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UPI: an emerging tool of Digital Payments

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Abstract:

In the present scenario, moving with the technology is very important. Especially in the field of Finance, up gradation of technology is the need of hour. Many of the Fintech companies are providing different financial services which makes the customers feel ease. On the same line, movement towards Digitalization led to introduction of many Digital Financial Products. NPCI was the main organisation behind introduction of different products. Out of them the most important product which led to a different approach was UPI. Unified Payment Interface is an important Payment gateway. Recently it was introduced on 11 April 2016. The main idea of introducing UPI is to make payments at ease, to bring transparency in the finance sector, to build the trustworthiness in the government and to take a step further in curbing the corruption. UPI has become part and parcel for all payments which are done digitally. UPI comes under the banner of NPCI. NPCI is known as National Payments Corporation of India. NPCI is well known to produce different products for Digital payments gateway. UPI was introduced by NPCI so that it can help the people of retail sector. Now the questions arise is how far the objective of UPI framing has brought the desired results in the past years. This paper is all about the assessment of UPI payment gateway with respect to overall payment systems prevailing in the payment gateway systems.

Keywords: UPI, Payment Gateways, Value of Transactions, Volume of Transactions

Introduction:

Digitalization was an important step involved in bringing a much-awaited change in the transaction history of India. Digitalization was the need of hour. But the problem is how to take up the initiative and work on it. In order to promote digitalization, an organisation was setup. This organisation was called NPCI. It is known as National Payments Corporation of India. National Payments Corporation of India has taken up the initiative of releasing products which can take up the

Digitalization into a new way. There are many products like IMPS, AePS, NPCH etc. These are the products which have helped the common man in utilizing the platform for digitalization. Amongst these, UPI is also an important product which has not only helped citizens of India but also it has come out as an important and most favourite product of NPCI amongst all other products. UPI has emerged as a match winner for all the financial transactions happening in the country. Now the question is has UPI performed according to the expectations quantitatively, what is the contribution of UPI in India, what are the drawbacks which can be rectified for UPI to become most preferred tool, and lastly can UPI be made a global payment gateway? This research paper tries to find answers to all these raised questions in a lucid manner.

Literature Review:

UPI is most important payment gateway which is ahead of its time. It is very much apt for the current generation people to deal with financial transactions [Dr. Harshal Anil Salunkhe, Dr. Pankaj Nandurkar and Dr. Punamkumar Hinge (2019)]. There are many other payment systems like BHIM which are very much progressive in nature along with UPI [Dr. Virshree Tungare, (2018)]. When it comes to adoption of technology, people have adopted digitalization to such an extent that it has helped them in using different platforms like UPI and BHIM [Suresh Appukuttan, (2019)]. All the NPCI products are very much apt with the present generation technology. Because of this factor, the acceptance of UPI and other products are happening [K. Sumavally, Dr.K. Hema Divya, (2018)]. But still the online fraud cases are going on and it is the time that a secured system is to be made available for the protection of data and privacy [Kartikeya Bolar, (2014)]. Even though there is potentiality in the system of digital payments but still a long way has to be carried out for sustainable growth [Dr. Veena Humbe and Dr. Rajendra Humbe, (2011)]. For this particular challenge, different models have to be generated so that a secured payment systems are made [Aithal, P. S., Shailashree, V. T., Suresh Kumar, P. M. (2015)] Even in golf countries, different models for digital payments and banking transactions for safer operations are being carried out in order to protect the integrity of the region [Alkhowaiter, W. A. (2020)] There are different factors which determine the digital transactions in a given particular region like availability of technology, knowledge of digital finance and most importantly usage of services [Benzaghta, M. A., Elwalda, A., Mousa, M., Erkan, I., & Rahman, M. (2021)] Covid has given high inputs for the usage of Digital Finance to a greater extent. Most of the citizens have used UPI as their first choice in making cashless transactions [Dr. V. R. Humbe, Vivek Swami (2020)]. UPI has been the main source of transaction in Mobiles. To see whether UPI is being the most used product for transaction different techniques can be used. UPI is much used application for M-commerce. So Mobile Banking is one such technique where mass is turning towards m-commerce [Dr. M. Balasubramanian, K. M Amanullah (2019)]

Research Methodology:

Objectives:

1. To study the contribution of UPI in Financial Transactions
2. To study the percentage of Contribution of UPI in Financial Transactions
3. To study the relationship between UPI and Financial Transactions
4. To study the rate of differential between UPI and Financial Transactions
5. To study the trend of UPI gateway payment.

Hypothesis:

Null Hypothesis: There is no relationship between UPI and Financial Transactions

Alternate Hypothesis: There is a relationship between UPI and Financial Transactions

Sample Size:

The sample has been taken from the year 2015-16 to 2019-20. The data has been taken for 5 years under to parts. One is value of transactions for the year 2015-16 to 2019-20 has been recorded. At the same time the volume of transactions has been recorded from 2015-16 to 2019-20. Both value as well volume of transactions recorded for UPI and as well for Financial Transactions.

Research Design: Descriptive Research; Correlation and Regression Analysis

Data Collection: Data has been collected under different years having different prefix. For the year 2015-16 and 2016-17 transactions with under the heading Billion and million has been collected for both value of transactions and volume of transactions. Whereas the 2017-18, 2018-19 and 2019-20 have been taken as crore and lakh for value of transactions and volume of transactions.

Value of transactions:

Year	Financial Transactions(Billion)	UPI Payments (billion)
2015-16	1809701	-
2016-17	2258780	69

Volume of transactions

Year	Financial Transactions (Million)	UPI Payments (Million)
2015-16	7046.6	-
2016-17	10991.2	17.9

Value of Transactions

Year	Financial Transactions (Cr)	UPI Payments (Cr)
2017-18	136986734	109832
2018-19	163852285	876971
2019-20	162305934	2131730

Volume of Transactions

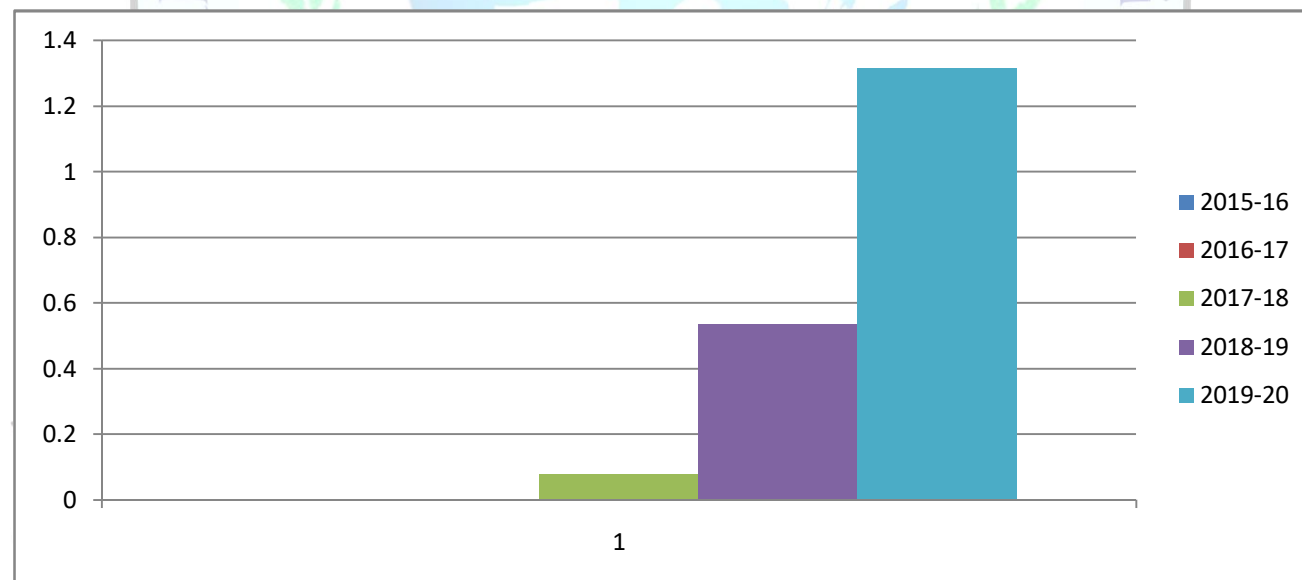
Year	Financial Transactions (lakh)	UPI Payments(lakh)
2017-18	145902	9152
2018-19	234339	53915
2019-20	343455	125186

Data Analysis:

For the year 2015-16 and 2016-17, the contribution of UPI is as follows:

Value of Transactions

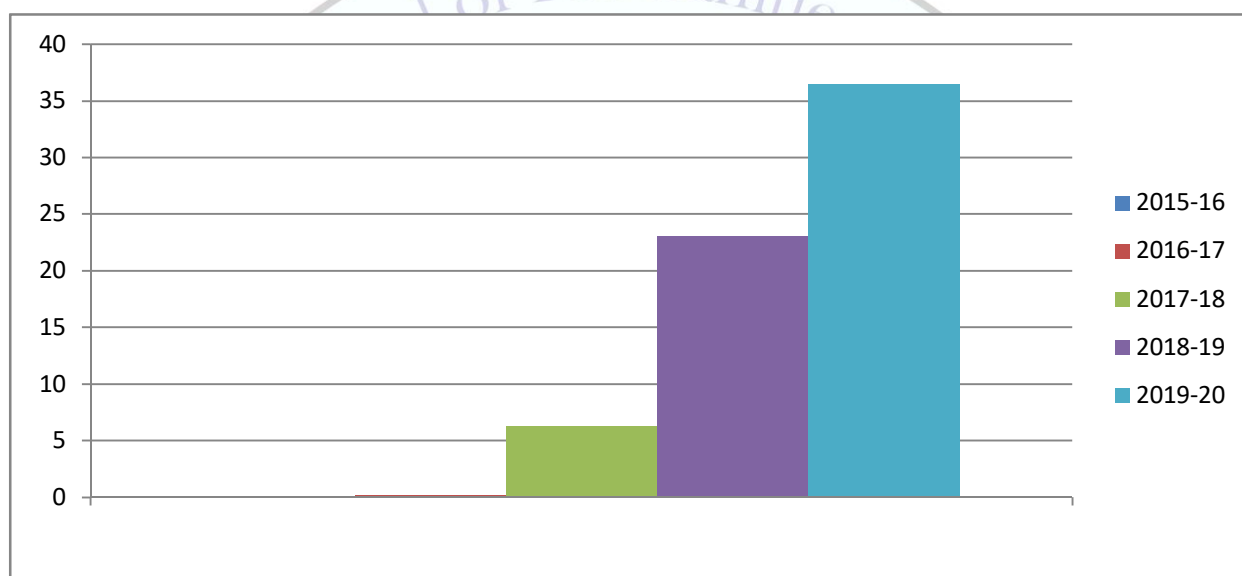
Year	Financial Transactions(Billion)	UPI Payments (billion)	Contribution of UPI	Percentage of Contribution
2015-16	1809701	-	0	0%
2016-17	2258780	69	3.05475E-05	3.05475E-07%
Year	Financial Transactions (Cr)	UPI Payments (Cr)	Contribution of UPI	Percentage of Contribution
2017-18	136986734	109832	0.000801771	0.0801771%
2018-19	163852285	876971	0.005352205	0.5352205%
2019-20	162305934	2131730	0.013134024	1.3134024%



Volume of Transactions

Year	Financial Transactions (Million)	UPI Payments (Million)	Contribution of UPI	Percentage of Contribution
2015-16	7046.6	-	0	0

2016-17	10991.2	17.9	0.001628576	0.1628576%
Year	Financial Transactions (lakh)	UPI Payments(lakh)	Contribution of UPI	Percentage of Contribution
2017-18	145902	9152	0.06272703	6.272703%
2018-19	234339	53915	0.230072672	23.0072672%
2019-20	343455	125186	0.364490253	36.4490253%



CORRELATION ANALYSIS

X	Y	X ²	Y ²	XY
290862.687	2306196	84601102689	5.31854E+12	6.70786E+11
236847.836	2519311	56096897418	6.34693E+12	5.96693E+11
145460.43	1689866	21158736696	2.85565E+12	2.45809E+11
269743.92	1046252	72761782377	1.09464E+12	2.8222E+11

Correlation Formula: $r = \frac{n(\sum XY) - (\sum X)(\sum Y)}{\sqrt{[n\sum X^2 - (\sum X)^2][n\sum Y^2 - (\sum Y)^2]}}$

$\sum XY = 1.80E+12$

$\sum X = 942914.9$

$\sum Y = 7561625$

$$\sum X^2 = 2.34619E+11$$

$$\sum Y^2 = 1.56E+13$$

By Substituting all the value in the above equation the value of r is calculated.

$$r = 0.101913$$

Regression Analysis

X	Y	$X-\bar{X}$	$Y-\bar{Y}$	$(X-\bar{X})^2$	$(X-\bar{X})(Y-\bar{Y})$
290862.7	2306196	55133.96875	-1835272	3039754510	-1.01186E+11
236847.8	2519311	1119.11775	628904.8	1252424.538	703818468.8
145460.4	1689866	-90268.2883	-200540	8148363864	18102425093
269743.9	1046252	34015.20175	-844154	1157033950	-28714077122

Formula for Regression Equation

$$b = \frac{\sum (X-\bar{X})(Y-\bar{Y})}{\sum (X-\bar{X})^2}$$

$$b = 0.010386$$

$$(Y-\bar{Y}) = b(X-\bar{X})$$

$$Y - 1890406 = 0.010386(X - 235728.7)$$

$$Y - 1890406 = 0.010386X - 2448.278278$$

$$Y = 0.010386X + 1887957.72$$

Findings and Inferences

- UPI's contribution has increased significantly with respect to value of transactions as well as volume of transactions.
- There is a relationship between UPI and Financial Transactions. So the null hypothesis is rejected.
- UPI has a positive correlation coefficient with Financial Transactions.
- The slope between UPI and Financial Transactions is positive in nature.
- In the regression model, regression coefficient is having a value of 0.010386
- In the regression equation the value of constant is 1887957.72

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