possible tax evasion. The average tax evasion of the sample is then used to obtain results for the whole population. The third method uses survey data of household spending and compare it with the declared income. The fourth method is the direct tax payer survey by asking questions to describe their tax reporting behaviour. The indirect method uses quantification methodology for underground

economy. According to Tanzi and Shome (1993), in a country with progressive taxes and when most of the incomes earned in underground economy is low and below taxable limit, it would not be a good proxy for tax evasion.

We use the direct method of estimating Potential Tax Base from National Accounts by making certain adjustments and subtracting it from the income reported to the tax authorities to estimate the Tax Evaded Income, as this is the best method from point of view of official data availability, even though it necessitates some assumptions, which every other method would also require. Potential Tax Base is estimated from published National Accounts Statistics (NAS) of the CSO after making suitable adjustments. Before proceeding to the estimate the Tax Evaded Incomes in India, a brief overview of the earlier estimates is done.

6. Estimates of Tax Evaded Income in India – A Brief Review of Earlier Studies

In this study, we are using the term Tax Evaded Income, instead of Black Economy, Parallel Economy or Shadow Economy. All these terms can be differentiated and distinguished. The term "Black" has been subject to criticism for its apparent racist overtones. The word 'Parallel' is incorrect as the part of the economy which is tax non-compliant is closely inter wined with the tax complaint sector and does not run parallel to the latter. 'Shadow' Economy is used to denote that part of the economy, whose transactions do not form part of the official economy. But only a part of it can be Tax Evaded Income, as Shadow Economy would include incomes below the taxable limit. In the Indian economy, there is a large share of informal sector within the reported or official economy and unreported or shadow economy outside this. Tax Evaded Income, which we attempt to measure comprises parts of the official economy, which has organised and informal sectors and a part of the unreported economy, (after excluding the estimated share of

incomes which are exempt like that from agricultural sector) and that part of the non-exempt income which is below taxable limit

The scope of Tax Evaded Income includes, incomes which are part of reported Gross Value Added on which tax has been evaded and that part of incomes in unreported part of Gross Value Added which is clearly outside the tax net. There could be omissions of totally illegal incomes and undisclosed moneys stashed abroad, as they do not get reflected in reported or unreported part of Gross Value Added.

The White Paper on Black Money (2012), published by Government of India gives an overview of the study by Kaldor in 1956, which had utilised the data from National Income and estimated the non-salary income above the exemption limit. The difference between this and the non-salary income assessed to tax was treated as "black" income. The Direct Taxes Enquiry Committee (Wanchoo Committee 1970), had followed the method adopted by Kaldor with some modifications. After making rough adjustments for exemptions and deductions, the Wanchoo Committee found that 'the estimated income on which tax has been evaded (black income) would probably be Rs 700 crore and Rs1000 crore for the years 1961-62 and 1965-66 respectively'. Projecting this estimate further to 1968-69 on the basis of percentage increase in national income from 1961-62 to 1968-69, the income on which tax was evaded for 1968-69 was estimated at Rs 1800 crore.[10]

The sector wise study of 'Black Money' in India was done by National Institute of Public Finance and Policy (NIPFP) in 1985 on behalf of Government of India. The study cites a number of reasons like leakage in public expenditure, unaccounted component of real estate transactions and export and import duty evasions. The study estimated the size of 'black' economy in India at 21 percent of the Gross Domestic Product for 1983-84.

A study by Schneider, Buehen and Montenegro (2010) estimated the size of the shadow economy for 162 countries. Shadow Economy is defined in the study as not only illegal economy but activities to evade taxes, labour market regulations, social security contributions and other administrative procedures[11]. The size of shadow economy in India is estimated at 22.4 percent of the official economy. In Mukherjee and Rao (2015), it is estimated that 25.40 percent of Gross Domestic Product is unreported. The study uses the supply and demand of transport sector as the basis to estimate the share of unreported economy. Kumar (2016 a) uses a regression model with size of service sector, size of trade sector and reported crime rate as explanatory variables and estimates the size of parallel economy at 62 percent of the GDP. But the study states that there can be issues of misspecification of explanatory variables[12].

None of the studies has used the Monetarist approach to measure the extent of Tax Evaded Income in India. The last official estimate of Tax Evaded Income was in 1985. Presently, there is no official estimate of the Tax Evaded Income[13] in India. This study makes an attempt to estimate of Tax Evaded Income, based on potential tax base derived from data published in National Accounts Statistics, for the recent period. Besides, Tax Evaded Income is not simply unreported GDP or what is called Shadow Economy. Unreported or Shadow Economy will also include non-taxable incomes. As already stated, Tax Evaded Income includes that part of reported GVA on which tax is not paid and part of the unreported GVA which would be taxable.

Any approach to estimate the size of Tax Evaded Income faces the problem of data gaps and the need for estimation to fill in the gaps, using certain assumptions. No study in this area has been able to circumvent this. How reasonable the assumptions can be, is the question to be looked at. In this study, we analyse the trends in cash holdings, look at their probable relation with tax compliance, proxied by the tax GDP ratio and attempt to estimate the size of Tax Evaded Income.

The estimate of Tax Evaded Income is made for the financial years 2011-12, 2012-13 and 2013-14, by estimating the size of the potential tax base derived from share of Profits in National Accounts Statistics, published by the Central Statistical Office (CSO). The estimation is done only at the aggregate level as an attempt to estimate Tax Evaded Income at sectoral levels, would require more and more restrictive assumptions due to data gaps.

6.1. Estimation of Potential Tax Base-Methodology

In this paper, estimation of Tax Evaded Income is made at the aggregate level, that is, for both Corporation Tax and Personal Income Tax.

To estimate the extent of Tax Evaded Income, we need a measure of Potential Tax Base. In this study, Potential Tax Base is derived from the Factor Income shares in Gross Value Added (GVA), published by the Central Statistical Office (CSO). Factor Income shares are the incomes paid to labour and capital and are classified as Compensation to Employees (CE) and Operating Surplus (OS) respectively. OS comprises profits, rents, interest and all income other than wages.

At the aggregate economy level, OS is mentioned as OS/MI (Operating Surplus/ Mixed Income), as a portion of OS in the unorganised sector comprises Mixed Income (MI). In the entities of unorganised sector, proprietors' wage and profit cannot be segregated. It is assumed that in such cases, near complete portion would be OS, as wage share in MI would be negligible.

Data used in this study to derive Potential Tax Base are from National Accounts Statistics (NAS) for Financial Years 2011-12, 2012-13 and 2013-14, in which suitable adjustments are made as stated below. As already stated, due to data gaps, certain restrictive assumptions are necessary in this regard.

1. To exclude the tax-exempt sector, the CE and OS in agricultural sector is reduced as they are exempt from Union Income Tax.

2. The Compensation of Employees (CE) includes the wages earned by foreign nationals working in India. As per Double Taxation Avoidance Agreements (DTAAs), the CE of foreign nationals is taxed in their countries and tax paid in India is allowed as credit in their respective countries. The net factor incomes from abroad is a negative figure (as per the Balance of Payments Statistics published by the Reserve Bank of India), implying that the CE of foreign nationals remitted abroad exceeds the CE of Indian nationals working abroad. Considering this and also taking note of the fact that CE is difficult to evade in organised sector, due to third party reporting and its eligibility of being claimed as expenses by the business and professional entities, the entire CE in the organised sector is excluded. As regards unorganised sector, we assume that the entire CE is below taxable limit.

3. Many of the entities in unorganised sector have income below taxable limit, but some do have income above taxable limit. Most of them are jointly run by individuals (as there is contravention of many laws, the businesses need collaboration of more than one individual to deal with the multiple issues arising) and do not have any registration. The individuals have come together with the common volition to earn income and the status of these entities would be Association of Persons (AOP) as per the Income Tax Act, 1961. There is no basic exemption for profits form business for this category of persons. Enterprises run by sole proprietors are relatively small and in most of the cases are likely to earn incomes below taxable limit. Share of unorganised sector in GVA is taken at 45 percent[14] and share of OS within it is taken at 0.6 as in the organised sector[15]. Since, unorganised sector includes a large proportion of enterprises

earning less than taxable income, 60 percent of OS in this sector is deducted as falling below taxable limit.

4. For exempting incomes below taxable limit in the organised sector, a 20 Percent for OS is made. As the income below exemption limit cannot be estimated from aggregate data in National Accounts Statistics, we prefer the side of caution as is required while making an estimate. Hence a higher deduction of 20 percent is made for OS, which is above the percentage of exempt income of 16 percent, according to All India Income Tax Statistics (AIITS).

5. For including part of CE and OS in unreported GVA, we rely on the estimate made by Mukherjee and Rao (2015), which estimates underreporting at 25 percent. By blowing up the reported GVA, factoring in the proportion of underreporting and apportioning the difference between the estimate thus obtained and the reported GVA, at 0.4 and 0.6 respectively (which is the share of CE and OS in reported GVA), the share of CE and OS in the unreported GVA is computed. Considering the fact that there is share of income below taxable limit in the unreported part of GVA also, 40 percent is deducted. This would exclude the entire CE in the unreported part. As most of the OS in unreported part of GVA is earned by joint effort of more than one individual, they would be classified as Association of Persons (AOP) under the Income Tax Act, 1961 and there is no basic exemption for this category of persons. Giving an estimated 10 percent deduction for non-taxable individual business in unreported part of GVA, 90 percent of OS in unreported GVA is included.

6. Factor incomes in the National Accounts Statistics, after adjustments described above are made, is considered as the Potential Tax Base for the economy for Financial Years 2011-

12, 2012-13 and 2013-14. When Gross Total Income returned by the assesses for these financial years[16], as reported in All India Income Tax Statistics (AIITS), is reduced from the Potential Tax Base derived, we get the extent of Tax Evaded Income[17] for the respective financial years (Table 5).

The proportion of Tax Evaded Income, thus estimated, is at 25.92, 26.97 and 27.87 percent of official GVA at current basic for Financial Years 2011-12, 2012-13 and 2013- 14 respectively. The median percentage of income on which tax has been evaded is estimated at 26.97 percent of official Gross Value Added at Current Basic Prices[18]. In absolute size, Tax Evaded Income has been estimated at Rs 21,01,245 crore, Rs 24,83,945 crore and Rs 28,93132 crore for Financial Years 2011-12, 2012-13 and 2013-14 respectively (Table 5 and Table 6).

Table 5: Factor Income Shares from National Accounts Statistics and Estimation of Potential Tax Base

Financial Year	CE (Rs Crore)	OS (Rs Crore)	Total
2011-12	2651435	4531631	7183066
2012-13	3028461	5108299	8136760
2013-14	3412331	5772989	9185320
Agricultural Sector	CE (Rs Crore)	OS (Rs Crore)	Total
2011-12	230442	1218341	1448783
2012-13	255259	1364318	1619577
2013-14	286957	1539840	1826797
Less Agricultural	CE (Rs Crore)	OS (Rs Crore)	Total
Sector			
2011-12	2420993	3313290	5734283
2012-13	2773202	3743981	6517183
2013-14	3125374	4233149	7358523

INCOME FROM, UNORGANISED SECTOR AFTER DEDUCTING EXEMPT PORTION of 60 PERCENT OF OPERATING SURPLUS	CE (Rs Crore)	OS (Rs Crore)	
2011-12	0	619302.6	
2012-13	0	703855.8	
2013-14	0	794720.5	
INCOME FROM ORGANISED SECTOR AFTER DEDUCTING EXEMPT PORTION OF 20 PERCENT OF OPERATING SURPLUS	CE (Rs Crore)	OS (Rs Crore)	
	0	1513851	
	0	1720536	
	0	1942650	
SHARE FROM UNREPORTED PORTION OF GVA	CE (Rs Crore)	OS (Rs Crore)	
2011-12	0	1459198	
2012-13	0	1657806	
2013-14	0	1868546	
POTENTIAL TAX BASE	CE (Rs Crore) 0	OS (Rs Crore) 3592351	
	0	4082198	
	0	4605917	

Source : Computed from NAS published by CSO and Methodology elaborated in paragraph 3.

Table 6: Estimate of Tax Evaded Income and its Proportion to official GVA (Rs crore)

Financial Year (Assessment Year) (1)	Potential Tax Base (Rs crore) (2)	Gross Total Income as per AIITS (Rs crore) less salary income (3)	Extent of Tax Evaded Income (Rs crore) (4)=(2)-(3)	GVA at Current Prices (Rs crore) (5)	Percentage of (4) to (5) (6)
2011-12 (2012-13)	3592351	1490734	2101617	8106656	25.92
2012-13 (2013-14)	4082198	1598517	2483681	9210033	26.97
2013-14 (2014-15)	4605917	1713122	2892795	10380813	27.87

Source: Computed as per Methodology elaborated in Paragraph 3.

7. Conclusion

As already stated, the twin objectives of this study are to a) empirically test the hypothesis that cash holding and extent of Tax Evaded Income are strongly associated or not and b) to estimate the size of the Tax Evaded Income in India. The first hypothesis, which is fundamental to the Monetarist approach to measure tax evasion, also forms the basis for withdrawal of High Denomination Currency Notes in India for bringing Tax Evaded Income into tax net. As a consequence of the second objective, we also discuss the feasibility of strategies to check Tax Evaded Incomes.

Empirical analysis reveals that there is no statistically significant association between currency holding as a proportion of Nominal GDP and Tax GDP ratio. But, there is a statistically significant association at 1 percent level between Currency holding to Nominal GDP ratio and Total as well as Revenue Spending of Centre and the States. This finding goes against the basic hypothesis of Monetarist approach that cash holding to Nominal GDP is a very good proxy for extent of Tax Evaded Income.

Monetary route to contain economic slowdown is by quantitative easing. It is often called 'Helicopter Money", in which liberalising money supply by the Central Bank can help to tide over economic recession. Stiglitz (2016) has criticised the effectiveness of this argument. Likewise, to cleanse the economy of Tax Evaded Income[19], a "monetary vacuum cleaning", has been resorted to by withdrawing 86 percent of the cash holding. Given the past trends in cash holding and the statistically insignificant relationship between cash holding and tax GDP ratio, it is clear that something much more in streamlining the administrative and statutory machineries are required for tackling the high level of Tax Evaded Income in the economy, rather than attempting a sudden truncation of cash in circulation.

What could be the probable attempts in this direction? The very existence of such a large extent of Tax Evaded Income, even allowing sensitivity analysis variation of the estimate, calls for serious thinking, as technology based tools have entered direct tax administration in a big way[20] and legal provisions being brought in to disincentivise cash transactions.

The Income Tax Act, 1961, has several anti- evasion provisions. These include sections which stipulate disallowance of expenditure incurred, if the mode of payment is by cash in excess of Rs 20000/- (reduced to Rs10000/- in Finance Act, 2017) per day per person (section 40A(3)). The Income Tax Act, 1961, also provides for penalty, which is equivalent to the sum borrowed or repaid in cash and for transactions above Rs 2 lakh (in Finance Act, 2017). How effective these provisions have been, needs to be analysed, especially when there is admission by policy makers at the highest level that there is lot of undisclosed money hoarded and circulated in cash, despite such provisions to discourage cash transactions already existing in the Income Tax Act, 1961. Besides, unaccounted money in assets and foreign bank accounts are difficult to trace. The extra payments in real estate deals are another example. Section

50C of the Income Tax Act, 1961, treats the stamp duty value as deemed sale consideration while computing capital gains from sale of immovable properties. But scientific and timely revision of stamp duty values needs to be the basis, if this provision is to be effective.

Statutorily, there are provisions for scrutiny of selected returns, powers of discovery and inspection as is available to a civil court, power to conduct survey in business premises and to conduct searches in business and residential premises to unearth undisclosed income and bring it to tax, under the Income Tax Act, 1961. Tax audits or scrutiny of assessments have not proved to be an effective deterrent as there is a substantial amount of tax arrears (around Rs 8.2 lakh crore) which has been raised in these assessments and remaining unpaid.

Effectiveness to prevent tax evasion is based on a) higher probability of detection of evasion and b) levy of penalty as a consequence to detection, Allingham and Sandmo (1972) have discussed the theoretical model based on the above and got ambiguous results. This was due to the assumption that at a higher income, a risk averse individual would tend to evade less, as upon detection, a higher tax would have to be paid. At the same time, if penalty on evaded income is fixed and marginal tax rate goes up, the gap between penalty rate which is levied on evaded income, if detected, narrows down creating incentive to evade. The former is negative income effect and the latter is positive substitution effect. The results become ambiguous as it is difficult to predict, which one outweighs the other. Yitzhaki (1974) further elaborated and stated that if penalty is based on tax rate, instead of on incomes, at higher rates of taxes, there will be less evasion, if there is a high probability of detection, This is counter intuitive, as it is hypothesised that there is more incentive to evade taxes at higher marginal rates of taxation. Sandmo (2004) discusses the limitations of the earlier model and analyses the societal behavioural norms influencing decisions of individuals to evade taxes. Rao and Tandon (2016) have

discussed the intention to evade by pointing to certain thresholds of income in the Indian context. Presently, the marginal rates of taxation have substantially come down in India and penalty is linked to tax which is sought to be evaded, except in specific classes of cases. The higher evasion could be due to low probability of detection, which should increase as technological tools are used to a larger extent.

Kellkar Task Force on Direct Taxes (2003) has stated that though there are success stories which are put in the public domain through official channels and by informal channels by innovative journalists. But a lot needs to be done on the quality of additions made in the assessment orders, to check corruption at various levels, to stream line selection of cases and method of evidence gathering during searches and surveys. The Task force has questioned the efficiency of the most intrusive tool of investigation, namely, the search and seizure operations by stating that overall contribution of searched cases to revenue is less than 1 percent.[21] The effectiveness of post- demonetisation scrutiny attempts like Operation Clean Money etc. can be evaluated only after the assessments get a concrete shape and appellate decisions come.

More than any of the above tools, there is need for real time information exchange between Union and the States and between countries. The complex procedures required for information exchange need to be simplified. Having a 360^0 profile of an assessee by all the tax departments is the best tool for checking tax evasion than any intrusive action.

It is correct that more transactions getting digitalised would help in tracking transactions as against cash transactions which have anonymity to trace. But movement towards digitalisation requires sustained efforts. If it is forced by actions like demonetisation, there can be shift backwards to cash transactions.[22] Riley and Kulathunga (2017) find that three South Asian countries, India, Bangladesh and Pakistan account for 30 percent of the World's financially excluded population. According to the study, in 2014, only 0.5 percent of population paid

utility bills through mobile phones. The percentage of population receiving prices for agricultural products and wages were 84.5 and 86,2 respectively. This indicates that Universal Financial Access is an aim which is a long way off and conscious steps rather than sudden actions are required for this.

Separate and disjointed by actions by different agencies with long gaps of time in sharing information is a major cause for tax leakage. The information network for Goods and Services Tax and sharing of the same by the direct tax authorities would substantially strengthen the information base. Timely information is not only an actionable tool but also a very effective deterrent. But there is also undisclosed money generated through systemic channels require a much larger remedy than through tax reforms per se, although importance of tax administrative reforms can never be understated.

What emerges clear is that the size of Tax Evaded Incomes in India in the recent period is very substantial. By different methods of estimation, its size is between 21-28 percent of the officially estimated output. This has remained at this level in the estimates of NIPFP (1985), Scnider et al (2010) and in this study. Based on this, we can take a median figure of 25 lakh crore as the approximate absolute figure. The maximum expectation of detection of tax evaded and other illegal money as a consequence of withdrawal of high denomination currency notes from circulation was Rs 3 lakh crore. Even if this is achieved, it would take out of the system only 12 percent of the Tax Evaded Income, perceived to be in held as cash.

In our view, though less cash economy leaves more trails of transactions in the economy, the problem of Tax Evaded Incomes need to be addressed by administrative, governance and enforcement strategies in a holistic manner and any one in isolation would not be enough.

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Notes

1 The declaration scheme launched during the mid 1970s, the Bearer Bonds Scheme 1981, the Voluntary Disclosure of Income Scheme (VDIS), 1997, Declaration of Income from Foreign Sources (2014), Income Disclosure Scheme (IDS), 2016 and Pradhan Mantri Garib Kalyan Yojana (PMGKY), 2017.

2 See Pyle (1989) for a discussion on assumptions in estimating Tax Evaded Incomes due to data gaps.

3 Post- Demonetisation, this ratio declined to 10.93 percent as on March 31,2017 and later picked up to 12.91 percent in July, 2017.

4 Examples are bank deposits with cheque facility, credit and debit cards and internet banking.

5 See also Kohli and Ramakumar (2016) for a discussion on cash holdings and black money with international comparisons.

6 The predecessor programmes like Integrated Rural Development Programme (IRDP), Indira Awaas Yojana, Jawahar Rozgar Yojana, Pradhan Mantri Swarna Jayanthi Swarozgari Yojana were a few of the many which were implemented since the 1980s. With all the corruption and leakages, the implementation of these programmes did in all probability put more cash in the hands of various segments of the population.

7 It is to be taken note of that the explanatory power of both the models are not very high as is evidenced by low R^2.

8 According to Kohli and Ramakumar (2016) "To begin with, there is no clear relationship between the currency-to-GDP ratio and what we call as the "shadow economy," which is a more appropriate concept to use than informal economy. India had a currency-to-GDP ratio of 12.5% in 2015 (Rogoff 2016). The size of India's shadow economy—using one definition—is estimated at about 21% of its GDP (Schneider et al 2010). Let us take three countries where the currency-to-GDP ratio was either higher or comparable to India's: Japan at 18.6%, Hong Kong at 14.7% and Switzerland at 11.1%. The size of the shadow economy relative to GDP in 2012 was only 8.8% in Japan, 15% in Hong Kong and 7.6% in Switzerland (Schneider et al 2010; Schneider 2011). Now, let us take five countries that had lower currency-to-GDP ratios than India in 2015: South Africa and Brazil at 3.4%, Chile at 3.6%, Indonesia at 4.1% and Mexico at 5.7%. All these countries had a large-sized shadow economy relative to GDP in the second half of the 2000s: 26.8% in South Africa, 38.5% in Brazil, 18.5% in Chile, 19.1% in Indonesia and 28.5% in Mexico."

9 It needs to be tested whether, which decile of the population holds more cash in India, and see whether when cash is demonetised, whether it affects, the tax evading section of the rich or the poorer classes, whose income is below the taxable limit. This is, however, beyond the scope of this study.

10 For a detailed discussion of the earlier studies and Ranganekar's and Chopra's estimates which differed from Wanchoo Committee's recommendations, see White Paper On Black Money, Published by Government of India (2012).

11 In this study, the size of the Shadow Economy is estimated using Multiple Indicators Multiple Causes (MIMIC) Model. Certain explanatory and indicator variables are used to estimate the size of the Shadow Economy, which is directly unobservable. This is a widely used method in psychometry. Its use to measure Shadow Economy has been criticised by Breusch (2005).

12 For summary of various studies on estimation of 'black money' in Indian economy, see Walia & Walia (2017).

13 This has been stated by the Government of India in the Indian Parliament.

14 The National Commission for Enterprises in the Unorganised Sector (NCEUS) has estimated that the share of unorganised sector in GVA has fallen from 55.42 percent in 1999-2000 to 49.94 percent in 2004-05. It is assumed at 45 percent in 2011-12.

15 Intuitively, the portion should be higher as wages represented by CE is much lower in unorganised sector than in organised sector. For want of reliable information, we are not adopting a higher share of OS in unorganised sector.

16 IN AIITS, Assessment Year is mentioned. Income of one financial year is disclosed in the return of income filed during the next year, which is called Assessment Year. For Financial Year 2011-12, the Assessment Year is 2012-13.

17 In this study, we estimate the extent of Tax Evaded Economy by using data of direct taxes. Evasion of direct taxes will also result in evasion of indirect taxes of the Centre and the States. The direct taxes are evaded by under reporting sales, over reporting expenditure and not disclosing income altogether. The same will be the basis for evasion of indirect taxes also.

18 Our estimate based on adjustments in Factor Income Shares from National Accounts Statistics and adding share of Factor Incomes from unreported portion of GVA, is not wide off from the estimate of Schneider (2010), (using the econometric methodology of Multiple Indicators and Multiple Causes (MIMIC), in which size of shadow economy in India is estimated at 23 percent. NIPFP (1985) using sector wise assumptions had estimated the size of black economy in India at 21 percent of Gross Domestic Product.

19 Though this stated as the main objective, other goals like neutralising the impact of Fake Indian Currency Note (FICN) and digitalisation of the economy have also been stated.

20 Another suggested by some experts as a solution to the existence of tax evaded income in the economy, is abolition of income tax and imposition of transaction tax. But, all developed countries have got a system of direct

taxes along with indirect tax on consumption. Recently, the issue of exacerbating wealth inequality, at the global level has come to be highlighted (Piketty (2013) and Atkinson (2015) and it would be difficult for India to move totally away from progressive direct taxes to a retrogressive flat rate transaction tax, as it increasingly gets into the group of developed countries.

21 Paragraph 2.9 of Kelkar Task Force on Direct Taxes State that *"Income tax department, in public perception, is identified with 'raids'. That is its identity. That is its most visible enforcement activity. Raid is conducted with the help and in the presence of police force. The search and seizure activity is immediately reported in the press, highlighting "big names" and big amounts of undisclosed income. It also provides publicity to the concerned officer. The objective of the search is to ascertain facts and collect evidence of concealed income and to give a message that tax evasion will not go undetected or unpunished. But, in the course of the search as they are conducted, the main objective of the search team is to obtain a declaration of undisclosed income from the person searched. It confirms success of the raid. Further investigations are slowed down or abandoned. Often such declarations are obtained under pressure. They are retracted in subsequent proceedings. After the raid, the officers of the investigation in charge of the raid, call to their office the persons searched to understand from them the seized accounts and documents. They record further statements. Mostly, the objective of this exercise is to obtain declaration of undisclosed income. The officer, in charge of the raid, prepares a report on seized material in about 60 days, giving their own appraisal of the search and seizure, without any accountability for what he says or omits to say in the report. This report is the basis for assessment in the searched case. The assessing officer does not independently investigate the case. He neither has time nor inclination for doing so. The assessment is one sided, high pitched, completed in a hurry when it is getting barred by limitation, ignoring the contentions of the assessee. About half the arrears are accounted for by Search & Seizure assessments. When the case goes through first and second appeal, the additions are knocked off. In a search case there is no "real" investigation. As a result, the assessment does not stand the test of judicial scrutiny in appeals. There is nominal revenue gain from the searched case. Overall, the contribution of searched cases to total revenue collection is less than 1% "*

22 The slowdown in digitalisation trends is visible as stated in the Economic Survey, Volume II.

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