

Demonetization, the Cash Shortage and the Black Money

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Abstract

Demonetisation of INR 500 and INR 1,000 notes in India on November 8, 2016 is different from many other countries' scrapping of high value notes in two respects – the withdrawal of their legal tender status and continuation with INR 1,000 and INR 2,000 notes. It has resulted in a cash shortage. Non-cash medium of payments may be encouraged by this shortage, but, with supplies only from the domestic currency presses, the shortage is unlikely to disappear by the end of 2016. Import of currency printed abroad may provide a solution for ending it sooner. The impact of the shortage, if it continues, will be fully felt in the last quarter of 2016-17. Its growth impact in 2016-17 is 0.7-1.3 per cent depending on how much shortage continues and for how long. The big painful jolt of demonetisation creates the right psychological milieu for the war against black money to start. Only Time will tell whether steps such as the Income Declaration Scheme (IDS) in the Budget for 2016-17, the August 2016 amendment of the Benami Transactions (Prohibition) Act of 1988, and the Taxation Laws (Second Amendment) in November 2016, are parts of a concerted plan for tackling black money, and this time is different from 1946 and 1978. With the strides made in digitisation of tax returns and bank records together with PAN, Aadhar and KYC regulations, compared to 6 per cent in 1946 and 11 per cent in 1978, at least 15 per cent or INR 2.2 trillion of the demonetised notes not exchanged into deposits or cash will provide a preliminary positive feedback on the success of the current demonetisation.

1. Introduction

The decision of the Government and the Reserve Bank of India (RBI) to withdraw the legal tender status of the pre-existing INR 500 and INR 1,000 currency notes beyond November 8, 2016 and the resulting cash shortage have been matters of intense debate, e.g. in Rajakumar and Shetty (2016) and Banerjee (2016).ⁱ The measure, according to the Government, was motivated by the twin objectives of curbing the menace of fake Indian currency notes and for eliminating black money.

The Government decision, according to its own declaration in its Press Release on November 8, 2016, was for "...curbing financing of terrorism through the proceeds of Fake Indian Currency Notes (FICN) and use of such funds for subversive activities such as espionage, smuggling of arms, drugs and other contrabands into India, and for eliminating Black Money which casts a long shadow of a parallel economy on our real economy..."ⁱⁱ

Interestingly, even during the two previous episodes of demonetisation of high value notes over INR 100 in India, on January 12, 1946 and on January 16, 1978, the express objective of the exercise was containing black marketing or black money. The official announcement in 1946 stated "The working capital of black market operations is believed to be held in large measure in the form of high denomination notes and the Government are aware of the persistent public demand for effective action against these enemies of public welfare."ⁱⁱⁱ . In 1978, the High Denomination Bank Notes (Demonetisation) Act, 1978, which followed the Ordinance by the same name on January 16, 1978 demonetising INR 1,000, INR 5,000 and INR 10,000 notes, also stated that the action was needed because such high denomination bank notes facilitate "...the illicit transfer of money for financing transactions which are harmful to the national economy or which are for illegal purposes."^{iv}

Raising questions about the 'morality' of the issue, Nobel Laureate Amartya Sen has said "Telling the public suddenly that the promissory notes you have, do not promise anything with certainty, is a more complex manifestation of authoritarianism, allegedly justified or so the government claims because some of these notes, held by a few crooked persons, involve black money. At one stroke the move declares all Indians indeed all holders of Indian currency as possibly crooks, unless they can establish that they are not."^v Mehta (2016) has described it as institutionalisation of a new kind of politics, "... a vast morality play whose three central elements are personification, puritanism and punitive imagination."

The Supreme Court has started to hear all the petitions regarding demonetisation since December 2, 2016.^{vi} It is interesting to note though that the apex court, on November 24, 2009, had observed "Any bonafide measures taken in public interest, and to provide public safety or to prevent circulation of black money, cannot be objected as interference with the personal

liberty or freedom of a citizen.” But, the legality and morality of the demonetisation is beyond the scope of this paper.^{vii} This paper also does not deal with how big the scale of the fake currency problem is or how demonetisation will solve it or curb the financing of terrorism and other subversive activities. The aim of this paper is to analyse three questions. First, when is the cash shortage likely to disappear? Second, what is likely to be the impact of the cash shortage on growth in the economy? And third, the likely impact of the demonetisation on ‘black money.’

The plan of the paper is as follows. Section II describes the recent demonetisation and the resulting cash shortage. Section III deals with when this shortage is likely to disappear. Section IV analyses the likely impact of the cash shortage on the performance of the economy. Section V discusses the bearing that demonetisation is likely to have on ‘black money.’ Section VI concludes.

2. The demonetisation of November 8, 2016 and the Cash Shortage

a. *Demonetisation*

After November 9, 2016 which was declared to be a bank holiday, the old demonetised INR 500 and INR 1,000 notes could be deposited, with proper identification, in bank or post office accounts, without any limit, until December 30, 2016. These could also be exchanged for new INR 500 or 2,000 notes, or old INR 5, 10, 20, 50 and 100 notes, but initially only up to INR 4,000.^{viii} This limit was increased to INR 4,500 since November 14, before such direct exchange was completely stopped from November 25, 2016.^{ix}

Furthermore, there was a warning that of all the cash deposited during the November 10, 2016 to December 30, 2016, above a threshold of Rs 2.5 lakh in an account would be matched with the income tax returns filed.^x On November 28, 2016, the Government introduced the Taxation Laws (Second Amendment) Bill, 2016 in the Lok Sabha.^{xi} When the cash deposited in a bank or post office account cannot be accounted for in the tax returns of the assessee, the tax on it was proposed to be augmented from a flat rate of 30 per cent plus surcharge plus cess to 60 per cent plus surcharge of 25 per cent of tax, i.e. 75 per cent, together with a penalty provision of 10 per cent of the tax plus surcharge, i.e. a further 7.5 per cent. It also included a scheme called ‘Taxation and Investment Regime for Pradhan Mantri Garib Kalyan Yojana, 2016’ (PMGKY) providing an opportunity to pay taxes with heavy penalty on black money deposited, and come clean. Under the new scheme, the effective tax rate on the declared income would be 50 per cent, with 25 per cent of the disclosed sum invested for four years in the interest free government deposit scheme.

There are many instances across the world when a country has decided to discontinue with some specific high value currency notes. For example, Canada stopped issuing the Canadian \$1,000 notes from September 2010 on the advice of the Solicitor General and the Royal Canadian Mounted Police (RCMP), as it was often used for money laundering and organized crime.^{xii} Given "risks associated with large value cash transactions and high-value notes", Singapore, in July 2014, decided to stop printing the S\$10,000 note, one of the world's most valuable bank notes.^{xiii} European Central Bank (ECB), in May 2016, announced that it would stop printing the Euro 500 notes from 2018.^{xiv} In these countries, the banks were advised to return the relevant high denomination notes to the central bank for destruction, but these high value notes continued to be legal tender.

There are two major differences between the stoppage of printing of high value notes in these OECD countries and the recent Indian demonetisation. In India, the INR 500 and INR 1,000 notes can be returned to the RBI with proper documentation even after December 30, 2016, but unlike in the countries mentioned above, these old high value notes are no longer legal tenders beyond November 8, 2016. An additional difference is that while the old INR 500 and INR 1,000 have been demonetised, not only will the new INR 500 continue, but a note of even higher denomination than INR 1,000, namely INR 2,000, has been introduced. It is important to note that there are risks associated with INR 500 and INR 1,000 notes, such risks will be even more with INR 2,000 notes.

b. Cash shortage

Normally, current and savings accounts at banks are fully and freely convertible into cash at par. A cash shortage arises with suspension of this convertibility. With cash shortage, a firm or an individual may have money in the bank, but cannot withdraw as much of it as desired in cash.

Simultaneously with the demonetisation, restrictions were imposed on over-the-counter cash withdrawal from accounts at banks and post offices of INR10,000 subject to an overall limit of INR 20,000 in a week for the first fortnight. The limit was increased on November 25, 2016 to INR 24,000 per week without any daily sub-limit. Daily withdrawals from Automatic Teller Machines (ATMs) were restricted to INR 2,000 per account until November 13, 2016, and increased to INR 2,500 thereafter. Shortage of small coins has been reported to be a problem for some time.^{xv} But, a generalised cash shortage is a new experience in India. Even for the withdrawal of the limited sums, there were long queues and endless waits outside banks. Often, in the initial days, success required multiple attempts over more than a day.

What was demonetised on November 8, 2016 was more than 85 per cent of the currency in circulation. On March 31, 2016, out of INR 16.6 trillion cash in circulation, the value of INR

500 and INR 1,000 notes in circulation was INR 14.2 trillion. On November 8, 2016, this value of INR 500 and INR 1,000 notes in circulation may have grown to an estimated INR15.4 trillion (Table 1). With so much of the currency demonetised, a cash shortage is not surprising.

Cash shortage, though unusual, is not unknown across countries. First, countries in the midst of hyperinflation, for example, Austria in 1922 and Germany in 1923, have suffered such shortages. With galloping prices, there is demand for more and more cash and supply can fall short of demand. Printing extra zeros on currency notes though is not such an insurmountable problem, and the cash shortage could be contained fairly soon.

Second, it has arisen when a country, e.g. Panama, used another country's currency, e.g. the US dollar, as legal tender, and is cut off from the supply of such currency for geo-strategic reasons.^{xvi} In mid-1987, under Manuel Noriega, the country, famous for the Panama Canal, came into conflict with the US. In March 1988, US froze \$50 million of its deposits in New York banks. Panama had to suspend check clearing functions and also impose restrictions on cash withdrawals from banks, resulting in a cash shortage.

Third, it can arise in a country which gets its currency printed abroad and is faced with a severe foreign currency crisis. In mid-1992, Albania, in the midst of a severe foreign exchange crisis, was unable to get its currency, the Lek (named after Alexander the Great), printed abroad, and faced a cash shortage.

Fourth, cash shortage is quite common during the disintegration of large states or empires. It occurred in the constituent parts of the Austro-Hungarian Empire in 1918-19. During the break-up of Yugoslavia, in the spring of 1991, the National Bank of Yugoslavia in Belgrade stopped the delivery of cash Yugoslav dinars to Croatia and Slovenia plunging these two into a situation of cash shortage until the introduction of their own currencies. The most well-known recent case of cash-shortage is from the republics of the former Soviet Union (FSU) when it broke up at end-1991, see for example Hardy and Lahiri (1994).^{xvii}

The demonetisation in India on November 8, 2016 and the resulting cash shortage thereafter are very different from all the cases discussed above. There was no antecedent extraordinary circumstance such as hyperinflation or dependence on another country's currency.

3. How long will the Cash Shortage persist?

Initial popular sentiments appeared to endorse the government's announced crusade against corruption and black money with demonetisation. Problems have arisen from the resulting cash shortage, which has disrupted people's lives and economic activity. A temporary

cash shortage may have been ignored, but the persistence of the problem has raised questions about how long this shortage is likely to persist.

The government has claimed that the shortage will disappear by the end of the current calendar year. Chaudhuri (2016) has said that it will take much longer, perhaps as long as up to May, 2017. So, how long will it take? The answer depends on how much of the demonetised INR 500 and INR 1,000 currency notes will have to be substituted with valid notes of equivalent value and how soon they can be printed and distributed.

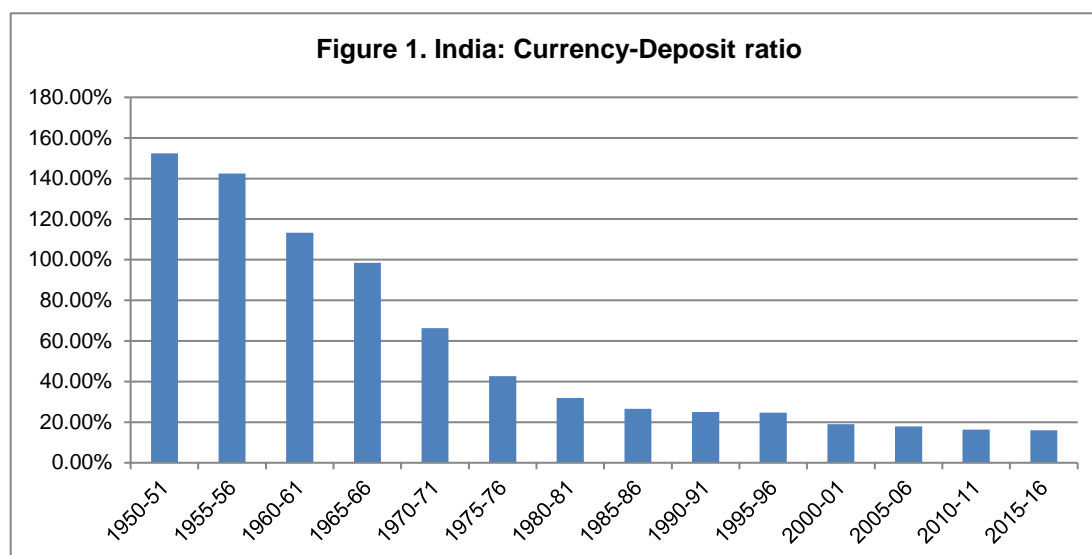
How much of the demonetised notes will have to be substituted with valid notes in turn depends on two factors. First, how much was presented for over-the-counter conversion between November 9 and November 24, and how much will be deposited in bank and post office accounts. On January 12, 1946, when currency notes of the value of INR 500, INR 1,000 and INR 10,000 were demonetised by an ordinance, in total, such notes in circulation were INR 143.97 crore. By the end of 1947, INR 134.9 crore, or 93.7 per cent were exchanged.^{xviii} On January 16, 1978, when currency notes of denominations INR 1,000, INR 5,000 and INR 10,000 were demonetised, the total amount in circulation was INR 145.42 crore.^{xix} Of this, 89.0 per cent or INR 129.4 crore came back for exchange.^{xx} It is reasonable to assume that, for fear of detection, 'black money' circulating in the form of currency will have a tendency not to come back for exchange. Given the decrease in the proportion surrendered for conversion between 1946 and 1978, and the increased efficiency of tax administration and banking industry in monitoring such conversion, 85 per cent can be taken as a conservative estimate of such conversion in the current round. An optimistic estimate can be 80 per cent.^{xxi}

Second, even when the demonetised notes are deposited in bank or post office accounts, these may be kept as deposits, without necessarily being withdrawn in the form of currency. It is likely that the current cash shortage may have given a stimulus to the banking habits and cashless transactions among the population. Compelled by the cash shortage, many may have realised the potential of the debit and credit cards, on-line transfers and other digital payments facility such as mobile payments. Furthermore, the preference for cash in transactions is partly motivated by the objective of avoiding detection for tax purposes. If the government can indeed improve detection of tax evasion and enforcement of tax compliance, the transaction demand for cash relative to that for deposit money may go down.

It is important to note, however, that the demand for currency relative to deposit money also depends on the confidence that people have in the banking system and its ability to convert deposits into cash at sight. During the Great Depression in the United States, that began in November 1930 and persisted for 2½ years, nominal gross national product fell by 38 per cent, deposits fell by 33 per cent, and currency with the public rose by 55 per cent, resulting in a rise in the currency-deposit (CD) ratio, see Boughton and Wicker (1979). Will the recent

demonetisation exercise, by shaking up public confidence in the banks' unrestricted ability to convert deposits into cash, also work the same way enhancing the CD ratio? Given that people seem to have accepted the demonetisation as a one-off exercise for tackling black money, this stimulation of the demand for currency relative to deposits is likely to be negligible.

As Figure 1 demonstrates, the CD ratio in India has been on a declining trend. But this ratio is still almost 50 per cent higher than that in OECD countries, and is likely to go down further. The recent demonetisation may give a fillip to the process, at least temporarily. What happened in Europe during the Euro cash changeover in 2002, namely a de-hoarding of cash in the run up to the changeover followed by a re-hoarding, is likely to happen in India as well following the recent demonetisation, namely a sharp reduction in the CD ratio followed by slow recovery.^{xxii} A reduction in interest rates because of excess cash in banks is likely to reduce the opportunity cost of holding currency relative to deposits in banks, and help the equilibration of the CD ratio.



Source: Table 44. Components of Money Stock, Reserve Bank of India -- Handbook of Statistics of the Indian Economy. <https://dbie.rbi.org.in/DBIE/dbie.rbi?site=publications>

Of the INR 16.6 trillion currency in circulation on March 31, 2016, as much as INR 7.9 trillion and INR 6.3 trillion were in denominations of INR 500 and INR 1,000, respectively, a total of 85.2 per cent. A part of this INR 14.2 trillion in INR 500 and INR 1,000 notes were held by banks. Given that total currency held by banks at end of March 2016 was INR 0.7 trillion or 3.98 per cent of total currency in circulation, applying the simplistic assumption of the same proportion being valid for INR 500 and INR 1,000 notes held by banks, the value of INR 500 and INR 1,000 notes held by the public are obtained as INR 7.5 trillion and INR 6.1 trillion, respectively.

It is important to note that the nominal value of cash holding that was demonetised on November 8 was more than the corresponding stock on March 31, 2016. Between March 31, 2015 and March 31, 2016, INR 500 and INR 1,000 notes in circulation grew by 19.7 per cent and 12.7 per cent, respectively. So, on November 8, 2016, it is reasonable to assume that INR 500 and INR 1,000 notes held by the public could have been around INR 8.3 trillion and INR 6.5 trillion, respectively, that is about 10.0 per cent and 6.5 per cent higher than the corresponding figures on March 31, 2016.

Though a part of the currency with banks held in the form of INR 500 and INR 1,000 notes will also have to be substituted by other notes, there may not be a great urgency for such substitution as long as the exchange of such notes held by the public goes on smoothly and total deposits are not declining. The assumption that the same proportion of INR 500 and INR 1,000 notes in circulation was with banks, and growth was 10.0 per cent and 6.5 per cent in such holdings from March 31, 2016, yields 16.6 billion of INR 500 notes and 6.5 billion INR 1,000 notes held by the public on November 8, 2016 (Table 1).

If a uniform 15 per cent of such notes do not come back for circulation because of the anti-black money measures, then only 14.1 billion of INR 500 notes and 5.5 billion of INR 1,000 notes will be deposited into accounts or presented for conversion into other notes. A more aggressive assumption of 20 per cent of such notes not coming back yields 13.3 billion INR 500 notes and 5.2 billion of INR 1,000 notes for conversion into either legal tender cash or deposits (Table 1).

Table 1: Post Demonetisation Conversion of INR 500 and INR 1,000 notes into Currency

		(Number, in billion)		
		INR 500	INR 1,000	INR 2,000
On November 8, 2016				
(i)	In circulation	17.28	6.74	...
(ii)	With the public (96% of circulation)	16.59	6.47	...
Post-demonetisation				
(iii)	Conservative -- 85% deposited or converted			
a.	Converted or deposited in accounts	14.10	5.50	...
b.	With the public in currency	12.98	-	2.53
(iv)	Aggressive -- 80% deposited or converted			
a.	Converted or deposited in accounts	13.27	5.17	...
b.	With the public in currency	12.15	-	2.37

On December 13, 2016, the RBI in a press release reported that, between November 10 and December 10, 2016, INR 12.4 trillion worth of old INR 500 and INR 1,000 notes were returned to RBI and the currency chests.^{xxiii} How does this figure tally with the assumptions in Table 1 of only 85 per cent or INR 12.5 trillion, or even worse, only 80 per cent or INR 11.8

trillion, of the old INR 500 and INR 1,000 notes getting deposited or converted by the public? There are two reasons why the two may be consistent with each other. First, the amount reported by the RBI includes deposits or returns by banks, not only the public. Second, it is not clear as to how much of the cash deposited will turn out to be unaccounted and subject to the provisions of the Taxation Laws (Second Amendment) Bill, 2016 passed by the Lok Sabha on November 29, 2016. The amount of old INR 500 and INR 1,000 notes deposited and subject to the amended provisions should also be excluded from the calculation of amount deposited by the public.

How much of these INR 500 and INR 1,000 notes deposited in accounts will be withdrawn in the form of currency is the next important question. Between October 28 and November 11, 2016, currency with the public went down from INR 17.0 trillion to INR 15.3 trillion, while currency with banks rose from INR 759 billion to INR 2.6 trillion. The decline in currency with the public was also reflected in a rise in time deposits from INR 96.5 trillion to INR 97.5 trillion.^{xxiv} The currency deposit ratio, as a result, went down from 15.9 per cent on October 28 to 14.1 per cent on November 11, 2016. But this decrease in the CD ratio was not because the people wanted less currency, but because they could not withdraw cash even if they wanted to.

While some of the de-hoarding of high denomination notes is likely to be reversed over time, the CD ratio is unlikely to go back to its October 28 value. If the CD ratio does not go back up beyond 15.0 per cent, which is likely for the reasons already adduced, and the reduction in currency with the public is entirely in terms of INR 500 and higher denomination notes, the holding of such notes may go down by a further total of INR 1 trillion which is the rise in the time deposits with banks between October 28 and November 11. This is over and above the amount that does not come back as deposit at banks or for conversion into valid notes at all under the two scenarios.

Distributing this INR 1 trillion reduction in the same ratio as INR 500 and higher denomination notes circulating on October 28, i.e. 56.2 per cent and 43.1 per cent, the number of INR 500 notes that will be demanded in the form of cash is obtained as 12.98 billion under the conservative scenario and 12.15 billion under the aggressive scenario. Since what is being supplied in terms of currency notes in denomination higher than INR 500 is INR 2,000, under the simplifying and somewhat heroic assumption that the public will willingly accept the substitution of INR 1,000 old notes by the new INR 2000 notes, the corresponding numbers for INR 2,000 notes are 2.53 billion and 2.37 billion.

The payments system in India indeed is in 'the cusp of a revolution.'^{xxv} The Indian payments revolution of the future may be as fast as the revolution in mobile telephony in the recent past. But India still is a cash-intensive country. Though it may be moving towards being

less cash-intensive in the recent years, the on-going payments revolution by itself is unlikely to solve the post-demonetisation cash shortage in the immediate future.

Table 2: Indent and Supply of Banknotes by BRBNMPL and SPMCIL

Denomination (₹)	(Million pieces)							
	2013-14		2014-15		2015-16		2016-17	
	Indent	Supply	Indent	Supply	Indent	Supply	Indent	
1	2	3	4	5	6	7	8	
5	-	-	-	-	-	-	-	-
10	12,164	9,467	6,000	9,417	4,000	5,857	3,000	
20	1,203	935	4,000	1,086	5,000	3,252	6,000	
50	994	1,174	2,100	1,615	2,050	1,908	2,125	
100	5,187	5,131	5,200	5,464	5,350	4,910	5,500	
500	4,839	3,393	5,400	5,018	5,600	4,291	5,725	
1000	975	818	1,500	1,052	1,900	977	2,200	
Total	25,362	20,918	24,200	23,652	23,900	21,195	24,550	

Source: RBI Annual Report, 2016, p. 90.

Bank notes are printed at four note presses: at Currency Note Press, Nashik and Bank Note Press, Dewas, both owned by Security Printing & Minting Corporation of India Ltd. (SPMCIL); and at Mysuru and Salboni, owned by Bharatiya Reserve Bank Note Mudran Limited (BRBNML), a wholly-owned subsidiary of the RBI. SPMCIL is wholly owned by Government of India. The printing capacities of these four units are not readily available in the public domain. But, the RBI's Annual Report 2016 (Table VIII.4, p. 90) provides the indents for and supply of currency notes by the four units during the last three years reproduced below as Table 2.

Table 2 does not paint a rosy picture for the rapid amelioration of the cash shortage. The total number of pieces of currency supplied was 20.9 billion in 2013-14, 23.6 billion in 2014-15 and 21.2 billion in 2015-16. Supply fell short of indent by 17.5 per cent, 2.3 per cent and 11.3 per cent in these three years in sequence. The maximum INR 500 and INR 1,000 notes supplied in the last three years were in 2014-15 -- at 5.0 billion and 1.0 billion, respectively.

The required number of INR 500 notes in the two scenarios to wipe out the cash shortage is 12-13 billion pieces, which is more than twice the maximum produced in the whole year of 2014-15. Similarly, even if the old INR 1,000 notes are replaced by INR 2,000 notes,

the corresponding requirement of INR 2,000 notes at 2.4-2.5 billion pieces exceeds the maximum annual production of INR 1,000 notes achieved in 2014-15 by a factor of more than two.

The maximum number of pieces of currency notes – irrespective of denominations – produced by all the four currency presses together was 23.7 billion. The total requirement of INR 500 and INR 2,000 notes for removing the cash shortage is between 14.5 and 15, 5 billion, or between 32 and 34 weeks of the rate of production achieved in 2014-15. Thus even if the currency presses were to produce only INR 500 and INR 2000 notes with the same level of efficiency as in 2014-15, the shortage would disappear only by mid-June or the first week of July 2017.

A little more than a fortnight before the demonetisation, on the new INR 2,000 note, the Hindu Business Line (2016) reported that the RBI “... has very nearly completed preparations for introducing this new high-value currency The notes have already been printed, and their despatch from the currency printing press in Mysuru has commenced.” While no figures are available about how many INR 2,000 notes were printed before November 8, it is assumed that such production was negligible at around a couple of million at most.

Meeting the demand for INR 500 and INR 2,000 denomination notes in 50 days would require a daily production of 290-310 million pieces, which is 106-109 billion pieces per year. Meeting the 50-day deadline requires the currency presses to ramp up their production at least four-fold. Even when a currency press starts operating three shifts instead of two, production is unlikely to increase by more than 50 per cent. A four-fold enhancement of output of the four currency printing presses within a short time may be a mission impossible.

On December 13, 2016, RBI, in its press release, also reported that, between November 10 and December 10, 2016, the banks issued notes valued at INR 4.61 trillion to the public over their counters and through their ATMs. Of the 21.8 billion pieces of notes supplied, 20.1 billion were in denominations of INR 10, 20, 50 and 100s, and 1.7 billion were in higher denominations of INR 2,000 and INR 500. These figures reported by the RBI seem to strengthen the conclusions about the shortage continuing for some time.

A quick way to relieve the shortage would be to consider the strategy that the government led by Prime Minister Atal Bihari Vajpayee adopted in 1998. Among other things, it decided to import 3,600 million pieces of printed notes adding up to a face value of Rs 1 trillion to rapidly wipe out the cash shortage.^{xxvi}

Apart from printing the notes of various denominations, there is also the challenge of reaching the appropriate amount of currency to the various places all across the large country.

The act of coordinating such transportation to and storage at the 29 issue offices of the RBI and 4,442 currency chests needs to be handled with appropriate delicacy.^{xxvii}

4. How the Cash Shortage will affect Inflation and Growth

Currency and deposit money or credit cards are not perfect substitutes as medium of exchange in many transactions. For example, daily wage of an unskilled or semi-skilled worker, retail purchases from a street vendor, or even vegetables in the *mandis* or wholesale markets in many places cannot be paid for in anything but cash. The cash shortage has affected trading and production in many segments of the informal economy. An additional cost is the wo/man-days lost queuing up at banks for conversion or deposit of old currency.

The cash shortage may have already affected the prices of perishable goods and services. Prices of vegetables in wholesale markets, according to newspaper reports, have fallen significantly.^{xxviii} Vegetable prices go down around this time of the year because of seasonality, but perhaps cash shortage has been an additional factor affecting such price decrease. Overall inflation may come down because people have less of one common medium of exchange, namely cash, to transact, but this decline in inflation will be tempered by how much output also goes down because of the lack of cash as working capital.

Money is the lubricant that keeps the wheel of economic activity moving. A standard, albeit simplistic, approach to analyse the impact of the cash shortage is to fall back on Cambridge equation of the quantity theory of money.^{xxix} Three scenarios are considered here as in Table 3.

In Scenario I, both currency with the public and demand deposits at end of March, 2017 are 10 per cent higher than the corresponding figures a year ago. Effectively this implies that under Scenario I, at the end of 2016-17, currency with the public gets more than restored to what it was before the demonetisation. Although the year-on-year (y-o-y) growth of both currency with the public and demand deposits is the same 10 per cent, post-demonetisation, growth of currency is over INR 2.3 trillion compared to only INR 84 billion growth in demand deposits.

Under Scenario II, y-o-y growth of currency and demand deposits is 6.5 per cent and 5 per cent, respectively. While the y-o-y growth in demand deposits is 5 per cent, such deposits decline by INR 419 billion post-demonetisation signifying a shift from demand deposits to currency. At the end of 2016-17, while currency with the public exceeds the pre-demonetisation level by INR 556 billion in Scenario I, such currency is just about restored to the pre-demonetisation level under Scenario II.

Scenario III considers the case, where the authorities fail to make up for the cash shortage by end of March, 2017 and currency with the public, with y-o-y growth of only 4 per cent, falls short of the pre-demonetisation level by INR 402 billion. Demand deposits grow, y-o-y, only by 4 per cent, and, even more than under Scenario II, is INR 670 billion lower than what it was on November 11, 2016 after the demonetisation.

Table 3. GDP and Narrow Money -- Three Scenarios with Demonetisation

		(Growth in per cent)			
GDP at current prices		M ₁ (average)		GDP/M ₁ (average)	
	in INR billion	Growth year-on-year	in INR billion	Growth year-on-year	
2015-16					
Q1	31,746	8.85		10.34	1.35
			23,576		
Q2	32,486	6.41		10.26	1.39
			23,425		
Q3	34,760	9.07		11.56	1.44
			24,102		
Q4	36,768	10.36		12.62	1.46
			25,200		
2016-17					
Q1	35,055	10.42		13.61	1.31
			26,784		
Q2	36,420	12.14		15.82	1.34
			27,131		
Scenario I (cash shortage more than made up by year-end)					
Q3	39,126	12.56		11.96	1.45
			26,983		
Q4	40,924	11.30		11.23	1.46
			28,030		
Scenario II (cash shortage just made up by year-end)					
Q3	38,637	11.15		11.33	1.44
			26,831		
Q4	39,489	7.40		8.07	1.45
			27,234		
Scenario III (cash shortage is reduced but not made up by year end)					
Q3	38,236	10.00		10.94	1.43
			26,739		
Q4	38,247	4.02		6.13	1.43
			26,746		

Source: Weekly Statistical Table No. 6, RBI and Press Releases of Central Statistical Organisation, Ministry of Statistics and Program Implementation, Government of India dated May 31, 2016 and November 30, 2016

In all the three scenarios, the growth of M₁ from November 11, 2016 – the first reporting Friday for banks after demonetisation – to March 31, 2017 has been assumed to follow a straight-line path of equal absolute change every fortnight. Gross domestic product (GDP) at current prices for the third and fourth quarters of 2016-17 is projected by assuming the income velocity values.

Table 3 shown here for illustrative purposes, highlights that the impact of the cash crunch, if it persists, is going to be most severe in the fourth quarter. Almost half the third quarter had passed before the cash crunch set in. If the cash shortage persists, nominal growth could be as low as 4-7 per cent in the fourth quarter depending on how severe the shortage is.

GDP for 2016-17 is obtained by adding up the quarterly GDP figures. Growth declines from 11.6 per cent under Scenario I to 10.2 per cent under Scenario II and 9.0 per cent under Scenario III. Under the heroic assumption that nominal growth will be coming equally from real growth and inflation, the growth impact of the cash shortage is 0.7-1.3 per cent depending on how much of the cash shortage continues to persist and for how long. Of course, over the long run, how the economy will be affected will depend on how far the demonetisation is followed up by other suitable anti-black money measures and how effectively the shadow economy is controlled.

5. Demonetisation and the Black Economy

Demonetisation as an antidote for black money has been a somewhat popular demand for quite some time. For example, in 1972, when M. G. Ramachandran split up from Dravida Munnetra Kazhagam (DMK), the socio-economic principles and objectives expounded by the new party All India Anna DMK (AIADMK) was collectively called *Annaism*, named after the late C. N. Anna Durai. Annaism included demonetisation of INR 100 notes to eliminate black money (Sastri 1974, pg. 529).

The demand for withdrawing or moving towards elimination of high denomination notes is not restricted to India alone. There is a view that the Federal Reserve in the United States, the Swiss National Bank and the Bank of England should also stop issuing \$100, the CHF1,000 note and the £50 notes as these are the favourites by terrorists, drug lords and tax evaders.^{xxx}

Admittedly, much of the underground economy is cash-based. Illegal activities in particular, such as accepting bribes, including to political parties as 'donations', drug trafficking, prostitution, bootlegging and gambling, involved transactions in cash. Unreported income from lawful activities, such as legal and medical counselling, from tips, from work by household and farm help, from independent contracting, also tend to be in cash.^{xxxi} The black component of currency is that part of currency that has just mediated a black transaction and is still with the perpetrator.

The universal acceptability of cash, the convenience in storing, moving and hiding it, and the associated anonymity are the factors that lead to its use for such purposes. Even within currency notes, high denomination notes are the preferred medium of transaction. While INR 1

crore in INR 1,000 notes weigh around 12 kg, the same in INR 500 notes weigh about twice as much, and in INR 100 notes several times more. However, the recent demonetisation in India is not a scrapping of high denomination notes. In fact, not only will new notes of INR 500 denomination be in circulation, even a INR 2,000 denomination note has been introduced with the November 8 demonetisation announcement.

It is important to note that the term 'black money', in popular parlance, is used to refer to three distinct categories – black wealth, black income and black currency – the term 'black' connoting its 'illegal' or unaccounted nature. Clearly, 'black wealth' is several times more than black income - it is what has been accumulated from black income over several years. And black income is several times more than black currency. Black income can be earned even without the use of currency, for example with gold or diamonds. Is demonetisation going to eliminate all three from India? The answer is a categorical 'No.' It will, on its own, at best, confiscate a part of the high denomination currency that has been used for generating black income and are still with the perpetrator. So, with proper enforcement, what can demonetisation achieve?

First, it is important to note that given the surprise in the sudden demonetisation, the INR 500 and INR 1,000 notes that were received by people in unaccounted or illegal transactions and were waiting to be laundered will face some difficulties in getting converted into cash that is legal tender or into deposits. This will be particularly true for sums above INR 2.5 lakh. A part of it may get laundered into deposits in small lots of other people, and received back in the form of valid cash, after payment for the conversion services rendered.^{xxxii} But, this technology for conversion will not be easily available for large sums of say INR 1 crore and above.

The success of demonetisation in stopping such conversion of 'black' cash into 'white' cash may be evaluated by how much of INR 500 and INR 1,000 do not get deposited or converted by December 30, 2016. Of course, it will depend on how effectively the demonetisation and tax laws are simultaneously enforced. As already discussed, given that the proportions of demonetised currency in circulation that did not get exchanged during the demonetisation in 1946 and 1978 were about 6 per cent and 11 per cent, respectively, with the strides made in digitisation of tax returns and bank records together with PAN, Aadhar and know your customer (KYC) regulations, the current demonetisation may be judged to be successful if the proportion of the demonetised notes not exchanged into deposits or cash is at least INR 2 trillion.

Second, governments have been long on the rhetoric about eradicating black money and short on detecting the wrong doers. There have been at least a dozen voluntary disclosure schemes, e.g. in 1951, 3 in 1965, 1975, 1981, 1985, 1991, 1993 and 1997, but they have not been successful in fighting the generation of black money again.^{xxxiii}

India continues to suffer from the problem of a large shadow economy. The size of the shadow economy is estimated in 2007 by Schneider et al. at 22.2 per cent of GDP, compared to China's 12.7 per cent and Japan's 11.7 per cent.^{xxxiv} Many people believe that societal norms have become more accepting towards black money. Cynicism has reached very high levels. There is a presumption that most politicians, bureaucrats, policemen, doctors, lawyers and even some members of the judiciary have compromised on following the highest standard of probity. This is dangerous. People imitate each other in certain ways to establish cooperative relationships and this is at the root of the evolution of social norms.^{xxxv} Corruption, when not rejected by social norms, can become endemic in a society.

A large shadow economy is estimated by some at over a fifth of gross domestic product. This, along with the change in societal norms towards a more accepting attitude, bordering cynicism, towards black money, is troubling. The big painful jolt of demonetisation creates the right psychological milieu for the war against black money to start, some claim. Are government steps, such as the Income Declaration Scheme (IDS) in the Budget for 2016-17, monitoring black money stashed abroad with the Tax Exchange Information Agreements with several countries, the August 2016 amendment of the Benami Transactions (Prohibition) Act of 1988, and the Taxation Laws (Second Amendment) Bill in November 2016, parts of a concerted plan? Will it be any different from what followed in 1946 and 1978? Only time will tell.

6. Conclusions

Demonetisation of INR 500 and INR 1,000 notes on November 8, 2016 has become a matter of intense debate. Production of high value notes have been discontinued by many countries because these are often used for money laundering and organized crime. The Indian demonetisation is considerably different from such scrapping of high value notes. Such scrapping typically involves stopping the production of high value notes and asking the banks to return such notes for destruction by the central bank. But the high value notes continue to be legal tender. In India, the old INR 500 and INR 1,000 notes have ceased to be legal tenders, and not only does the production of new INR 500 notes continue, but a new INR 2,000 note has been introduced as well.

The post-demonetisation situation has been complicated by a cash shortage disrupting people's lives and economic activity. Sentiments of a large section of the people appear to endorse the government's announced crusade against corruption and black money with demonetisation. But the persistence of cash shortage may not only erode such support but also affect the economy, particularly in the fourth quarter of 2016-17. It is imperative that the cash shortage be rapidly removed by suitable action, if necessary through import of currency printed abroad.

High value notes have been demonetised three times so far in India – in 1946, 1978 and 2016. On all the three occasions, the objective was containing black money. The outcome after the two previous exercises in 1946 and 1978 has not been very inspiring. This time, there appears to be a concerted plan of action, including changes in tax laws and legal treatment of benami transactions. Only Time will tell whether 2016 is different from 1946 and 1978, but an initial feedback will be available from how much of the old INR 500 and INR 1,000 notes in circulation does not get deposited into accounts or get exchanged into valid notes, or ‘vanishes’ by end of December, 2016. In 1946 and 1978, this vanishing proportion was 6.3 per cent and 11.0 per cent, respectively. Fifteen per cent or more, that is at least INR 2 trillion worth of old INR 500 and INR 1,000 notes, not coming back for exchange will give an early indication that this time it may be different from the past. But even after clearing the muck of currency that was mediating illegal or unaccounted transactions in the recent past, what will remain is the larger job of preventing its accumulation in the future.

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- ⁱⁱ http://finmin.nic.in/press_room/2016/press_cancellation_high_denomination_notes.pdf
- ⁱⁱⁱ “Govt. Strike at Black Capitalists: Notes of INR 500, INR 1,000 and INR 10,000 cease to be legal tender,” The Indian Express, January 13, 1946. Also reproduced in “Demonetisation: Newspaper Headlines From 1946 Tell a Story Similar to 2016,” News18.com, November 14, 2016, <http://www.news18.com/news/india/demonetisation-newspaper-headlines-from-1946-tell-a-story-similar-to-2016-1311844.html>
- ^{iv} The High Denomination Bank Notes (Demonetisation) Act, 1978, March 30, 1978. <https://indiankanoon.org/doc/1547/> In 1978, the government had also expressed its concern about the rising trend in agricultural prices, particularly edible oils and suspected black money going into the hoarding of and speculation on such sensitive commodities.
- ^v “Interview: Demonetisation move declares all Indians as possible crooks, unless they can establish otherwise, says Amartya Sen”, Indian Express, November 26, 2016. <http://indianexpress.com/article/india/india-news-india/interview-move-declares-all-indians-as-possible-crooks-unless-they-can-establish-otherwise-says-amartya-sen/>
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- ^{vii} Rajendran Chingaravelu vs Mr. R.K. Mishra, Additional Commissioner of Income Tax, Civil Appeal No. 7914 of 2009), NOVEMBER 24, 2009. <https://indiankanoon.org/doc/62107217>
- ^{viii} The Government Press Release of November 8, 2016 stated “ (i) Old High Denomination Bank Notes may be deposited by individuals/persons into their bank accounts and/or exchanged in bank branches or Issue Offices of RBI till the close of business hours on 30th December, 2016. (ii) Old High Denomination Bank Notes of aggregate value of INR4,000/- only or below held by a person can be exchanged by him/her at any bank branch or Issue Office of Reserve Bank of India for any denomination of bank notes having legal tender character, provided a Requisition Slip as per format to be specified by RBI is presented with proof of identity and along with the Old High Denomination Bank Notes. Similar facilities will also be made available in Post Offices.” http://finmin.nic.in/press_room/2016/press_cancellation_high_denomination_notes.pdf
- ^{ix} For the increase in the conversion limit from INR 4,000 to INR4,500 see Press Release of November 13, 2016, http://finmin.nic.in/press_room/2016/MoF_reviewed_availability_distribution_Notes.pdf. The Press Release of November 8, 2016 had stated that the limit of Rs, 4,000 on the exchange of old notes for other valid ones would be ‘...reviewed after 15 days and appropriate notification issued, as may be necessary.’ In a Press Release on November 24, 2016, over the counter exchange of old INR 500 and INR 1000 notes were banned after midnight of November 24, 2016. http://finmin.nic.in/press_room/2016/PRESS%20NOTE%2024%20november%202016.pdf
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- ^{xiv} “500-Euro Banknote Being Phased Out,” The Wall Street Journal, May 4, 2016. <http://www.wsj.com/articles/500-euro-banknote-being-phased-out-1462381987>
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- xvi Panama has a currency called the Balboa, which is tied to the US dollar at par, but it also allows the US dollar as legal tender.
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- xxiii https://www.rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=38886
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- xxix This approach was also suggested by Amartya Lahiri (2016).
- xxx “If you want to move a million dollars in \$20 bills, it weighs 110 pounds. It's actually pretty hard for a single individual to carry surreptitiously 110 pounds. In 500-euro notes, that's less than 4 pounds.”
- xxxi It is somewhat less cogent to argue that the medium of exchange for this segment of the irregular economy is strictly currency. For example, a cheque received for irregular activity could be endorsed and used as payment to third parties.
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