

## Bitcoins as a Payment System: Problems and Challenges Developments with Particular Reference to India

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**Abstract:** The global financial system has always been on the look-out for better, faster and secure payment systems. From barter to metallic standards to fiduciary paper currency to electronic payments and now a variation of virtual payments system in the form of Bitcoins has always found takers and promoters. The latest-call it an invention or an innovation has been in news both for its strengths and weaknesses. Its relevance and applicability in the Indian context needs close scrutiny. The current study is one such attempt. Bitcoin is a payment system invented by Satoshi Nakamoto Satoshi in 2008 and introduced as open-source software in 2009. The system is peer-to-peer all nodes verify transactions in a public distributed ledger called the block chain. The ledger uses its own unit of account also called Bitcoin. The system works without a central repository or single administrator which has led the US Treasury to categorize it as a decentralized virtual currency. While Bitcoin is not the first virtual currency, it is often called the first crypto currency. This is technically untrue and while Bitcoin is a crypto currency, it's not the first. Instead it's more correctly known as the first decentralized virtual currency. It is the largest of its kind in terms and in its theory of leisure class Veblen. How relevant is it as a payment system in a substantially unorganised financial system like India? How the business of Bitcoin can be promoted as a viable, profitable and long term system such as the Western Union and the like? What issues need to be closely looked into before it can get full public acceptance, etc., are some of the questions this study tries to examine. Specifically, the study aims at analysing the concept and evolution of the payment systems in the world; Bitcoin as a concept and a payment system; the main features and contours of payment mechanism associated with this; Bitcoin as a payment system in India and the business and legal challenges that this new system poses. It is hoped that this study will be a welcome addition to the growing literature on the subject.

**Key words:** Payment systems, Bitcoins, india, business legal challenges, growing

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### INTRODUCTION

**Background:** A payment system is any system used to settle financial transactions through the transfer of monetary value. A common type of payment system is the operational network that links bank accounts and provides for monetary exchange using bank deposits.

Payment systems may be physical or electronic and each has its own procedures and protocols. Standardisation has allowed some of these systems and networks to grow to a global scale. Examples of payment system that have become globally available are credit card and ATM networks.

**Bitcoin:** Payment system invented by Satoshi Nakamoto was released as open source software in 2009. The system is peer to peer-users can directly transact without an intermediary. Transactions are verified by network nodes and recorded in a public distributed ledger called block chain.

Bitcoin works without a central repository or single administrator which has led the US treasury to categorize Bitcoin as decentralized virtual currency. Bitcoin is the first crypto-currency, although prior systems existed. Bitcoin is more correctly described as first decentralised digital currency. Bitcoin is the largest of its kind in terms of total market value.

**How does Bitcoin work?:** From a user's perspective, Bitcoin is nothing more than a mobile application or computer program that provides a personal Bitcoin wallet and allows a user to send and receive Bitcoin with them. This is how Bitcoin works for most users.

Behind the scenes, the Bitcoin network is sharing a public ledger called the "block chain". This ledger contains every transaction ever processed, allowing a user's computer to verify the validity of each transaction. The authenticity of each transaction is protected by digital signatures corresponding to the sending addresses, allowing all users to have full control over

sending Bitcoin from their own Bitcoin addresses. In addition, anyone can process transactions using the computing power of specialized hardware and earn a reward in Bitcoin for this service. This is often called “mining” and being used in the affluent class (MacCannell, 1976).

**Scope of the study:**

- To understand the preference of Bitcoin in India
- To analyse the problems and challenges of Bitcoin as a payment system
- To know about the awareness of Bitcoin
- To analyse the acceptance of Bitcoin as a mode of transaction

**Advantages of Bitcoin:**

- With Bitcoin, It is very possible to send and get money anywhere in the world at any given time
- We need not worry about crossing borders, rescheduling for bank holidays/bandhs or strikes (common in India) or any other limitations one might think will occur when transferring money
- You are in control of your money, no central authority figure in the Bitcoin network

**Control and security:**

- Merchants cannot charge extra fees on anything without being unnoticed. They must talk to the consumer before adding any charges
- Payments in Bitcoin can be made and finalized without one’s personal information being tied to the transactions
- Bitcoin can be backed up and encrypted to ensure safety of your money

**Information is transparent:**

- With the block chain, all finalized transactions are available for everyone to see, however personal information is hidden
- Anyone at anytime can verify transactions in the Bitcoin block chain
- Bitcoin is cryptographically secure

**Very low fees:**

- Currently there are either no fees or very low fees within Bitcoin payments
- With transactions, users might include fees in order to process the transactions faster. The higher the fee, more priority it gets within the network

- Digital currency exchanges help merchant process transactions by converting Bitcoins into fiat currency. These services generally have lower fees than credit card and Paypal

**MATERIALS AND METHODS**

**Fewer risks for merchants:**

- Due to the fact that Bitcoin transactions cannot be reversed do not carry with them personal information and are secure, merchants are protected from potential losses that might occur from fraud
- It is very hard to cheat or con anyone in Bitcoin due to public ledger otherwise known as block chain

**Disadvantages of Bitcoin**

**Lack of awareness and understanding:**

- Fact is many people are still unaware of digital currencies and Bitcoin
- People need to be educated about Bitcoin to be able to apply it to their lives
- Networking is a must to spread the word on Bitcoin.
- Businesses are accepting Bitcoins because of the advantages but the list is relatively small compared to physical currencies
- Companies like tiger direct and overstock accepting Bitcoin as payment is great. However, if they do not have knowledgeable staffs that understand digital currencies how will they help customers understand and use Bitcoin for transactions
- The workers need to be educated on Bitcoin so that they can help the customers
- This will definitely take some time and effort. Otherwise what is the benefit of such large companies accepting Bitcoin if its staff doesn’t even know what digital currencies are

**RESULTS AND DISCUSSION**

**Risk and volatility:**

- Bitcoin has volatility mainly due to the fact that there is a limited amount of coins and the demand for them increases by each passing day
- However, it is expected that the volatility will decrease as more time goes on
- As more businesses, medias and trading centres begin to accept Bitcoin, its’ price will eventually settle down
- Currently, Bitcoin’s price bounces everyday mainly due to current events that are related to digital currencies

Table 1: Do you know what is Bitcoin

Opinion	No. of respondents	Percentage
Yes	6	60
No	4	40
Total	10	100

Compiled from questionnaire

Table 2: If yes, when did you first hear about Bitcoin

Opinion	No. of respondents	Percentage
Very recently (<6 months)	2	33.3
Between 6 months and 1 year	1	16.7
A year ago	3	50
Do not remember the date	0	0
TOTAL	6	100

Table 3: Are you using Bitcoin as a transaction medium

Opinion	No. of respondents	Percentage
Very frequently	0	0
Occasionally	2	33.3
Rarely	3	50
I have only academic knowledge	1	16.7
Total	6	100

Compiled from

#### Still developing:

- Bitcoin is still at its infancy stage with incomplete features that are in development
- To make the digital currency more secure and accessible, new features, tools and services are currently being developed
- Bitcoin has some growth to do before it comes to its full and final potential
- This is because Bitcoin is just starting out and it needs to work out its problems just like how any currency in its beginning stage would need to

Bitcoin as you can see is not perfect. It does have many advantages that physical currencies (Singhal and Padhmanabhan, 2009) do not provide its users; however, it also has its disadvantages. This is mostly due to the fact that Bitcoin is still a relatively young and new currency. People are just beginning to become more aware of it (Fig. 1). In order for Bitcoin to succeed, more people need to understand what it is and not let their pre-conceived notions distort the concept of digital currencies (Table 1 and Fig. 1).

**Inference:** The 6 economists seem to be aware of the Bitcoin concept because of the recent boom in e-Commerce and virtual banking and on the other hand 4 economists were not aware because of it being a new concept in India (Table 2 and Fig. 2).

**Inference:** Majority of those economists, 75% who knew about Bitcoin had heard of it a year ago and a few, 25% seems to have heard it recently. Though the concept had emerged long back in 2009, our Indian economists have not been aware of it (Table 3 and Fig. 3).

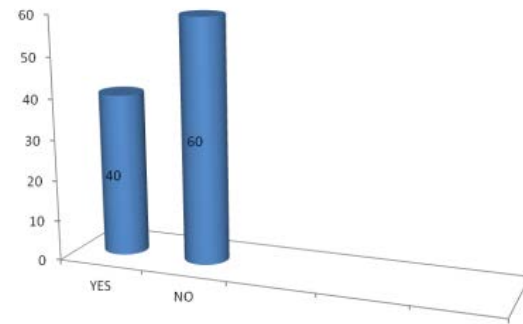


Fig. 1: Concept of digital currency

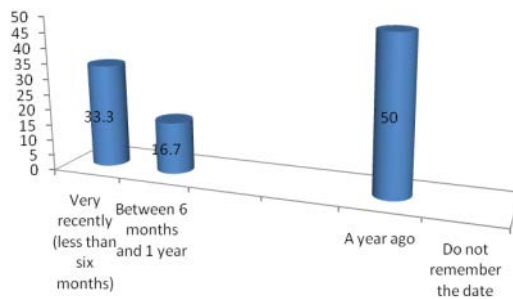


Fig. 2: Interface

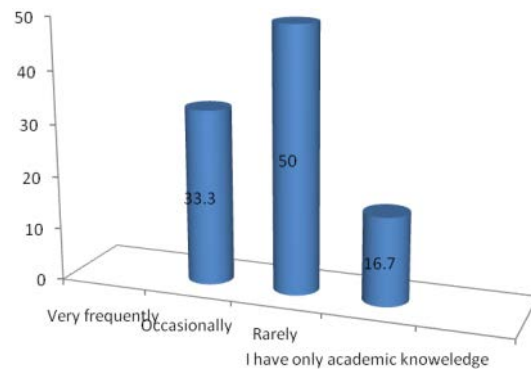


Fig. 3: Interface of complied from questionnaire

**Inference:** Though many seem to know about Bitcoin concept they have not started using it as a regular medium of transaction. The 33.3% use it occasionally, 50% use it rarely, 16.7% have only academic knowledge about the concept and do not use it at all as a transacting medium. People still do not feel Bitcoin as a pragmatic medium (Table 4 and Fig. 4).

**Inference:** There is a dispersed preference among the economists who prefer Bitcoin /virtual currencies, credit card, internet banking and COD while making an online transaction (Table 5 and Fig. 5).

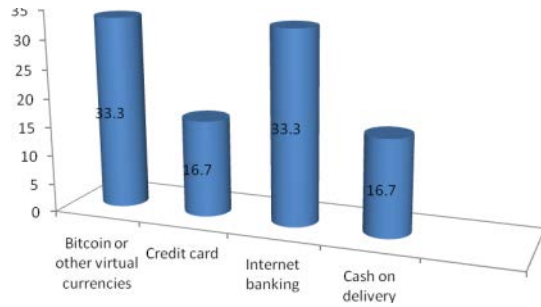


Fig. 4: Interface of account



Fig. 5: Transaction secrets

Table 4: What forms of payment do you prefer when you purchase an item on the internet?

Opinion	No. of respondents	Percentage
Bitcoin or other virtual currencies	2	33.3
Credit card	1	16.7
Internet banking	2	33.3
Cash on delivery	1	16.7
Total	6	100

Compiled

Table 5: Which of the following you see as the major advantage of Bitcoin

Opinion	No. of respondents	Percentage
Buying and selling are easy	2	33.3
No extra fee for purchasing the Bitcoin	3	50.0
No exchange controls are applicable	1	16.7
We can keep the transactions secretive	0	0.00
TOTAL	6	100

Compiled from

Table 6: Which of the following you see as the major disadvantage of Bitcoin

Opinion	No. of respondents	Percentage
It is not an official currency	4	66.7
Trustworthiness is not guaranteed	0	0
Fear of governments declaring them as not legally valid	2	33.3
Exchange rate/convertibility is not easy to determine	0	0
Total	6	100

**Inference:** The 50% of the economists feel that the best advantage of Bitcoin is its free purchase and ease of transacting using it. Few, 33.3% also feel that the non applicability of the exchange controls is also adds to its advantage (Table 6 and Fig. 6).

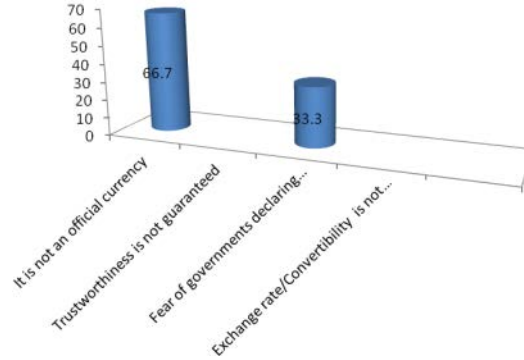


Fig. 6: Exchange rate

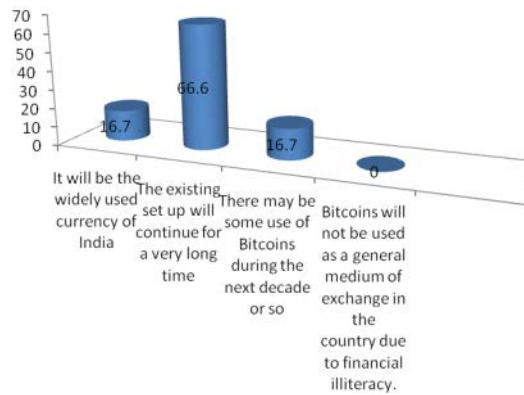


Fig. 7: General medium

Table 7: How do you see the future of Bitcoins in India

Opinion	No. of respondents	Percentage
It will be the widely used currency of India	1	16.7
The existing set up will continue for a very long time	4	66.6
There may be some use of Bitcoins during the next decade or so	1	16.7
Bitcoins will not be used as a general medium of exchange in the country due to financial illiteracy	0	0
Total	6	100

**Inference:** The Bitcoin not being an official currency is considered as one of the major dis-advantage by 66.7% of the economists. The 33.3% of economists also feel that the fear of the governments declaring it as legally invalid as a dis-advantage (Table 7 and Fig. 7).

**Inference:** The majority of economists, 66.6% feel that the prevailing system of currencies and modes of transactions will continue on for a much long time because of the resistance to change (Watson, 1971). Few, 16.7% also feel that it might click in India in the next decade or so and it might also be used extensively in India (Table 8 and Fig. 8).

**Inference:** There are mainly 4 mediums of storage and usage of Bitcoin but majorly 66.7% of economists have it

Table 8: Are you an owner of a Bitcoin wallet? If yes, please identify which among the following is applicable to you

Opinion	No. of respondents	Percentage
It's on my computer	4	66.7
I have an online/mobile wallet	2	33.3
I have a paper wallet		
I have a memory wallet		
Total	6	100

Table 9: How much do you trust in Bitcoin as a form of payment

Opinion	No. of respondents	Percentage
(High)	3	50
(Moderate)	2	33.3
(Low)	1	16.7
(Absolutely no trust)		
Total	6	100

Table 10: How much do you trust in Bitcoin as an investment tool

Opinion	No. of respondents	Percentage
(High)	2	33.3
(moderate)	3	50
(Low)	1	16.7
(Absolutely no trust)		
Total	6	100

Compiled from questionnaire

on their computer and the remaining 33.3% have it on online/mobile (Laforet and Li, 2005) (Table 9 and Fig. 9).

**Inference:** Trust develops over a period of time. But in this research we can see that though economists have known about Bitcoin recently, half of them, 50% of them have already developed a trust on it. Remaining few 33.3% have moderate trust and the rest have low trust in this new concept (Table 10 and Fig. 10).

**Inference:** Bitcoin is also an investment tool. Here we can see that majority of them, 50% have moderate trust in making an attempt in investing in it and around 33.3% of them have high trust in it and 16.6% have low trust. We can also say that there is more scope of Bitcoin emerging as the new investment tool (James, 1968) in the near future.

#### Key findings:

- The 60% of the Indian population is aware about Bitcoin
- Most of the people use Bitcoin as a transaction medium on rarely basis because of the emergence of e-Banking
- Exact half of the target respondents of economist are of the view that no extra fee is required for purchasing the Bitcoin
- Majority of the economist trust in Bitcoin as an investment tool
- A greater part of the economists feel that the existing set up of Bitcoin will continue for a very long time

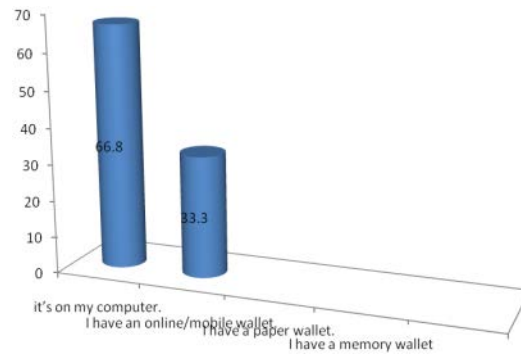


Fig. 8: Memory wallet

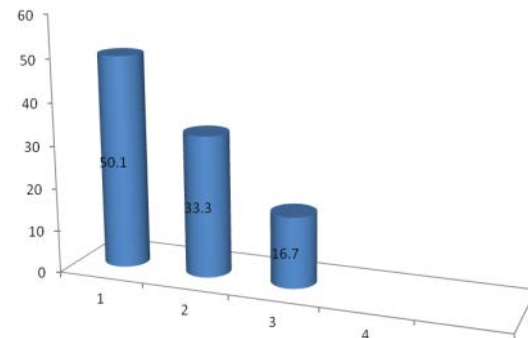


Fig. 9: Medium storage

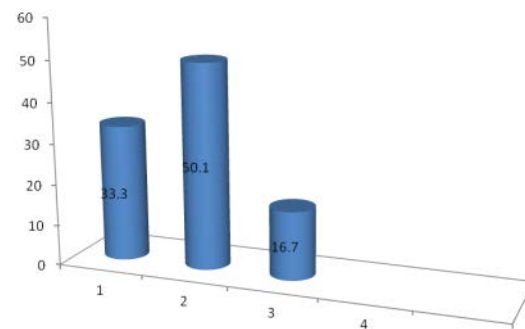


Fig. 10: Investment tool

#### CONCLUSION

Bitcoin being a new concept in India needs to be highly promoted to make the common man aware of such a crypto-currency which is simple, flexible and decentralised. Businesses are accepting Bitcoins because of the advantages but the list is relatively small compared to physical currencies. Many people are still unaware of digital currencies and Bitcoin, people need to be educated about Bitcoin to be able to apply it to their lives. Networking is a must to spread the word on Bitcoin. So, it can be concluded that the chances of Bitcoin being

accepted in India are very high and positive and will be a powerful tool of monetary transaction in the decades to come.

### **SUGGESTIONS**

- In order to increase the transactions through Bitcoin, awareness should be brought in people through various sources of media
- More trusted networks and exchange platforms should be developed in order to buffer Bitcoin from any failures
- Should have a single trusted authority for reducing fraudulent activities
- Backup procedures should be created in order to avoid accidental loss of Bitcoin

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