

Cashless Economy and Electronic Payment System in India: A Pre and Post GST

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Abstract: This paper assesses the impact of electronic payment system in India. It is expected that GST implementation could have two outcomes on electronic payment systems; one is either boost he use of electronic payment or decrease it in an attempt to evade tax payment. Thus, our objective is to find out if this policy change has an immediate impact or not. The findings of the research work reveal that GST implantation did not lead to any change in the use of electronic procedure in the country. The impact is expected to come after few months of the policy implementation.

1.1 Introduction

Sequel to the demonetization and subsequent implementation of GST on July 1st, 2017, Indian government has come up with so many incentive avenues aimed at rewarding the citizens for a gently compliance to government policy of cashless economy. A cashless economy is a process whereby the amount of money in circulation could be reduced which may have an instantaneous impact on GDP and inflation. According to Friedman, increase in money supply will simultaneously increase GDP, while in the long the impact will go directly to prices. Thus, it's the aim of every economy whether democratic or otherwise to keep inflation to its lowest minimum.

According to the insight India publication, a galloping amount of 21,000 crore is spent annually by the RBI in maintaining the desired cash floor in the economy. Similarly, the Indian government maintained roughly 76 billion rupees in circulation with its US counterpart circulating just half of it. In essence, a cashless process is desirable in every economy due to its endless benefit that is not only restricted to the economy, but also directly on individuals in the society. It is an immeasurable fact that, cashless process will reduce the risk of carrying money around which lead to armed robbery and attack, it leads to improvement in financial literacy among others.

There have been various attempts by different researchers to investigate the impact of cashless transactions in the economy in different angles in different economies, there are similar studies for the case of India, for example the works of Kumara (2016), Khanna (2016), Garg and Panchal (2017). These studies made us to understand the conceptual issues behind the cashless transactions in the economy. It is the objective paper, to find out the changes if any the electronic payment system of India before and after the implementation of GST in 1st July, 2017. The expectation by the stakeholders is that, the GST implementation will further boost the use of the electronic payment avenues on one hand, while they expected it to further decline the use in an attempt to evade tax. We try to find out what happens a month before and a month after the implementation of the policy, whether users increase or decline as speculated by some. The remainder of the paper will cover a literature review and Methodology, and finally discussion and conclusion.

1.2. Literature Review

This section presents a review of the related literature on cashless transaction/economy.

Kumari (2017) reveals that the various means by which an economy can go cashless, these include point of sale transaction (POS), Unified payment interface, E-wallet, and unrestricted supplementary service data (USSD). Similarly, the paper discusses the benefits associated with a cashless economy which include: control of black money, control and eradication of fake money, improvement and tracking of taxable funds, illegal political funding and terrorism as well as saving the cost of printing and distributing of currency and concluded that although cashless economy contains the above benefits but still has challenges like low level of literacy especially in the rural areas.

Garg and Panchal (2016) study shows that cashless economy will help in curbing black money, counterfeit's fake currency, fighting against terrorism, reduce cash related robbery, helps in improving economic growth of our country. Major challenges that can hinder the implementation of the policy are cyber fraud, High illiteracy rate, attitude of people, lack of transparency & efficiency in digital payment system. The study shows that the introduction of cashless economy in India can be seen as a step in right direction. It helps in growth and development of economy in India.

Khanna (2016) indicates that means of a cashless system, make a case for info technology and net banking techniques, and highlighted the advantages of cashless economy which electronic payment systems have the potential to cut back if not eliminate the issues shoppers face within the payment and settlement

system and also discusses issues related to the risk as well as the opportunity cost of a cashless economy. He further find that the 99 percent of banking transaction in Nigeria is done by cash rather than cashless, however recommended that the financial activities of Nigeria need to be streamlined as well as the need for investment n technology so as to achieve the desired objective.

Akinolu (2012) study takes a keen look into the feasibility of introducing cashless means of business transactions in Nigeria and the security threats associated with it. The paper explains the potentials of applying data mining techniques to effectively control the security threats and risk in the cashless process

1.3. Methodology

The main objective of this paper is look at how electronic payment system changes if any, just within a month of GST implementation, it is a known fact that the Indian government introduced a GST which comes up with some incentives to the citizens which include reduction of taxes by 12. 5 percent in some cases for transactions carried out electronically. But again it is another way by which government can tackle the problem of tax evasion. Our task here is to assess a month before and after the implementation of GST, and find out if this move has caused immediate changes in the electronic payment system in India. To carry out this task, seven variables have been selected, this include Cash truncated system (CTS), immediate payment service (IMPS), National electronic payment transfer (NEFT), point of sale (POS), unified payment interface (UPI), – Real time gross settlement (RTGS), and unstructured supplementary service data (USSD). Whole days of the months have been included as observations. A descriptive statistic have been used for the analysis of the variables, in which Mean values, the minimum and maximum values, the skewness as well as kurtosis of the variables are analyzed. All the variables are in rupees (billion). The findings are discussed in the following sections.

1.4. Results and Discussion

The result of the two months selected for the analysis has been analyzed and discussed.

Table 1.1 presents a result of descriptive statistics of the selected variables. The mean value for CTS is 278.6 Billion rupees in the month of June while medium value stood at 266.1 billion rupees in the same month which is the last month before the GST. The maximum and minimum value for the CTS series is 421.6B and 226.18B respectively. The skewness and kurtosis which measures the peak and fat tail of the series stood at 1.69B and 5.65 which mean that the series is positively skewed and leptokurtic. The coefficient of Jarque-Bera is 17.75 indicating

Table 1.1
Descriptive Statistics for the Electronic Payment Indicators for the Month of
June, 2017

<i>Variables</i>	<i>CTS</i>	<i>IMPS</i>	<i>NEFT</i>	<i>POS</i>	<i>RTGS</i>	<i>UPI</i>	<i>USSD</i>
Mean	278.6934	22.37263	551.9216	15.92318	4035.330	1.119300	11154.24
Medium	266.1668	21.80312	473.2341	15.89710	3923.454	1.057036	11100.00
Maximum	421.6746	29.59622	1325.194	18.80594	8032.637	1.438771	14112.13
Minimum	226.1853	17.83039	266.4810	12.31299	683.5257	0.949800	8900.000
ST.DEV	45.33687	2.725026	239.8790	1.535285	1523.436	0.137931	1496.295
Skewness	1.696019	1.092045	1.894370	-0.196500	0.132032	0.776818	0.115327
Kurtosis	5.649922	4.078295	6.404967	3.092828	4.695005	2.558745	1.823903
Jarqu-Bera	17.75601	5.685760	24.86718	0.156272	2.820155	2.499803	1.376555
Prob.	0.000139	0.058258	0.000004	0.924839	0.244124	0.286533	0.502441
Sum	6409.949	514.5706	12694.20	366.2332	92812.58	25.74391	256547.5
Sum Sq.	45219.50	163.3668	1265923	51.85617	51058870	0.418552	49255804
Observ.	23	23	23	23	23	23	23

Source: Computed

that the series is not normally distributed. For the IMPS series the mean and medium values are 22.37 and 21.80 respectively. Similarly, the maximum value stood at 29.59Billion and its minimum value is 17.83billion. The series standard deviation is only 2.72. In terms of skewness the series is positively skewed and the kurtosis indicates that the series is leptokurtic. The IMPS series is normally distributed if we assume our confidence level to be exactly 95 percent.

The mean of the NEFT series is 55.9B in rupees, its maximum value for the month is 1325.2B, and its minimum value is 266.5B. its medium value is 473.2, the skewness and kurtosis are 1.89B and 6.40B respectively. It means that the series is positively skewed and leptokurtic. The coefficient of Jarque-Bera is 24.86 while its corresponding probability value is 0.00004, which means that the series is not normally distributed because we have to reject the null hypothesis. The POS which is the series indicating the series of transaction via the point of sales in billion rupees has a mean and medium value for the month of June as 15.92 and 15.89 respectively. Its maximum value is 18.80 while its minimum value is 12.31B, the skewness of the series is -0.9 indicating a positive skewness and the kurtosis is 4.69 which is also leptokurtic.

The probability value of the Jarque-Bera is 92 percent meaning that we cannot reject null hypothesis in this situation and therefore concluding the series to be normally distributed. The RTGS mean and medium value is 4035.3 and 3923.4B. the maximum value is 8032.6 and its minimum value is 683.5B, the skewness is

0.13 and it is positively skewed while its kurtosis is 4.69 which shows its leptokurtic. The coefficient of Jarque-Bera is 2.82 and its corresponding probability value is 24 percent which means that the null hypothesis is accepted of normal distribution.

The UPI series has a mean value of 1.119 and a medium of 1.05B. the maximum and medium value for the series is 1.43 and 0.94. The skewness of the series is 0.77 suggesting a positive skewness and the kurtosis is 2.55 suggesting that the series is platykurtic. Similarly, the series is normally distributed. The USSD series has a mean value of 11,154.24 and a medium of 11100. The maximum value is 14,112.13 while the series minimum value is 8900B. The skewness of the series is 0.11 suggesting that the series is positively skewed. The kurtosis is 1.82 which means that, it is also platykurtic.

Table 1.2
Descriptive statistics for the Electronic payment indicators
for the month of July, 2017

	<i>CST</i>	<i>IMPS</i>	<i>NEFT</i>	<i>POS</i>	<i>RTGS</i>	<i>UPI</i>	<i>USSD</i>
Mean	264.2708	21.66139	504.7941	14.50822	3631.219	1.1825	10190.76
Medium	253.2677	20.38880	472.2607	14.25188	3856.025	1.113935	9678.923
Maximum	341.0658	31.34556	815.8573	18.49286	5381.283	1.597474	13500.00
Minimum	224.3912	18.42461	290.8784	11.72476	800.1075	0.844322	7013.294
ST. DEV	30.19028	3.202857	113.7993	1.625626	1115.442	0.189659	2099.299
Skewness	1.294841	1.364642	0.885960	0.682935	-1.340639	0.520673	0.287141
Kurtosis	4.140273	4.568465	3.871159	2.986793	4.520414	2.500522	1.700377
Jarque-Bera	8.006673	9.909077	3.898618	1.865774	9.500907	1.333880	2.018821
Prob.	0.018255	0.007051	0.142372	0.393416	0.008648	0.513277	0.364434
Sum	6342.500	519.8734	12115.06	348.1972	87149.26	28.38129	244578.3
Sum.sq	20963.42	235.9407	297856.5	60.78120	28616859	0.827320	1.01E+08
Observ.	24	24	24	24	24	24	24

Source: computed

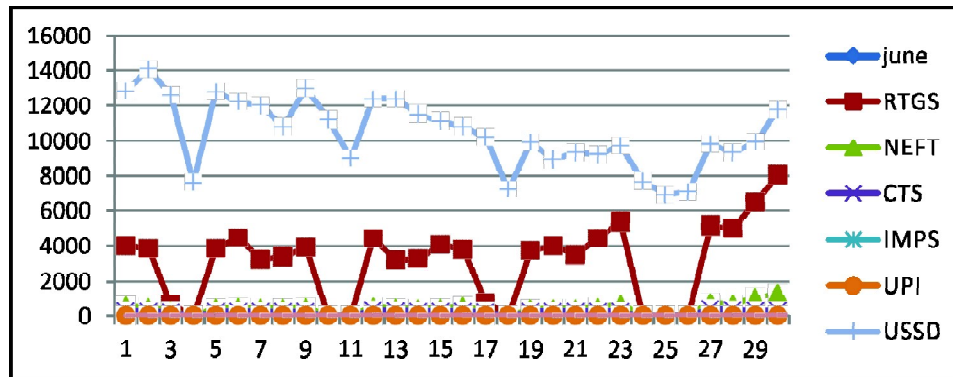
Table 1.2 presents a descriptive statistic of CST, IMPS, NEFT, POS, RTGS, UPI and USSD series for the month of July. To start with, a CST series has a mean value of 264.2 and its medium value is 253.26. The maximum and minimum value for the CST series is 341.06 and 224.39 respectively. The standard deviation of this series is 30.1. Its skewness is 1.29 suggesting that the series is positively skewed. The kurtosis of the series is 4.14 which are greater than 3 as a normal coefficient of kurtosis, hence the series is leptokurtic and not normally distributed. The IMPS series which is an indicator for the immediate payment systems indicates a mean value of 21.6 and 20.38 as a medium value. The maximum and the minimum value of the series is 31.34 and 18.42 respectively.

The skewness is 1.36 and it is positively skewed while its kurtosis suggests leptokurtic behavior. The probability of the Jarque-Bera test suggests that the series is not normally distributed. In the same vein, the mean value and medium value for NEFT series is 504.79 and 472.2B. The maximum value is 815.8B for the month of July. The minimum value is 290.8B for the entire month of July. Hence, the standard deviation is 113.79B.

The skewness of the series is 0.88 suggesting the series is positively skewed, while the kurtosis coefficient which is 3.87 indicates that the series is leptokurtic. The series is normally distributed having a probability value of 14 percent in the Jarque-Bera statistic. The mean and medium value for series POS, RTGS, UPI, USSD is 14.50, 3631.2B, 1.18, 10190B, and 14.25B, 3856B, 1.11B, 9678.9B, respectively. Similarly, the minimum value for the above series is 11.7B, 800.1B, 0.84B, 7013.2B, while the maximum values for the series POS,RTGS, UPI, USSD, is 18.4B, 5381.2B, 1.59B, 13500B, respectively. All the variables are positively skewed and are all normally distributed except RTGS. In terms of the kurtosis they are leptykurtic except RTGS.

Table 1.3 and Fig 1.1 presents the differences found in electronic transaction before(June) and after(July) the implementation of GST, our idea is that, after GST implementation entrepreneurs and industrialists might decide to dodge card and other electronic payment systems in order to evade tax. This is because their transactions are easily traced by the income tax department and hence could be taxed accurately. On the other hand, it is expected that electronic payment procedure will be increased by entrepreneurs and other business men in other to get a benefit of a waiver. We try to find out whether there is an immediate change in terms of the payment systems by comparing a month before GST and a month after GST. As reported in the table above all values are in billion rupees.

Figure 1.1



The maximum transaction took place in the month of June this is because when looking at the values for the maximum transaction it could be noticed that month of June recorded the highest transaction compared to the month of July which exactly a month after GST except for IMPS and UPI series. Similarly the average transaction value is high in the month of June for all the variables except for the UPI series which recorded 1.182 billion for the month of July as against 1.11 billion rupees for the month of June. The month of June recorded the lowest transaction in some series like CST, POS and USSD, while the month of July recorded lowest on the remaining series.

1.5. Conclusion

In the course of our study, we try to find out whether GST which was implemented by the government of India on 1st of July has any positive or a negative impact on the electronic payment system. Although the descriptive statistics reveal that the month of June which is a month before the policy change has recorded more success compared to the month of July, but we opined that, the use of the electronic payment system remain the same for the both months, which means that there is no immediate change even after change of the policy. We concluded no change because the month June had six days of holidays while the month of July had 7 days of holidays leading to the conclusion that the little difference that exist between the two months is as a result of the one day gap between the months. Thus, the policy did not lead to any change instantaneously. The policy could have an impact but may be after few months of operation.

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