An Analysis of Demonetisation and Digitalisation

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ABSTRACT

The primary aim of the paper is to look at the demonetization exercise implemented by the Government of India in context with enhancing digital payments and a digital ecosystem within the country. There has been a lot of debate in the media and defenders of the demonetization exercise spell out digitalization as one of its primary benefits. This paper would seek answers to this question and shed light on the validity of this statement. I look at historic time-series data for various digital payment methods and the results are promising. Surprisingly there has been little published research work that is available on the behaviour of digital payment systems after demonetisation. Hence there is much scope in this field of research to initiate a genuine debate, which is the primary objective of the paper. There has been an enough lapse of time after demonetization to study the facts and comprehend the data. Public debate is often shrouded by short-sighted and clichéd views on digitalization. The paper mainly seeks to analyse the effects of demonetization on digital payment systems and their behaviour. The entire spectrum of digital payments is covered under the paper and the results are promising. Possible reasons for the observed behaviour and suitable solutions & recommendations are also given at the end of the comprehensive study. An analysis of the overall effects on key macroeconomic variables is also undertaken, particularly the different market interest rates that are keenly watched by economic agents when making expectations about the future and in taking investment decisions.

Keywords: Demonetization, Digitalisation, Fintech, Macroeconomy

1. SOME INTERESTING FACTS & FIGURES

I would like to bring to the reader's attention facts and figures about cash usage in India:

- Urban India with an estimated population of 444 million already has 269 million (60%) using the Internet. Rural India, with an estimated population of 906 million as per 2011 census, has only 163 million (17%) Internet users. Thus,

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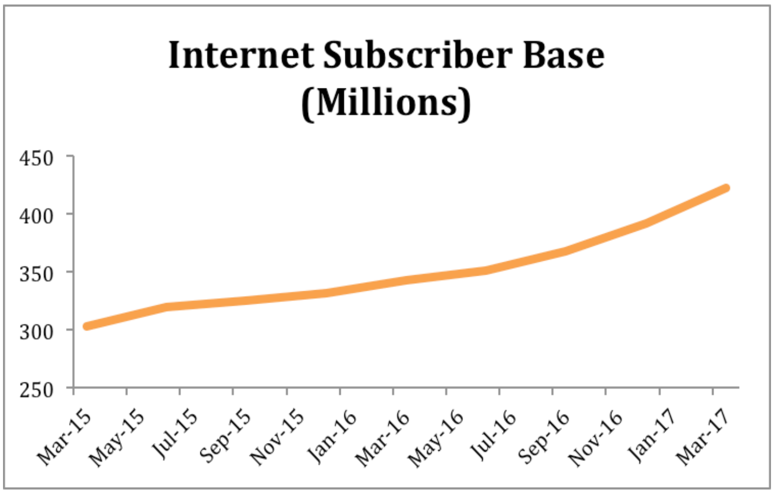
there are potential approximately 750 million users still in rural India who are yet to become Internet users; if only they can be reached out to adequately.



Source: Telecom Regulatory Authority of India Reports

- India's cost to cash is about 1.7% of GDP which is equivalent to Rs. 3.4 Billion[2]
- 78% of all consumer payments transactions happen through cash[5]
- India is one of the largest remittance markets in the world. It was the biggest recipient of cross-border inbound remittances in 2015, with more than $70 billion received; domestic remittances are estimated at $9 billion[2]
- **India currently ranks number 2 in the world with over 1 Billion mobile subscriptions**. Of this, approximately 240 Million consumers use smartphones and this base is projected to increase to over 520 Million by 2020[3]

2. LITERATURE REVIEW

The Economic Survey, especially volume two talks at considerable length about the how the various means of payments have reacted after demonetisation. Surprisingly, there has been little published research of the kind that exclusively talks about digitalization, even the ones that have covered some aspect of the phenomenon do not go in detail.

Mahajan & Singla (2017) talk about financial inclusion and how demonetisation can boost it.

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Balaji & Balaji (2017) shed light on e-commerce transactions after demonetisation and give brief overviews on IMPS transactions & Paytm downloads as proxies for the extent of increase in cashless transactions.

3. RESEARCH METHODOLOGY

I look at historic data for various digital payment methods and try to discern what happens to each one of them in terms of growth numbers and absolute figures. Growth numbers include both for volume of transactions and value of those transactions. Absolute figures simply look at value of transactions. Value of transactions refers to the monetary value of all transactions in a given time period whereas volume of transactions give us the number of transactions in a given time period. The various digital payment methods I look into are the following:

- Debit Cards
- Mobile Banking
- Prepaid Instruments

I next look at some infrastructural indicators such as number of Point of Sales terminals, number of ATMs and cross-country comparisons on some density figures. The effect of the demonetization exercise on the less affluent and digitally excluded class is also seen and figures from the Economic Survey volume two have been cited.

4. AN OVERVIEW OF DEMONETIZATION

On November 8, 2016, the government announced a historic measure, with profound implications for the economy. The two largest denomination notes, Rs. 500 and Rs. 1000, were “demonetized” with immediate effect, ceasing to be legal tender except for a few specified purposes. At one fell stroke, 86 percent of the cash in circulation was thereby rendered invalid. These notes were to be deposited in the banks by December 30, 2016, while restrictions were placed on cash withdrawals. In other words, restrictions were placed on the convertibility of domestic money and bank deposits.[1]

Demonetisation was forced upon the citizens, leaving them with no option. The policies in theory intended to incentivize people to move towards electronic payments

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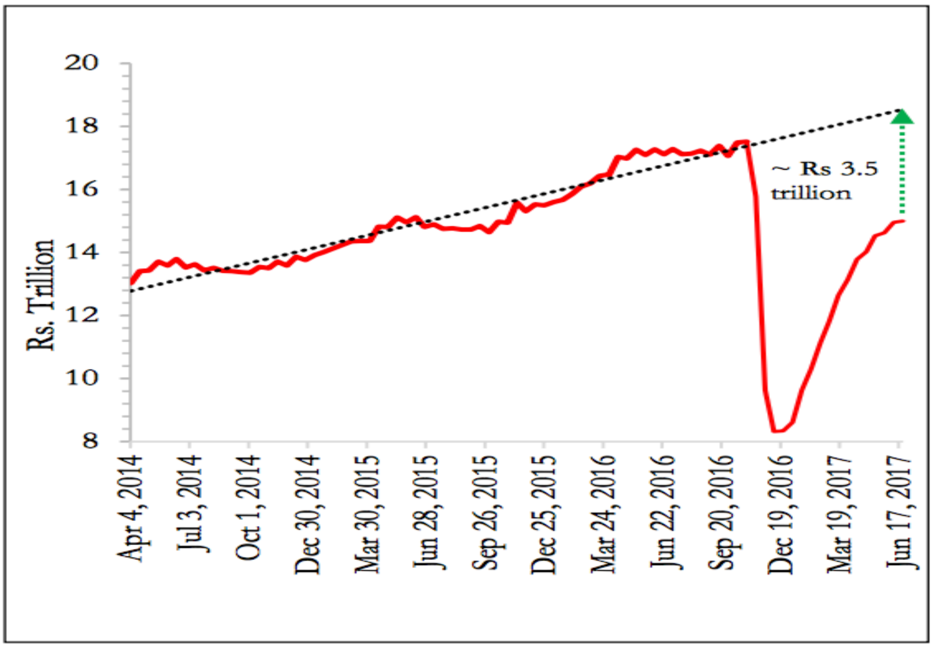
and on fintech platforms but the results and empirical evidence may not be that straightforward. The aim of the action was fourfold: to curb corruption; counterfeiting; the use of high denomination notes for terrorist activities; and especially the accumulation of "black money", generated by income that has not been declared to the tax authorities.[1]



The above figure taken from Volume 2 of the Economic Survey 2016-17 shows us that continuing on the trend path, it will take some more time for cash holdings to normalize and this is to the tune of Rs. 3.5 Trillion. In this analysis, we look at the predominant means of payments in India: debit cards, credit cards, RTGS, Mobile Banking and Prepaid Instruments (PPIs). We also look at some absolute figures and other infrastructural indicators such as the number of ATMs & PoS terminals in the country. Results are not only puzzling but also give us some practical reasons, which I address later on.

Analysis of Various Data

1) RTGS & NEFT

RTGS (Real Time Gross Settlement) is the primary means of online transfers via banks and financial institutions. If an individual wants to send money or make a payment to another individual or organization in large sums, RTGS is the primary and most widely used method of doing so. RTGS is used for making large value transactions between entities and settlement happens in real time. The minimum transaction value for RTGS is Rs. 2 Lakh (About $3125)

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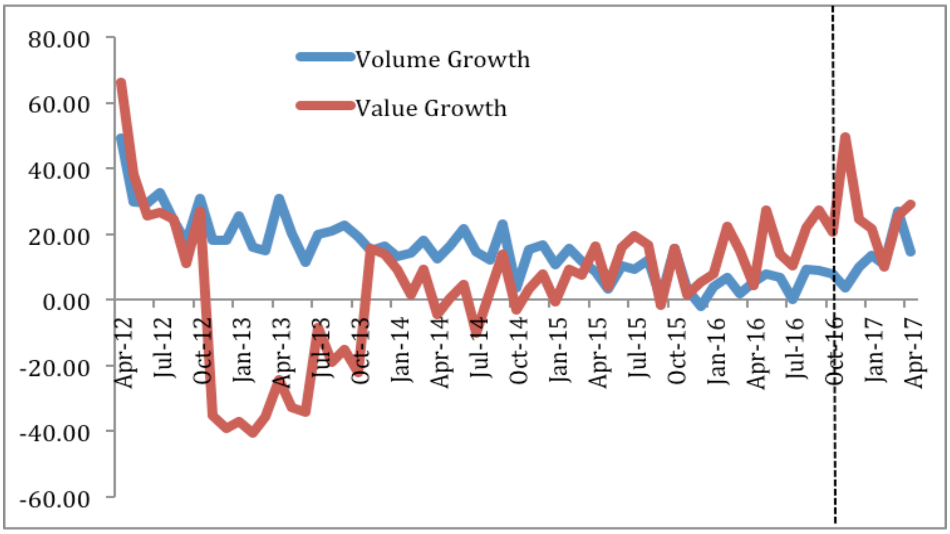
So, what explains this drop? We don't know for sure, but it may be attributed to a sudden fall in economic activity following demonetisation, coupled with the fact that the festive season ended in October. It is, therefore, possible that the cash crunch that followed demonetisation impacted cashless transactions as an overwhelming majority of the transactions in India are in cash.

Another way of looking at it is that one would have rationally expected that the growth would have been extremely high and more people would have adopted online routes rather than cash for making payments. An explanation for this is that the attention and productive energy of the people were spent mostly in exchanging their old notes and making only necessary transactions in times of uncertainty. Payments made for ordinary business operations were also halted for some time. In this context, RTGS value growth contracted sharply for a few months after demonetization. India's economy is cash intensive and an economic shock such as demonetization caused grave uncertainty and a halt in business production as payments to suppliers, vendors and creditors were halted for a short time.

The value of these transactions mapped in terms of absolute figures also tells us a similar story; total transaction value rose for a short interval till mid-February and has been falling since returning to levels found in 2015.

NEFT transactions on the other hand have an upper limit of Rs. 50,000 per transaction (About $750) and are settled in batches. It is used to make small payments and transfers amongst entities



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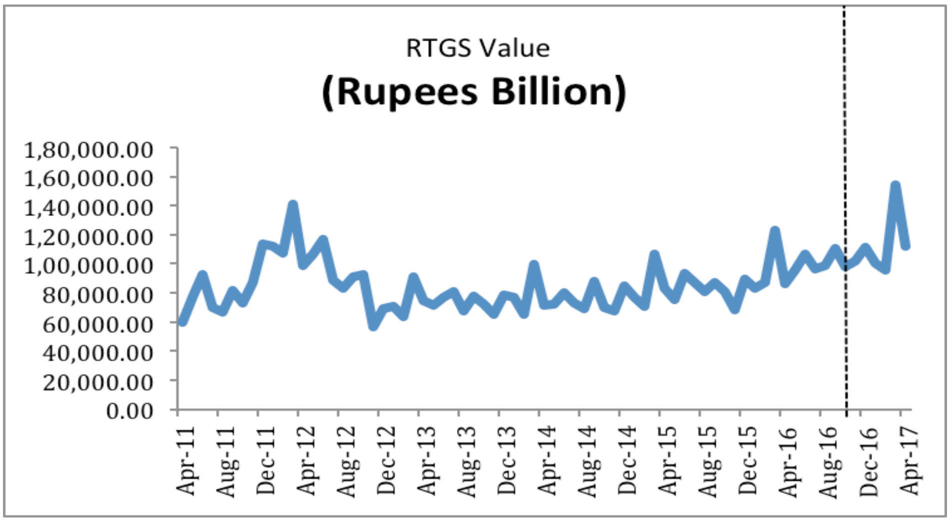
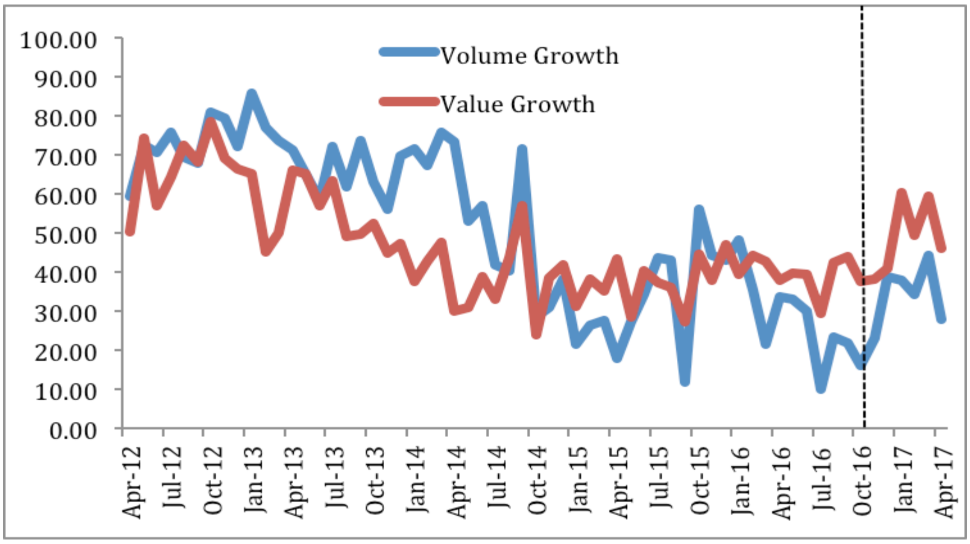
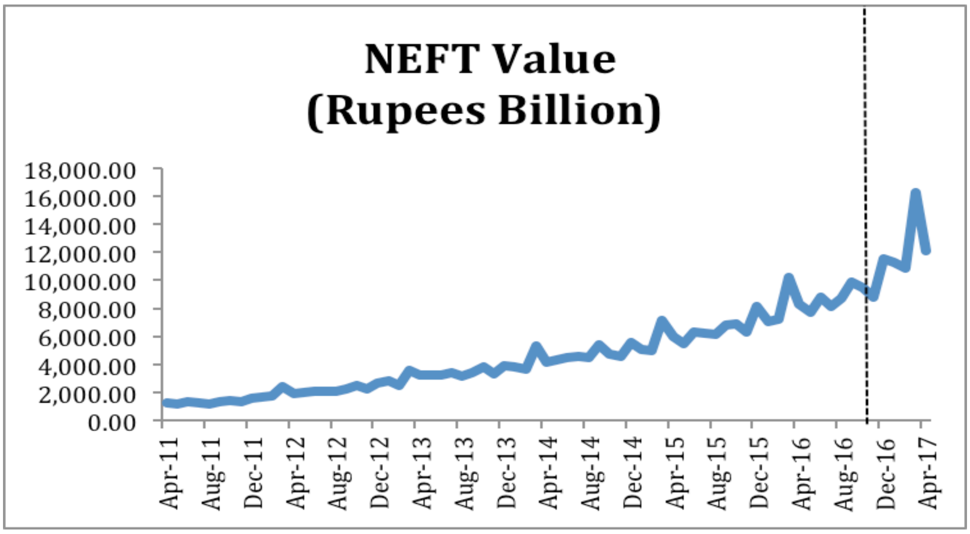


NEFT Data:





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From the above data we observe that there haven't been any large fluctuations per se on NEFT transactions, Growth has followed the normal trend and even though NEFT transactions spiked sharply during March at its highest ever level, by April this has also fallen and is following the long run trend. Hence the impact of demonetization has not fundamentally altered the path of RTGS or NEFT payment systems. The primary reason being that instruments like NEFT & RTGS are the most basic in the payments universe and fall under a more basic hierarchy. This can be asserted by the fact that the total transactional value is the highest in RTGS followed by NEFT indicating that these are the most dominant systems of payments in the country as of now. Demonetisation in that sense has not altered the long run trend in these systems and can be concluded to have no significant effect.

2) DEBIT CARDS

We next analyse debit cards and its growth and absolute numbers. With the introduction of the *Jan Dhan Yojana,* a new form of debit card has been issued by the National Payments Corporation of India (NPCI) called the RuPay card, which competes with the likes of Visa & Master Card.

The Jan Dhan Yojana can be seen as the primary signal the Government of India has given that it intends to highly prioritize financial inclusion and a more digital India. The scheme aims at ensuring access to financial services, namely, Banking/Savings & Deposit Accounts, Remittance, Credit, Insurance and Pension in an affordable manner. The scheme is intended to enhance the financial conditions and literacy for marginal sections of society and rural citizens[6]

Through this scheme, an account can be opened in any bank branch or Business Correspondent outlet. Accounts opened under PMJDY are being opened with zero balance and with basic identification documents. Several benefits and incentives have been given so that a large number of the target audience opts into the scheme. Some of the benefits are as follows:

- Interest on deposit
- Provision of RuPay Debit Card
- Accidental insurance coverage of Rs. 1 lakh
- No minimum balance requirement
- Life cover of Rs. 30,000 payable on death of the beneficiary

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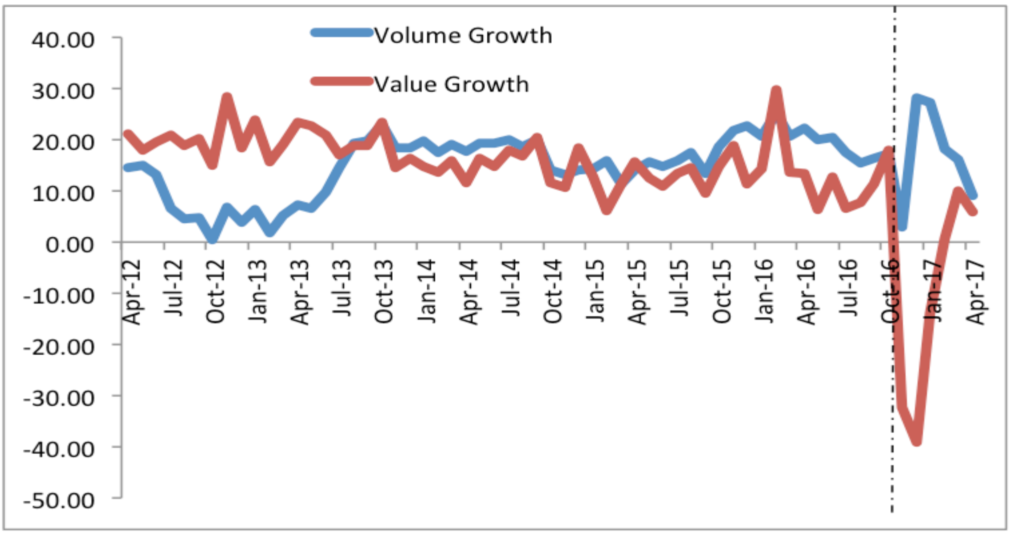
- Easy transfer of money across India
- Direct Benefit Transfer to beneficiaries of government schemes in these accounts
- Option of an overdraft facility after satisfactory operation of the account for 6 months
- Access to pension & insurance products

The scheme has seen a successful response but critics point out to the dormancy in large numbers of accounts. A total of 290 million people have enrolled in this scheme with about 60% from rural and semi-urban areas and 220 million debit cards have been issued. The balance in these accounts is Rs. 640 Billion (About $10 Billion)

The usage of debit cards in India has increased by a significant amount due to this scheme. Moreover which the advent of payments banks and small finance banks, debit card usage and distribution will increase like never before mainly spreading its network to rural areas which is the primary area of operations of these new class of banks.

Let us now look at the data after demonetization. Volumes increased initially for a short period and then declined from January onwards. The rational behind high volumes can be explained by the fact that as people were low on cash balances they transacted majorly through debit cards but these transactions were small in nature indicating that only necessary transactions were being undertaken. They were spending in a frugal and thrift manner until cash balances were restored to normal values; until then, wherever needed; they conducted financial transactions through debit cards.



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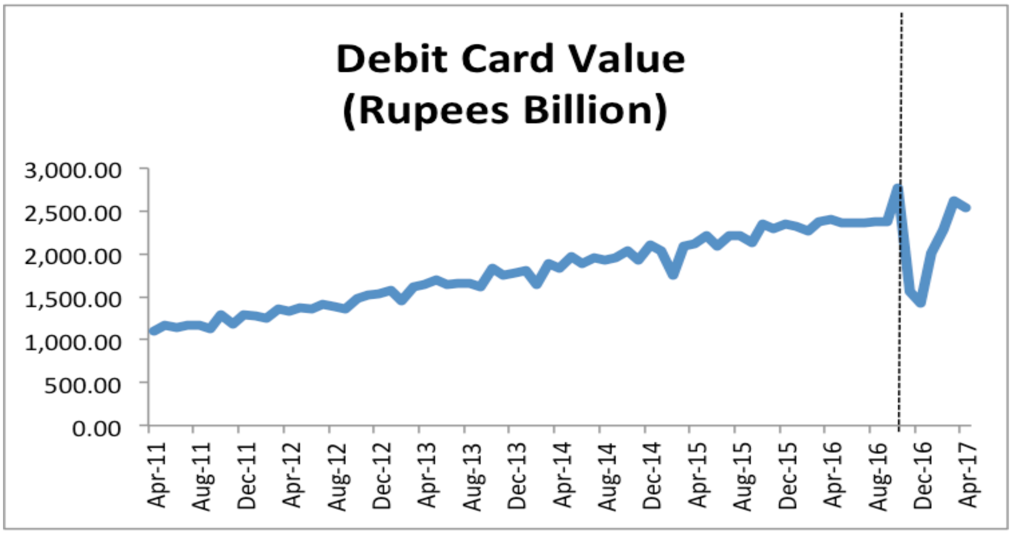

Debit card transaction values have fallen steeply and the obvious answer seems to be demonetization. People were rushing to ATMs and using their debit cards to take out money for short term uses. Since the population is extremely large and the number of ATMs are small compared to that number, people were not getting the time or the opportunity to take out cash balances from ATMs, moreover because of infrastructural problems, many stores and shops did not have debit card equipped POS terminals so that debit cards could be used for ordinary transactions. These two reasons can explain the reason why debit card usage in terms of value dropped by a large amount and then recovered as months went by.

Another rational behind low usage of debit cards is the fact that much of the time and productive energy of the people were spent exchanging notes and battling with the various rules that came into existence during that time period. Nevertheless, the above two explanations cannot qualify such a massive drop in the value of debit card transactions which fell from Rs. 2700 Billion to about Rs. 1500 Billion within a month. However the trend returned to normal within two months and from the graph too we see that the situation is normalized. Some critics also argue that people were engaging in minimal level of transactions at the time due to the economic uncertainty that prevailed during the initial months. Crackdowns on transactions by the central bank and the government also disincentivised usage of debit cards by citizens.

3) CREDIT CARDS

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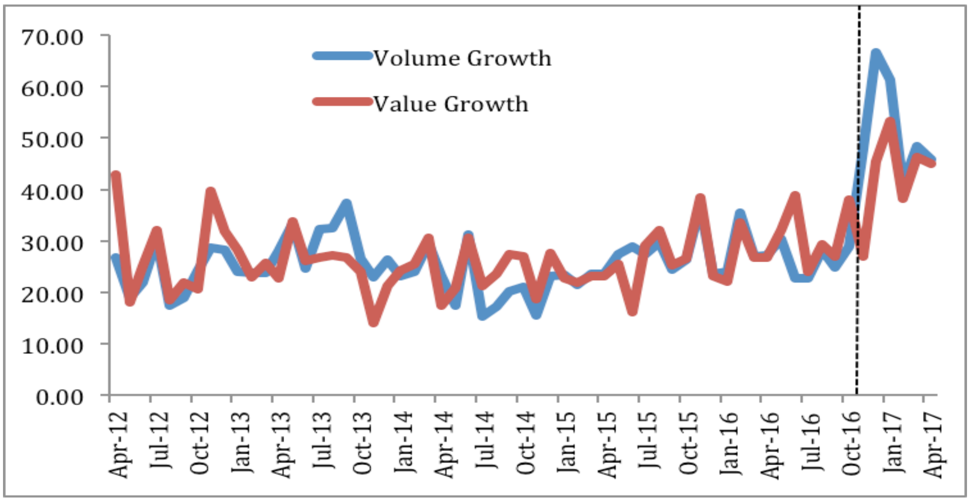

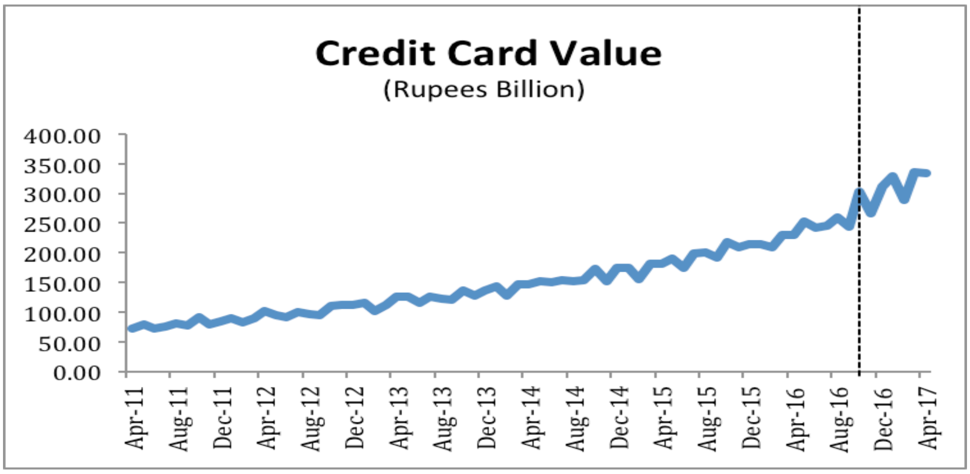

Credit card growth declined in the most steep fashion after demonetization and even in absolute figures, we see that the volatility increased tremendously only after demonetization. This behavior may be odd or completely normal depending on which effect outweighs the other. One scenario that can be imagined is that after demonetization, and due to low cash balances in the hands of the public, one would assume them to make credit purchases. Another scenario that can be envisioned is that much of the time and energy of people were wasted in the entire process of exchanging bank notes. Moreover, there was large scale uncertainty as well at the time which made people only fulfill essential needs and not spend like they normally do on things like consumer durables and services. Growth has picked up and is in fact growing at a faster rate. Exposure and realization about online payment platforms may have caused a larger section of the public to use credit cards. Active promotion by banks and a reduction in lending rates and other charges may provide a boost to credit card growth. Credit card figures are nonetheless extremely low as compared to that of RTGS, NEFT and are about 10-15% of that of debit cards.

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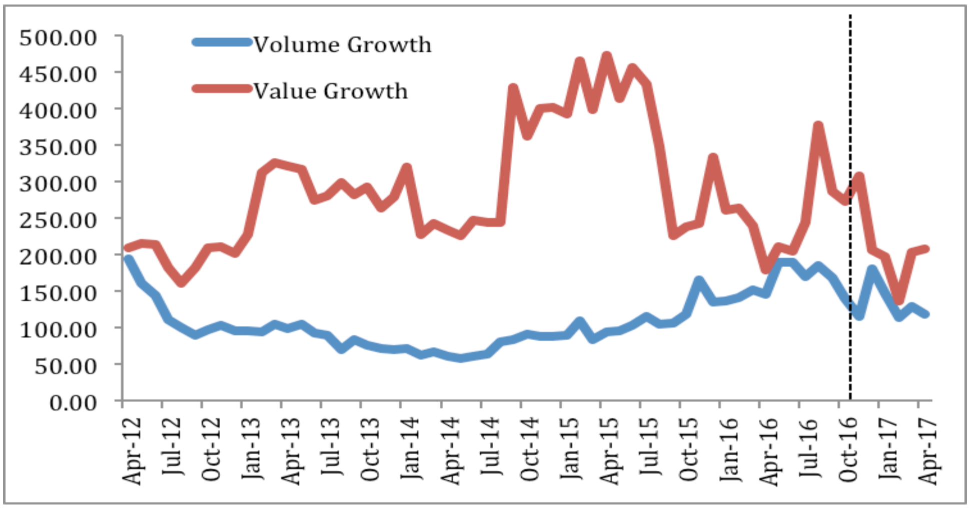
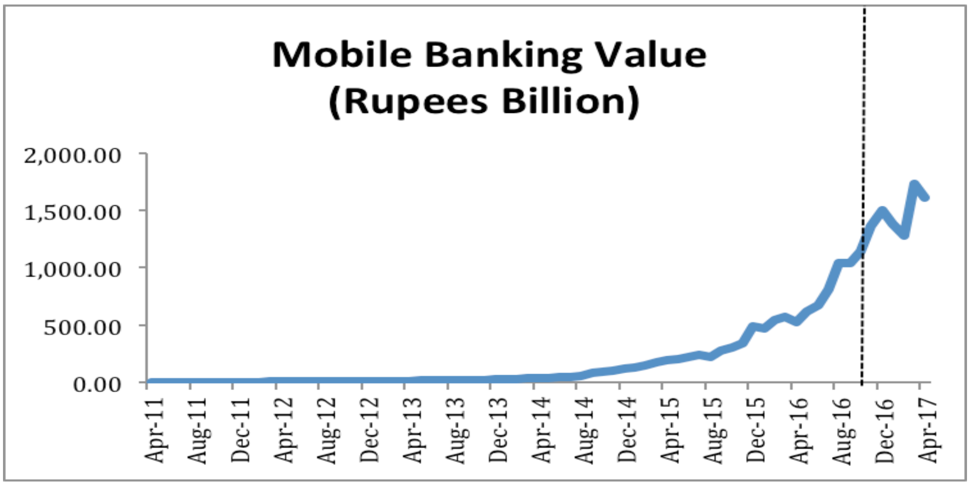
4) MOBILE BANKING





Mobile banking had been growing at a steady pace since April 2015. Demonetization has not had a significant impact on mobile banking as growth rates are subdued and low after demonetization and have not recovered quickly either as has been the case with debit cards or RTGS. Mobile banking by its very nature is closely associated with easy to use, optimized and technology based interfaces. Mobile banking data shows that while volumes are higher than that of debit cards and credit cards, growth has not been impressive and it seems as if mobile banking has not capitalized enough on the opportunity that demonetization provided it. The banking industry, especially in India with all its archaic processes and brick-and-mortar branches can most closely compete with the fintech industry through mobile banking. Hence, despite the fact that PPIs rose quickly and growth was tremendous, mobile banking has not done

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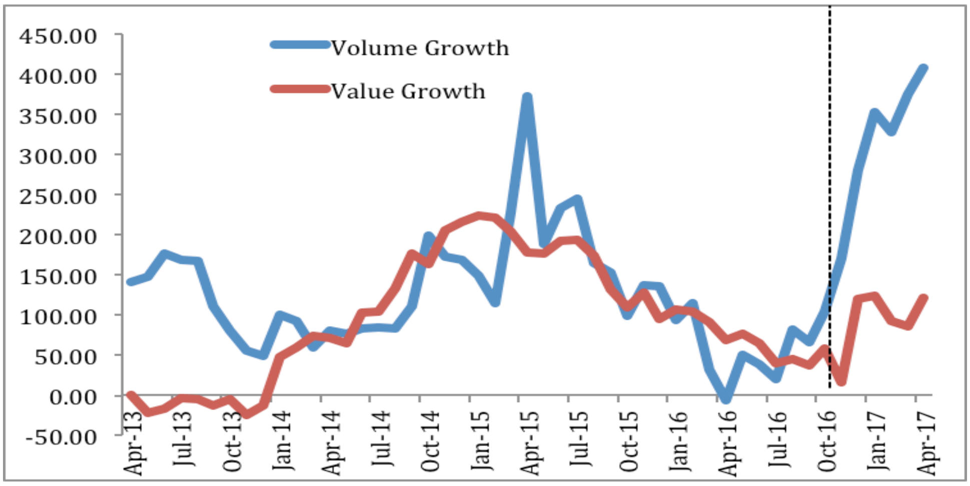
much. A very reasonable critique to this is the fact that banks were busy after the announcement of demonetization and did not adequately capitalize on pushing through mobile banking to the masses the way fintech companies like Paytm could do through very aggressive marketing and expansion plans.

5) PREPAID INSTRUMENTS

The bulk of the fintech industry in India lies in Prepaid Instruments, which accounts for mobile wallets and other payment methods. Even though fintech includes a wide array of services such as credit, insurance, financial data analytics, risk management and wealth management to name some, the fintech industry in India is primarily dominated by m-wallets, payments based companies and lending aggregators and is fairly nascent at this stage. The public at large in India is primarily exposed to the fintech industry through these Prepaid Instruments. They allow users to make payments towards utilities, flight/train ticket purchases, remittances and many other things.

It is in this context that the fintech industry in India is in a unique position in two ways. Firstly because it has the potential and opportunity to lift millions out of poverty and give last mile financial services to those people who have never had a bank account.



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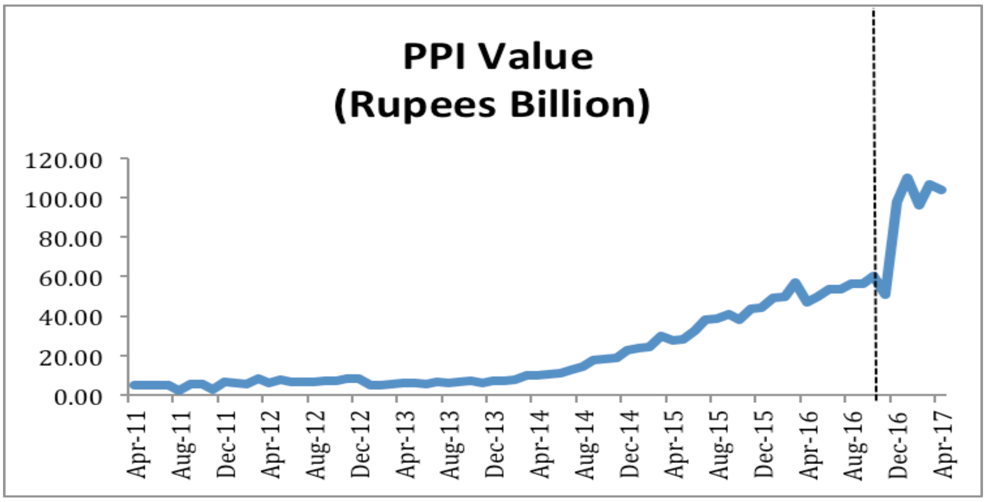

These graphs indicate very good news for the fintech industry, the graphs tell us the story that right after demonetization and due to aggressive marketing campaigns by fintech companies, the usage of PPIs have seen massive growth and transaction values have nearly doubled from pre-demonetization levels. This certainly tells us that the average Indian user has had a good taste of these products, which has also translated to increased trust in these products. This can be inferred from the fact that even though the currency supply in the economy was back to previous levels by April, the value of PPI transactions has not gone down. In the language of economics thus, there seems to be a scale effect rather than a level effect with permanently higher levels of transactions after demonetization. High growth rates as can be seen is also welcome news and indicates that despite a high base of transactions, growth is still the same.

However, in absolute figures PPI transactions are still miniscule as compared to other forms such as credit, debit cards and RTGS & NEFT though these instruments fulfill the same role of transferring funds and making payments for goods and services. This highlights a disappointing fact and sheds light on whether demonetization was a success or not. The fact that a removal of 86% of one's currency has merely doubled the transaction value of PPI and not even brought it close to the likes of other instruments sheds a perplexed conclusion.

6) EFFECT ON LESS AFFLUENT

The impact of the digitally excluded can be observed via the Aadhar-Enabled Payments System (AEPS). We find that AEPS transactions have risen post 8th November and have accelerated thereafter, as can be seen in the figure below. All in

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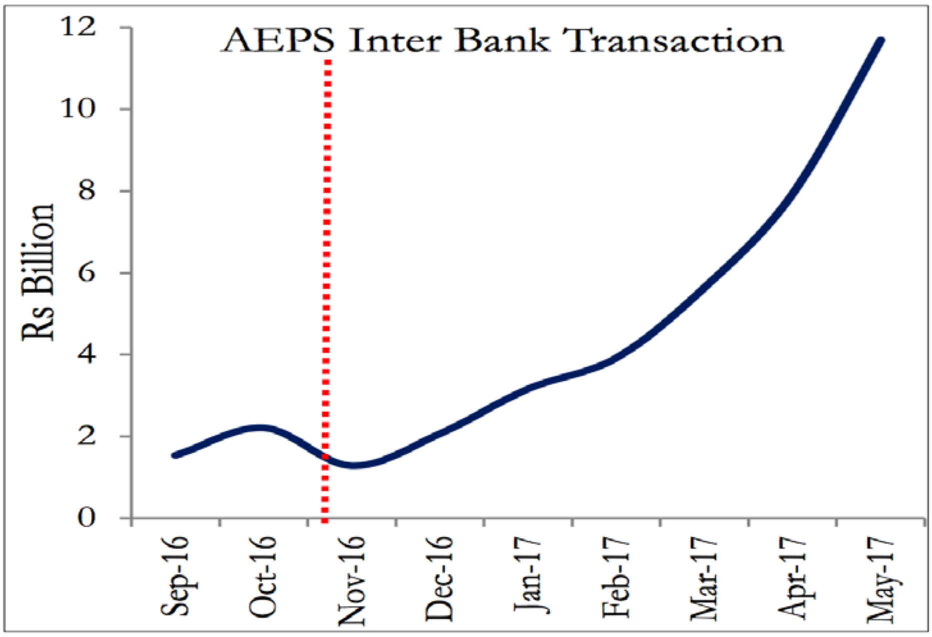
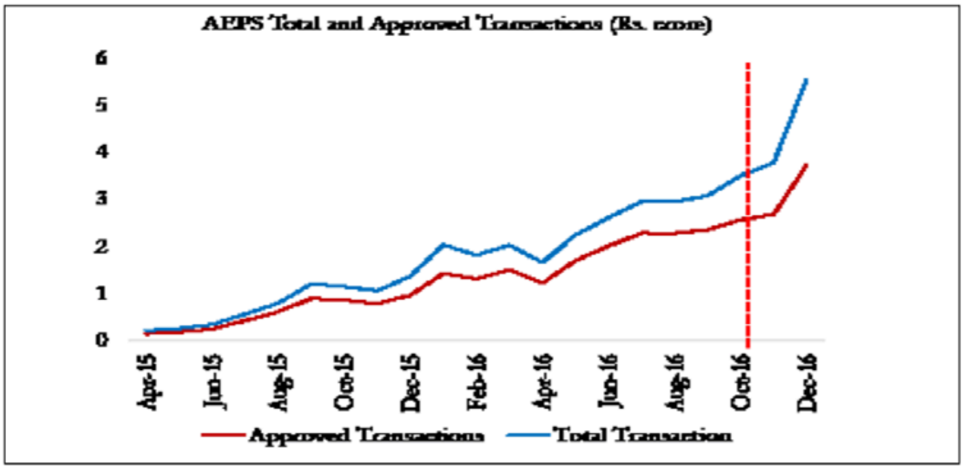
all, though the level of transactions has increased across all segments of customers, the absolute figures are still miniscule in comparison with not just other digital figures such as debit cards, NEFT & RTGS, but also in terms of the potential that digital payments hold in India.



Above figure indicates transactions for less affluent customers



Source: Economic Survey 2016-17

The less affluent are becoming part of the digital economy through the introduction of RuPay cards and Jan Dhan accounts. Demonetisation had somewhat also forced those sections of people who had never tried the medium of online payments. As cash balances had to be deposited in the bank, many people had no other choice but to try

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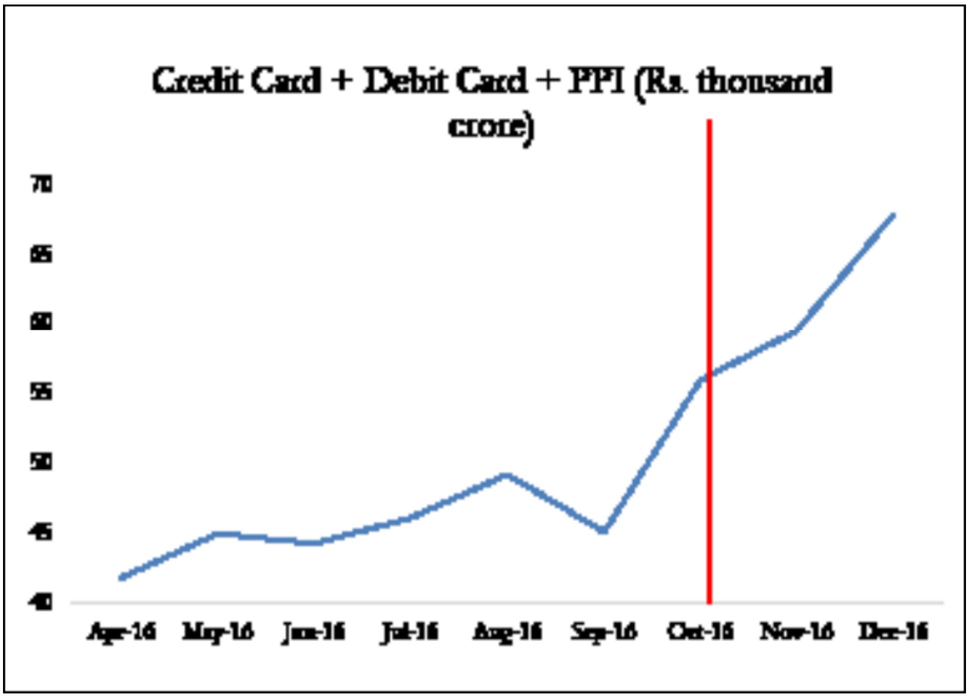
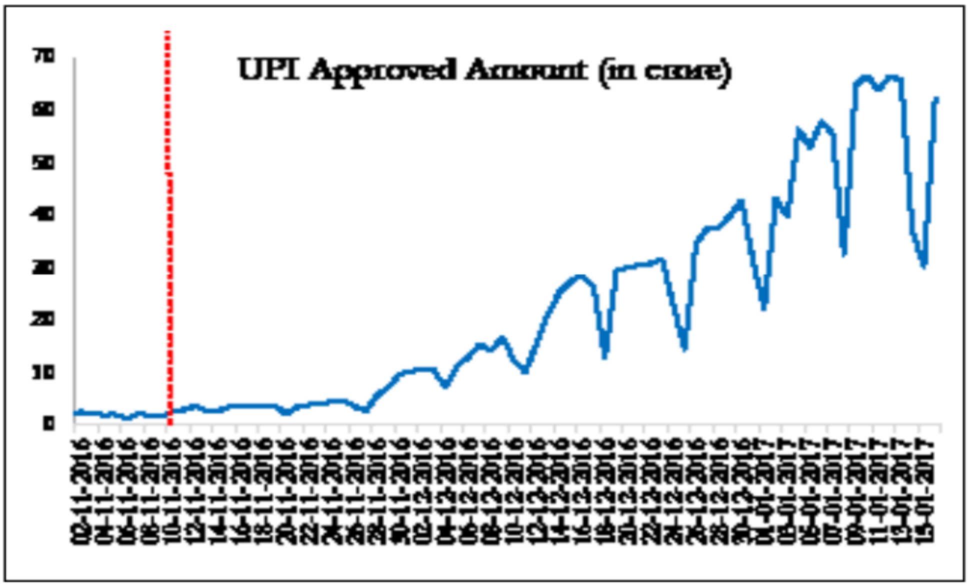
out these methods of online payments or whatever was accessible to them at that point in time. Data from the Economic Survey 2016-17 shows us that the data of these less affluent citizens (mostly people who tried it for the first time) spiked sharply post demonetization.





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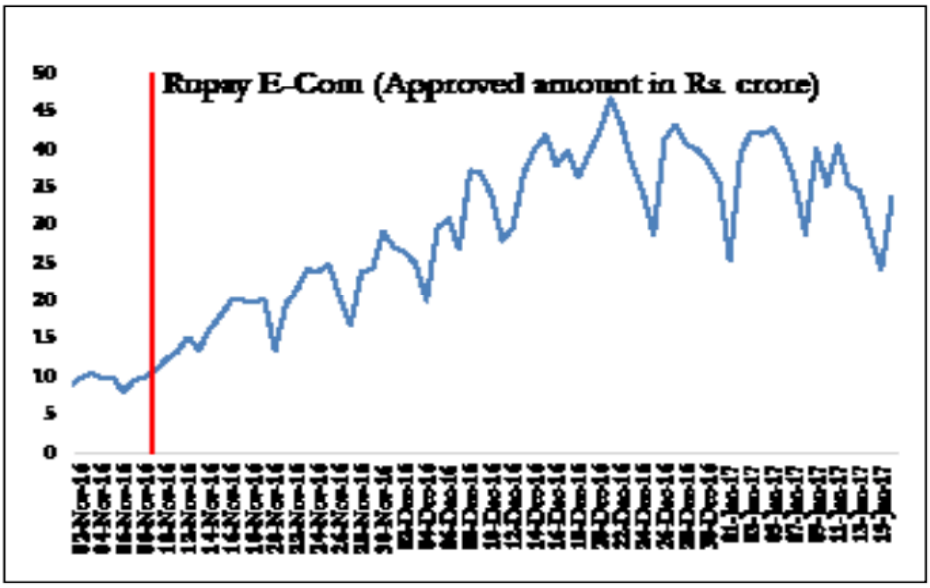

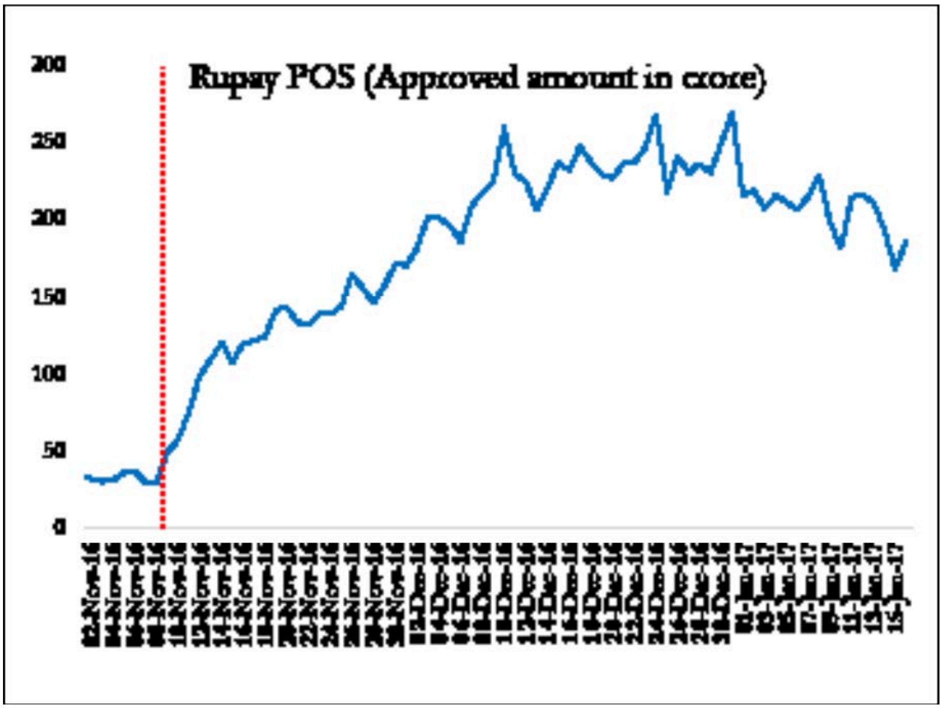

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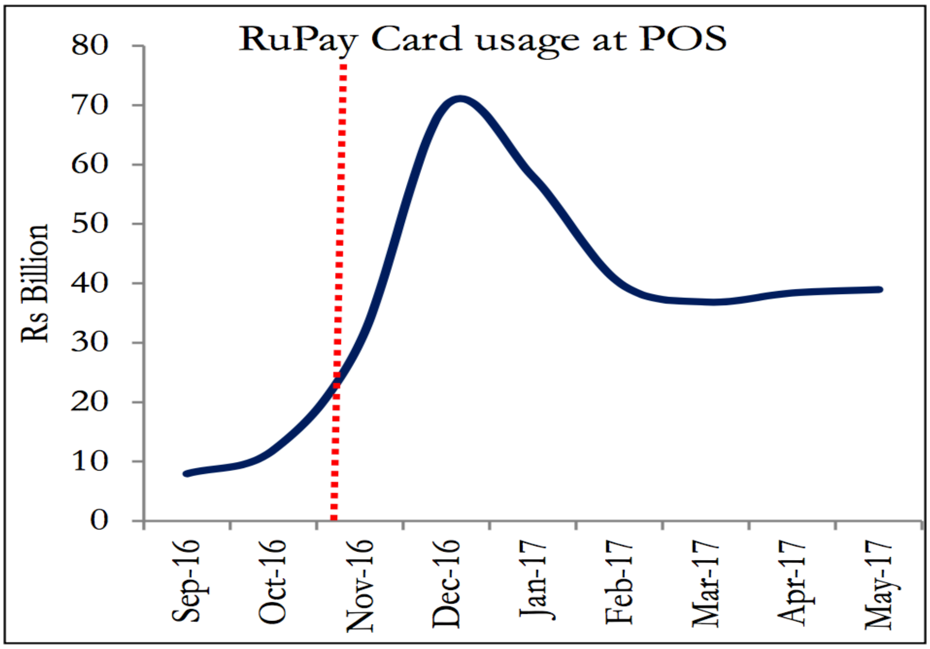

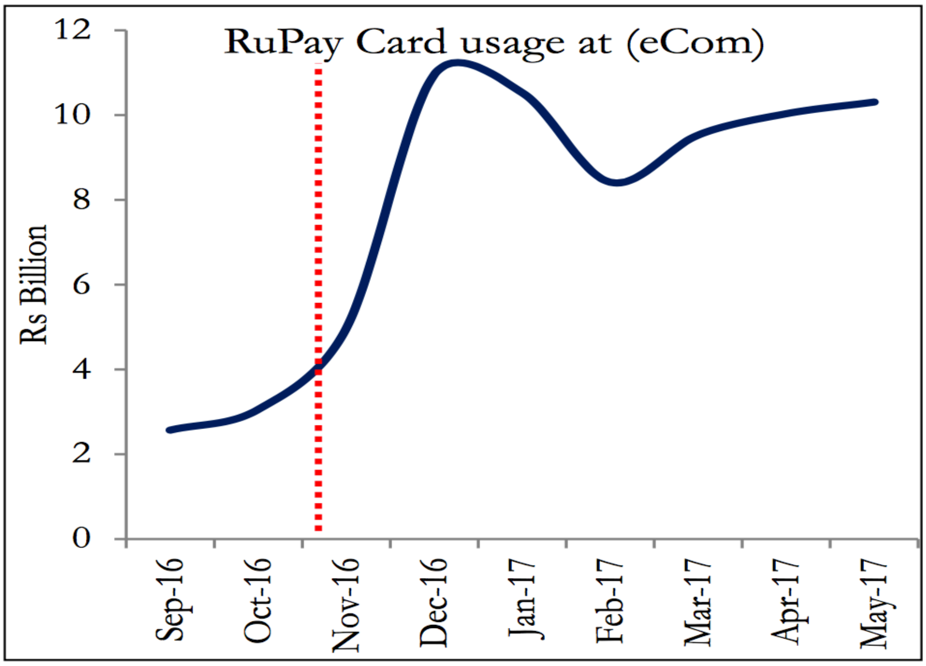

Source: Economic Survey 2016-17 Volume 2

As people have started to use such systems, they have understood the convenience of conducting financial transactions through electronic payment systems. And they are finding that such transactions are feasible in many more places, because demonetization is creating network effects: as first movers embrace e-payments, others find it worthwhile joining them; and as more households participate, more firms are participating as well. However, security features of these payment systems

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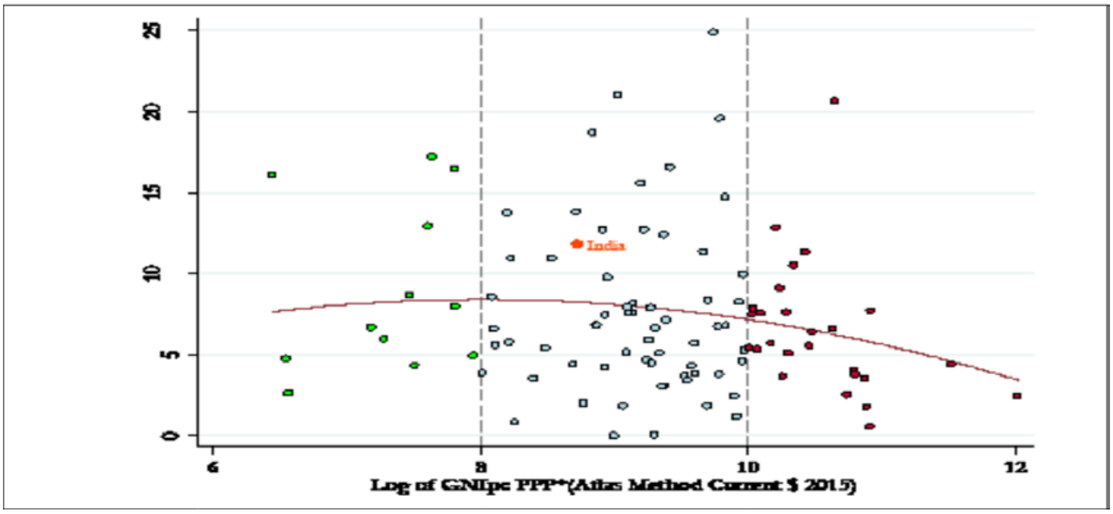
will need to inspire trust, to ensure this trend continues and much needs to be done on the infrastructure aspect.

7) INFRASTRUCTURAL INDICATORS

We next look into some indicators, which tell us the infrastructure side of things in India. India has a very high cash-to-GDP ratio at 12%, which is fairly high as compared to similar BRICS countries.

Country	**Cash-to-GDP Ratio**
India	12%
China	9.1%
Brazil	3.93%
Russia	9%
South Africa	3.72%[7]

Source: Economic Survey 2016-17



The above figure shows the Cash-to-GDP Ratio plotted against the per capita GNI in PPP terms for various countries.

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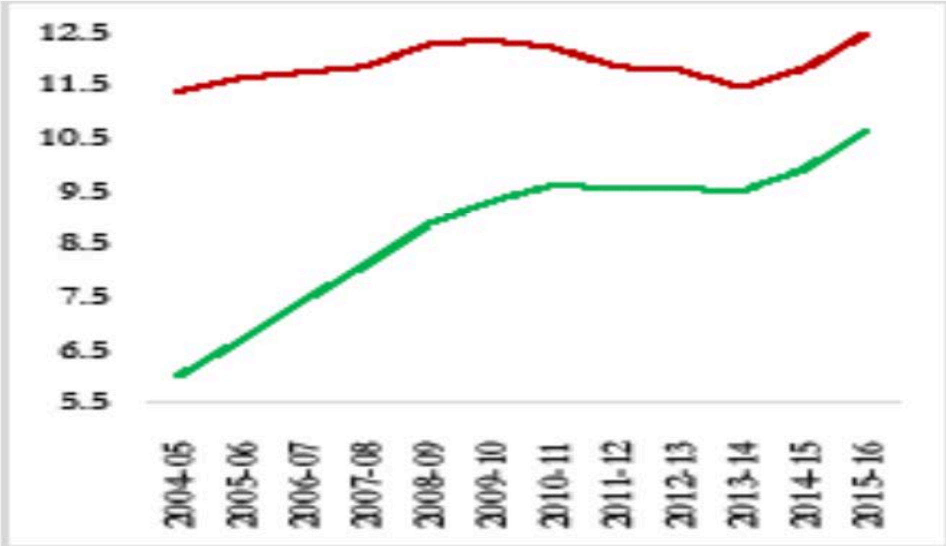
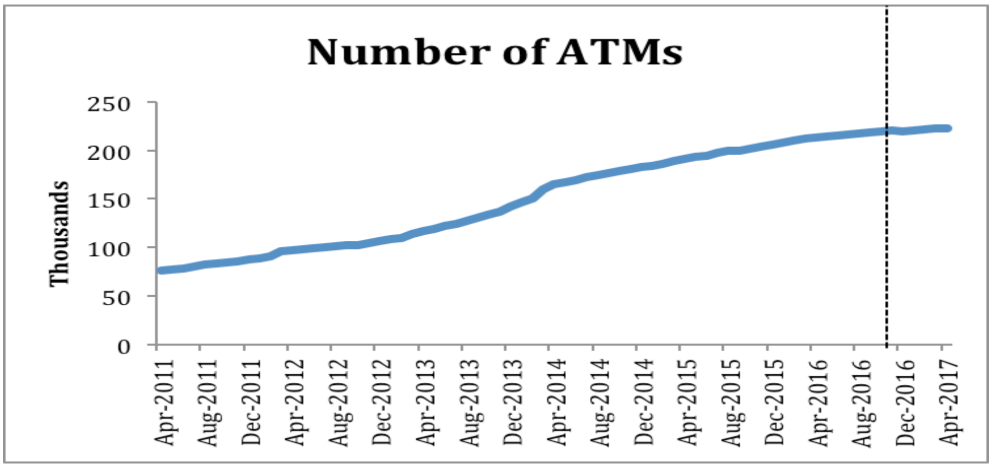


The green line indicates high denomination currency as a percentage of GDP, The red line indicates total currency in circulation as a percentage of GDP.

Source: Economic Survey 2016-17

The above figure shows the extent to which high denomination currency dominated its share in total currency in circulation.



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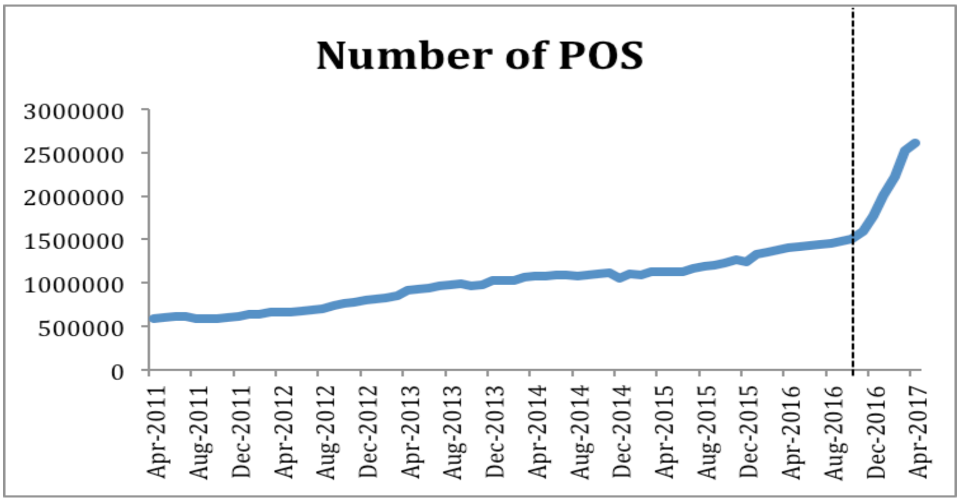

Post-demonetisation, the number of POS terminals have risen at its fastest and steadiest pace and continue to be on the rise. However, judging by the population of India & its wide geographical expanse, 3 million seems to be a small number and there is obviously a lot of scope and certainly, a lot of unfulfilled demand too.

Aggressive marketing and expansion strategies by fintech companies such as Paytm, Mobikwik etc. have led to widespread acceptance of point-of-sale-terminals in urban areas. A majority of these terminals were used in brick-and-mortar stores for purchasing of items. Ultimately, the Government should be able to create a good regulatory framework that can create the right incentives for various stakeholders in the market. The Role of the State should be minimal and be driven towards creating an enabling ecosystem. It should focus on identifying and addressing market failures, situations when the competitive outcome of markets is not satisfactory from the point of view of society. The actions of the State should consider its capacity to intervene.

Population	Per Million of Population		
	Cards	ATM	PoS
2012-13	.29	95	695
2013-14	.34	133	865
2014-15	.45	152	889
2015-16	.53	163	1066
2016-17	.63	167	1974

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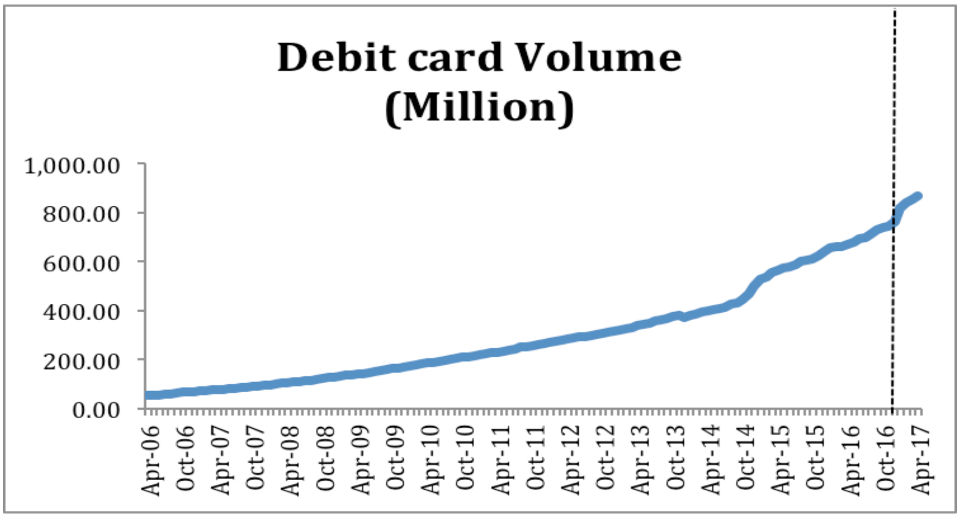
The number of cards per million of population are extremely low and highlight how underpenetrated they are in the system. Cards act as a good proxy for the level of financial and banking penetration. In a modern sophisticated economy, cards act as the primary method to conduct financial transactions.

Country	ATMs per million population (2015)	PoS terminals per milllion population (2015)
Australia	1329	40,130
Brazil	892	25,421
Canada	1,854	36,326
India	165	1,080
Mexico	382	7,189
Russia	1,413	10,176
Singapore	507	31,096
South Africa	533	7,267
United Kingdom	1,079	30,078



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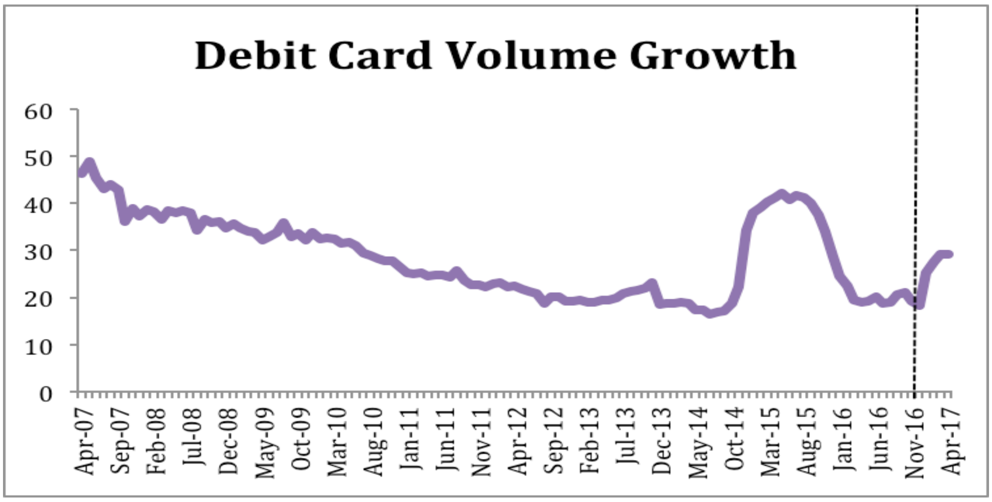

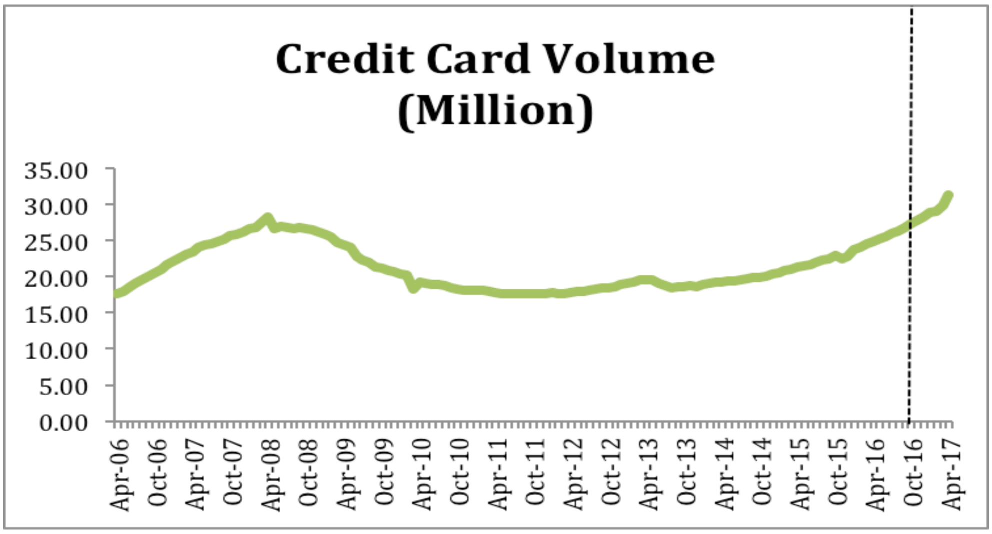

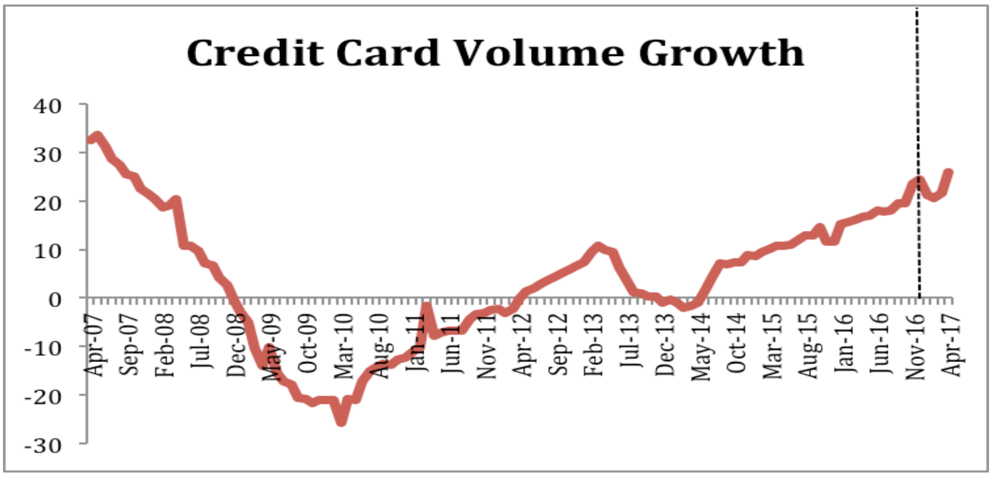

The facts suggest that digital payments has been growing steadily but at a very slow pace, moreover there is room for significant improvement. There are various barriers to the adoption and usage of digital payments. Inadequate infrastructure, regulatory impediments and inadequate value proposition for merchants and users are some of these. The traditional approach to financial inclusion has been to bank the unbanked.

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There is a belief that it is time to broaden the approach and include the excluded through every other means of financial access, over and above banks.

With respect to adoption and usages, there is a wide belief that people do not use payment services, as most of them do not find any incentives in using the same. Annual fees for cards, surcharge/service charge or convenience fee levied on card based payments are inhibiting greater adoption and usages of card payments. For example, a transaction charge of Rs. 10 is imposed for booking an online railway ticket. The same does not apply while transacting through cash.

With respect to payment infrastructure, several measures have been taken by the RBI in order increase payments infrastructure. On such was setting up of Acceptance Deployment Fund. An Acceptance Deployment Fund is a corpus funded by card issuers to expand acceptance infrastructure in the country. The Committee observed that there are problems at the ground level which are inhibiting the growth of acceptance infrastructure. The inability of small merchants to provide specific documents like proof of business activity, tax related document etc. to get a machine and cost of a POS machine discourage merchants from receiving payment digitally. The Central KYC Registry (CKYCR) which is a central repository is working on paper based format, thus the same is putting extra burden on the service providers in terms of cost and efficiency. Further, every time the user of the financial product has to fill the KYC requirements as there is no existing mechanism which allows the service providers to share the KYC information with each other.

Government departments/agencies are not well equipped to receive payments digitally and massive amounts of transactions happen through these. Further, most usage of the debit cards are happening at ATMs for cash withdrawal. The Committee observed that reasons for less deployment of POS terminals are The imposition of higher import duties make the business of the acquirer side unviable is a major reason for less deployment of POS terminals.

7) EFFECT ON MARKET INTEREST RATES & MACROECONOMIC VARIABLES

Even though the primary aim of this paper is to look at demonetization and digitalisation, it is also important to look at the effect of demonetization on various macroeconomic variables such as the rate of growth of GDP, the rate of inflation, the index of industrial production, the exchange rate vis a vis the dollar and bond yields

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of important and benchmark securities. Such an analysis will give a broader perspective to the reader and enable them to visualize effects on the overall macroeconomy. Even digitalisation, which as been the highlight of this paper is interlinked to these various macroeconomic variables and is affected by them.

There has been extensive coverage in the media and in public opinion on this type of analysis, the most notable being its effect on the rate of growth of GDP. However, a more complete, vast and detailed analysis needs to be carried out to truly discern an overall picture. After all, demonetization has been a one of a kind and unique exercise in the 21st century in this current era of economic growth. This has naturally brought about significant discussion and attention from stakeholders representing various groups such as the Government, Civil-society, Corporations, Citizens and the Media.

i) Effect on Rate of Growth of GDP

The effect of the Demonetisation exercise has been widely regarded as detrimental to the growth of the economy. There is widespread agreement amongst the public and amongst serious economic analysts that Demonetisation has been detrimental for growth. From the chart itself, we see that the rate of growth slipped to fresh lows in comparison with the momentum that the Indian Economy had managed to garner before. India had been touted by the IMF as the fastest growing major economy in the world.

Growth fell in the range of 5-6 percent as compared to the 7-8 percent range that it was previously operating in. This growth reduction seems to mainly be because of a fall in business transactions. Rural sentiment and demand was especially hit after demonetization as the rural economy is primarily built on cash. Moreover, the productive energy of consumers were also spent on cash exchanging and waiting in lines to deposit their money. Only those transactions which were necessary and which did not affect existing cash holdings of citizens were carried out. Corporate investment also fell to fresh lows as business sentiment waned in the aftermath of demonetization. Many businesses, especially the real-estate sector were hit badly.

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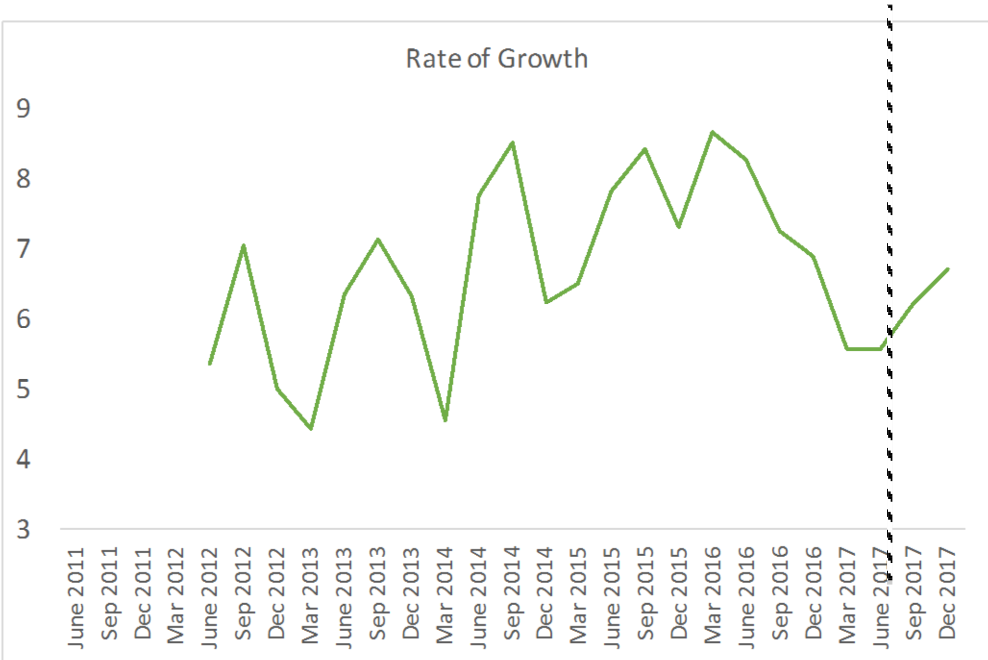

ii) Effect on Rate of Inflation

We see from the figure on the rate of inflation, that inflation fell drastically from its normal level before Demonetisation, touching a 2-year low of 3.41%. Demonetisation has caused low demand amongst the population for goods and services. This in turn caused producers and suppliers to lower prices of goods they sold. There were many recorded instances of 'fire-sales' that were happening in various vegetable and perishable commodities markets. This is intuitively understandable because farmers and traders were willing to sell their produce at any price rather than allow their produce to get perished. Real estate prices also declined massively and as a result the cost of housing went down; housing has a reasonable weightage in inflation calculation in India.

Low levels of inflation had also raised hopes of a rate cut by the Central Bank which is the Reserve Bank of India. The wages payments of a majority of informal sector workers, which constitute a major chunk of the employed in India, were also delayed by several months as business grappled with a cash problem. This has caused a severe demand side deflationary pressure for goods and services. The rural economy where 70% of India lives, also took a toll and can be attributed as a reason for low inflation.

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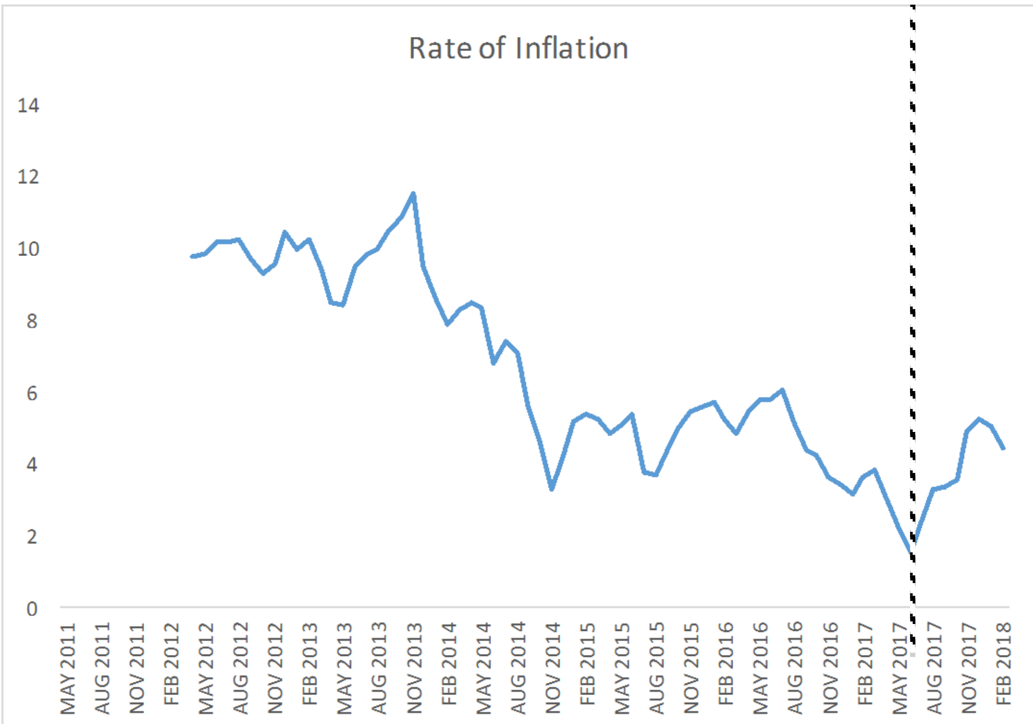

iii) Effect on Industrial Activity

Industrial Activity took a major hit in the aftermath of Demonetisation. This is because new project announcements took a hit and existing projects were halted during implementation. We see from this graph that the index of industrial production hit a low in the months of December and January.

The two major components, consumer and capital goods, shed some light on trends in consumption and investment or aggregate demand. Growth in consumer goods, although positive at 1.2% in the year so far, was weaker than the last year. And capital goods output growth was -22% in the period (-26% in October) relative to a decent 9% growth in April-October 2015. Cement sale volumes halved in November. The darkened outlook for real estate—property prices were anticipated to fall by 20-40% and developers pruned overall costs, including staff, to economize on cash and sustain bottom lines. Ripple effects were felt in steel and other inputs as well. Automobile sales in November were also 5.48% lower.[8]

Apart from furniture, office equipment, other non-metallic minerals, publishing, paper and tobacco, which were already contracting on November other industries like, food products, textiles, wearing apparel, leather, wood, chemicals, rubber, fabricated metals,

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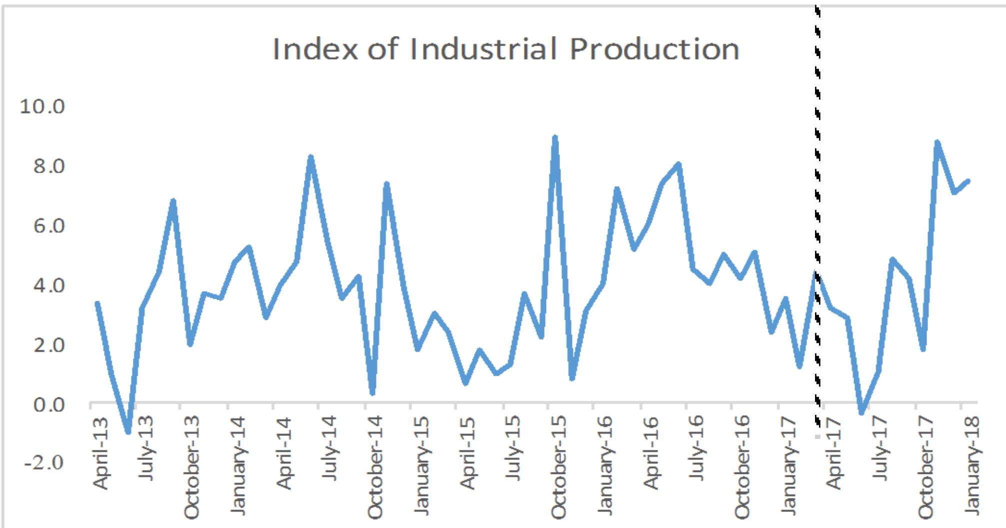
medical equipment, motor vehicles and other transport equipment also shrunk in December.[9]



v) Effect on Policy Repurchase Rate

The rate at which the RBI lends money to commercial banks is called repo rate. It is an instrument of monetary policy. Whenever banks have any shortage of funds they can borrow from the RBI. A reduction in the repo rate helps banks get money at a cheaper rate and vice versa. The repo rate in India is similar to the discount rate in the US.[10]

A year after demonetisation, one of its effects has been a substantial decline in lending and deposit rates. The chart, taken from the Reserve Bank of India's (RBI's) monetary policy report, has the details.

The chart shows that in the pre-demonetisation period—December 2014 to October 2016—while RBI lowered the repo rate by 1.75 percentage points, the weighted average lending rate (WALR) on outstanding loans went down by 0.75 percentage points. But in the year after demonetisation, even though the repo rate has been lowered by a mere 0.25 percentage points, the fall in WALR on outstanding loans has been 0.50 percentage points. The big change has been in fresh loans, where the fall in interest rates in the year after demonetisation has been equal to the fall pre-demonetisation, despite the much lower reduction in the policy rate.
The chart also shows how term deposit rates for banks also came down after demonetisation.

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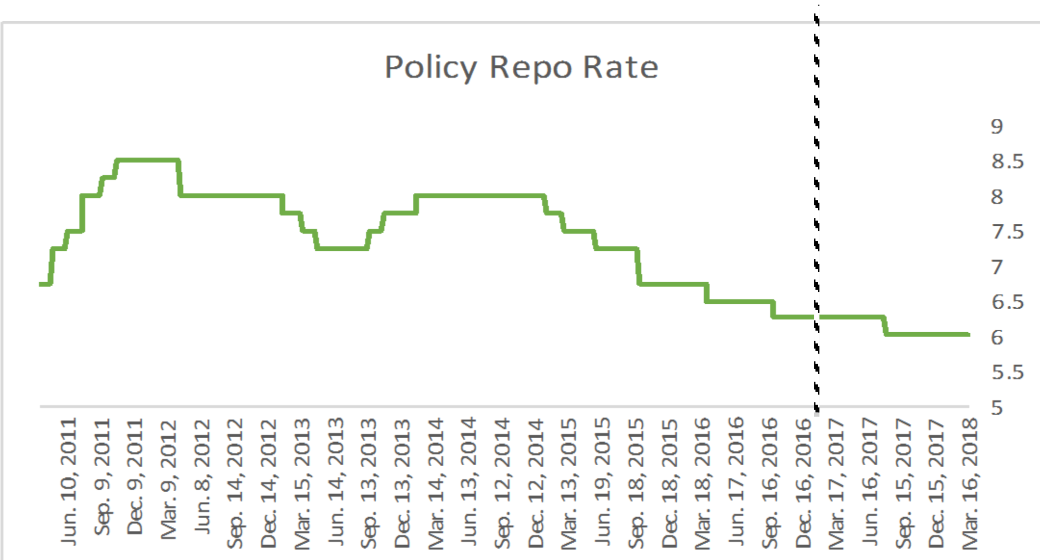
The upshot: Demonetisation and the resultant surge of deposits into banks did what RBI couldn't—it ensured banks passed on reductions in the policy rate, helping borrowers. On the flip side, the very low rates of interest on bank deposits have led to a flow of funds to the capital markets.[11]

Fall in bank rates pre- and post-demonetization (variation in percentage points)

	Repo rate	Lending rates		Term deposit rates
		WALR-outstanding rupee loans	WALR-fresh rupee loans	Median term deposit rates
Pre-demonetization (Dec 2014 to Oct 2016)	-1.75	-0.75	-0.97	-0.99
Post-demonetization (since Nov 2016)	-0.25	-0.5	-0.96	-0.59

(Figure taken from referred source)



vi) Effect on Spot Exchange Rate ($ per Rupee)

Demonetisation has not had a significant effect on the spot exchange rate. This is attributable to several factors such as expectations of a lower interest rate differential due to lowering of Indian interest rates post demonetization. Several foreign exchange dealers have also claim that the movement of the dollar depends majorly on actions of the Federal Rserve as compared to other events. Moreover, in a recent research by Vizmanos-Batac et al. has shown that changes in M1 (which was altered drastically due to demonetisation) has little impact on the spot exchange rate of a country and its major trading partners. This can explain why the rupee did not appreciate/depreciate by a significant proportion after demonetisation.[12]

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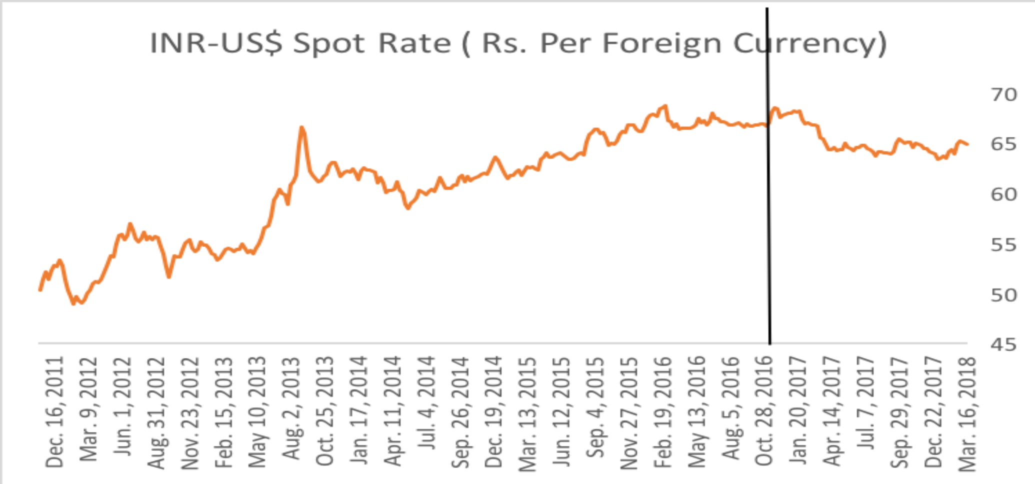

(the black lines in each figure indicate the time period when demonetisation happened)

5. POLICY RECOMMENDATIONS & CONCLUSION

What is starkly observant is that there is a structural change in almost all data, especially if we look at absolute figures; the structural change is marked by the demonetization exercise. While demonetization has obviously given a fillip to digital payment systems, much needs to be done at an institutional and incentive level. The fact is simple: people use cash because they find it easy to use and it has no associated costs of transaction. People will also use digital payments only if they are provided the correct incentives and benefits to do so. The fact that PPI transactions have just doubled rather than increase higher gives the indication that demonetization has been able to point out glaring loopholes in India's push for digital. What is particularly heartening to see is the fact that the Government and the RBI have aggressively worked to increase the digital footprint in the country. They have prioritized this aspect of financial reform in order to increase the efficiency of the Indian economy. This paper has simply looked at the demonetization exercise within the digital universe in India. It has not analysed other policies such as the PMJDY or the efforts taken by the NPCI recently. Banks and other institutions too have realized that fintech has an important role to play in the future of India and for business. It is in this light that the following policy recommendations are being made:

1) Increase adoption of digital methods of payments particularly by gradual elimination of transaction costs and charges by entities such as banks and m-wallets.

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2) Legislation of Payment Systems should be done keeping in mind data protection, creation of competitive environment and an efficient check and balances mechanism.
3) Digital transactions that are of low value must be given priority. This will ensure that digital means truly touch the lives of each individual and this can then make them habituated to digital payments.
4) Reduce import duties and MDR charges on POS machines.
5) Reduce regulatory hurdles that hinder adoption of POS terminals by merchants on ground.
6) A long-term strategy could be to ultimately have one payment interface that is all encompassing and simplified in nature rather than multiple interfaces like the AEPS, IMPS, BHIM & UPI etc. Currently there is a lot of confusion about the various methods of making payments and their particular specifications.
7) Increased adoption by digital payments from the side of the Government. The Government must consciously make an effort to digitalise payments that are received by it for services rendered and for making payments. Complete digitization of railways for instance can be a good first step.
8) Helping the fintech industry through efficient and minimal regulation will help market forces and the private sector to enter this space in a larger context rather than just urban penetration.

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