

## **Bitcoin – The Currency of the Future?**

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**Abstract:** Developed by an anonymous programmer, Bitcoin is a global cryptocurrency and a system for digital payment. It is a decentralized currency as it operates without a single administrator; the transactions take place directly between the users minus any intermediaries.

Bitcoin is a distinct mode of exchange when compared to usual banks. These transactions are verified by network nodes and recorded in a public distributed ledger called a blockchain. The prices of bitcoins are volatile i.e. they can unpredictably increase or decrease over a short period of time, owing to its young economy. They are considered high-risk assets whose transactions can only be refunded and not reversed.

The bitcoin came into existence in January 2009, with Satoshi Nakamoto mining the first block of bitcoins ever. Since then, a number of supporters engaged in transactions and received bitcoins. Countries around the world started accepting bitcoin as a legitimate mode of currency. However, India hasn't legalized the use of this currency due to a number of reasons. The objectives of this paper are to understand the awareness about the existence of bitcoins, to evaluate the perception of bitcoin as the future currency and to analyze the probability of legalization of bitcoins in India.

**Keywords:** Bitcoin, cryptocurrency, decentralized, experimental, legalization, security.

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### **I. Introduction**

In this world of dynamic economies, technology being the major influencer, mankind should be prepared for the unexpected. When our payments and shopping turned digital and even before the financial industry started grading it as the biggest game changer, there was news about currency turning digital. This only goes to prove that technology developments and innovation will be a constant source of evolution and the world should always be prepared with an open mind to change.

A cryptocurrency is a digital asset designed to work as a medium of exchange using cryptography to secure the transactions, to control the creation of additional units, and to verify the transfer of assets. Cryptocurrencies are classified as a subset of digital currencies and are also classified as a subset of alternative currencies and virtual currencies.

Bitcoin was the first decentralized cryptocurrency to be introduced in the world of finance, decentralized meaning that there exists no third party and the exchange happens between the users. The cryptocurrency is still a novel concept and the world is divided on whether it's a boon or bane of technology.

### **II. Literature review**

Authors Joseph Bonneau, Andrew Miller, Jeremy Clark, Arvind Narayanan, Joshua A. Kroll and Edward W Felten determined 3 components of bitcoins that had to be analyzed individually, in their paper 'SoK: Research Perspectives and Challenges for Bitcoin and Cryptocurrencies' (2015). The authors also believe that "bitcoin is a rare case where practice seems to be ahead of theory" because there isn't a scientific model to answer questions related to bitcoin.

Ittay Eyal, Adem Efe Gencer, Emin Gun Sirer and Robbert van Renesse assessed the efficiency of the blockchain protocols in their paper titled 'Bitcoin-NG: A Scalable Blockchain Protocol' (2015). They concluded that "it is possible to improve the scalability of blockchain protocols to the point where the network diameter limits consensus latency and the individual node processing power is the throughput bottleneck."

In their paper, 'The Bitcoin Backbone Protocol' (2017), authors Juan A Garay, Aggelos Kiayias and Nikos Leonardos talk about the security models of cryptocurrencies. Author Gregory Maxwell presented his research 'Confidential Transactions' (2015) regarding the techniques that users can use to hide the amount of their payments from the public using novel cryptographic methods.

### Theoretical Perspective

To recognize the concept of bitcoins better, it is necessary to understand how bitcoins are used. Firstly, the user has to download an online wallet such as GreenAddress. They can search for compatible wallets on websites like Bitpay.com. Once they make their choice, they have to download it on every single one of their devices; it doesn't get downloaded on all of them automatically. This is one feature that makes the usage of bitcoins difficult.

The users are not connected to their bank account like other methods of online payment. Instead, users have to purchase bitcoins in advance and store them for using them in transactions. They can refer to the conversions of each currency type to know how much they should purchase.

If the users do not download an app that sells bitcoin, they have to approach a third-party website to make the purchase, which operate differently in every country. Once the system has been setup, the payment can be made in the following ways: If the wallet app and the invoice are in the same device, then choose "Open in wallet" appearing on the invoice, if they are on 2 different devices, use the wallet app to scan the QR code on the invoice and if the code cannot be scanned, enter the code address manually and make the payment.

### Research Problem

The primary reason why people are investing in bitcoins is because they do not want government interference; they want complete control of their capital. Today, corporate giants like Microsoft, Wal-Mart etc accept payments in bitcoin. It is the reserve currency for all other cryptocurrencies i.e. any normal currency first has to be converted into a bitcoin and then exchanged for the other types. Bitcoins are held in 2 ways: The customer stores the keys to their bitcoins in a wallet on their hard drive or a third party wallet service performs this function for them. The first option could be dangerous if the hard drive fails or due to any errors or malicious software, unless we have a good backup system. The second option is not safe either because they're prone to security failures as well. It is also necessary to ensure that the operators of the bitcoin wallet are trustworthy and are not fraudulent. There have been a number of cases where the operators of bitcoin financial institutions have lost client funds because of alleged security breaches. In context to the above, the objectives for this paper seeks -

1. To understand the awareness about the existence of bitcoins.
2. To evaluate the perception of bitcoin as the future currency.
3. To analyze the probability of legalization of bitcoins in India.

### III. Methodology

This research paper has been sourced from primary data collected through surveys. Secondary data is compiled from newspaper articles along with the references from various research article and certified journal publications. A well-structured questionnaire consisting of closed ended questions is used to collect 166 responses by adopting random sampling technique. Awareness about the existence of bitcoins and perception of bitcoin as the future currency is measured with a five point likert scale ranging from "1: strongly disagree to 5". To examine the demographic profile of respondents, descriptive analysis in terms of frequency and percentage is used for summarizing. The difference between demographic profile of respondents and awareness about the existence of bitcoins and perception of bitcoin as the future currency is tested through ANOVA (Analysis of Variance).

### Demographic Profile of Respondents

The demographic profile of respondents in terms of their gender, age, education and occupation was analysed and the results are presented in Table-1. The total sample size selected for the study and analysis is 166. While 51% of the responders were men, the remaining 48.7% were women. Among the 166 responders, almost 108 of them belonged to the age group of 18 – 35 and 21.7% were between 35 – 55 years. 65% of them were graduates while 19% were post-graduates. 98 responders were students, 33 were employed, 17 were related to business and 13 were professionals.

**Table 1 - Demographic Profile of Sample Respondents**

IV. Demographic Profile	V. Frequency	VI. Percentage
VII. GENDER	VIII.	IX.
X. Male	XI. 85	XII. 51.2
XIII. Female	XIV. 81	XV. 48.8
XVI. AGE	XVII.	XVIII.
XIX. Less than 18	XX. 18	XXI. 11
XXII. 18 - 35	XXIII. 108	XXIV. 65
XXV. 35 - 55	XXVI. 36	XXVII. 22
XXVIII. 55 and above	XXIX. 4	XXX. 2

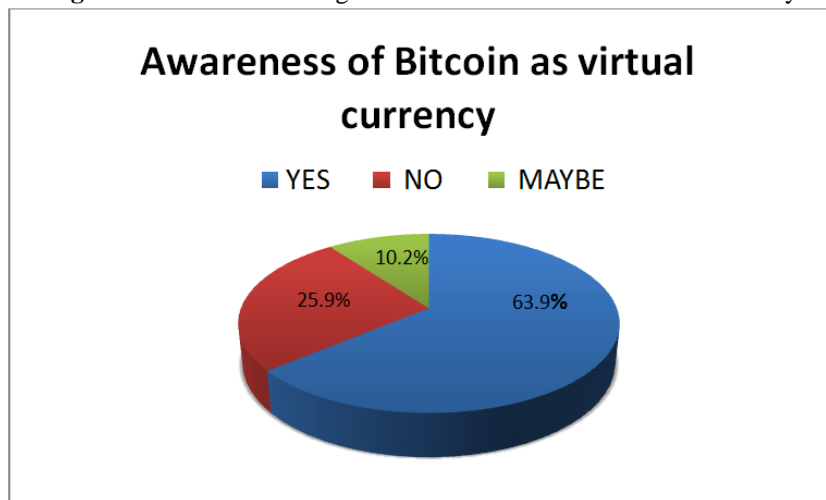
XXXI. EDUCATION	XXXII.	XXXIII.
XXXIV. Intermediate	XXXV. 13	XXXVI. 8
XXXVII. Graduation	XXXVIII. 108	XXXIX. 65
XL. Post Graduation	XLI. 33	XLII. 20
XLIII. Professional	XLIV. 12	XLV. 7
XLVI. OCCUPATION	XLVII.	XLVIII.
XLIX. Student	L. 98	LI. 59
LII. Employed	LIII. 33	LIV. 20
LV. Business	LVI. 17	LVII. 10
LVIII. Professional	LIX. 13	LX. 8
LXI. Others	LXII. 5	LXIII. 3
LXIV. Total	LXV. 166	LXVI. 100

**LXVII. Source- Primary**

**Research Analysis**

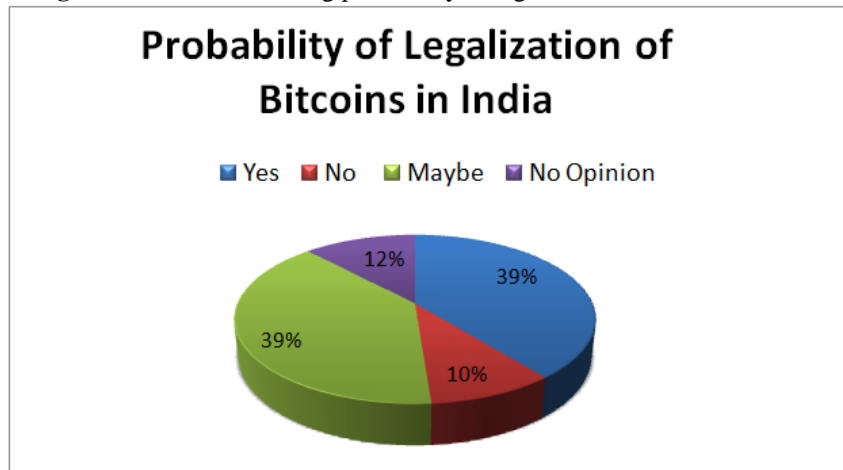
The objective of the research is to understand the awareness of the existence of bitcoins as virtual currency. It is found that only 63.9% of the respondents are aware of its existence. The primary sources of information are newspapers, journals, friends and family etc.

**Figure 1:** Pie chart showing awareness of bitcoin as a virtual currency



While determining the perception of these people regarding bitcoin, it was observed that a majority of them consider it to be user-friendly, safe, and reliable and also a strong future investment. However, when asked about their opinion on legalizing bitcoins in India, an equal percentage of people (39.2%) voted for ‘Yes’ and ‘Maybe’ as shown in figure 2. This indicates that although people think bitcoins are advantageous in a few ways, they are not too sure about the implications of it being a legal currency. Thus, it is necessary for the Government to provide certain guidelines about the operations of Bitcoins and their legality.

**Figure 2:** Pie chart showing probability of legalization of bitcoins in India



A one-way ANOVA test is conducted to compare the awareness and perception of bitcoin with the age, gender, education and occupation of the people. Through ANOVA (Analysis of Variance) the difference between the demographic profile of the respondents and the awareness of bitcoins has been analysed and the results have been presented in the table 2 below. There is a significant difference of awareness of bitcoin and their gender and education, with F values - 2.1 and 0.74 respectively and  $p < 0.05$  respectively. However, there is no significant difference between their age and occupation and their awareness with F values - 1.08 and 1.06 respectively,  $p > 0.05$ .

**Table 2:** ANOVA between Awareness of Bitcoin and Demographic Profile of respondents

LXVIII.	LXIX.	LXX. Sum of squares	LXXI. f	LXXII. Mean Square	LXXIII. F	LXXIV. Sig.
LXXV. Age	LXXVI. Between groups	LXXVII. 1.486 LXXVIII.	LXXIX. LXXX.	LXXXI. 0.495 LXXXII.	LXXXIII. 1.087 LXXXIV.	LXXXV. 0.355 LXXXVI.
LXXXVII. Gender	LXXXVIII. Between groups	LXXXIX. 0.996 XC.	XCI. 1 XCII.	XCIII. 0.996 XCIV.	XCV. 2.199 XCVI.	XCVII. 0.040 XCVIII.
XCIX. Education	C. Between groups	CI. 1.025 CII.	CIII. 3 CIV.	CV. 0.341	CVI. 0.745 CVII.	CVIII. 0.026 CIX.
CX. Occupation	CXI. Between groups	CXII. 1.940 CXIII.	CXIV. CXV.	CXVI. 0.485 CXVII.	CXVIII. 1.065 CXIX.	CXX. 0.375 CXXI.

The analysis was also conducted to analyse the difference between the demographic profile of the respondents and their perception of bitcoins among them. There is a significant difference between the perception of bitcoin and age of the respondents with F value- 2.8,  $p < 0.05$ . Similarly, there is significant difference between the perception of bitcoins and their education and occupation with F values - 1.5 and 3.8 respectively and  $p < 0.05$ . However, the gender of the people and their perception do not show significant difference with F value - 0.44,  $p > 0.05$ . The results of the analysis are presented in table 3.

**Table 3:** ANOVA between Perception of Bitcoin and Demographic profile of respondents

CXXII.	CXXIII.	CXXIV. Sum of squares	CXXV. f	CXXVI. Mean Square	CXXVII. .	CXXVIII. Significance
CXXIX. Age	CXXX. Between groups	CXXXI. .430 CXXXII.	CXXX	CXXXIV. .143 CXXXV.	CXXXVI. .832 CXXXVII.	CXXXVIII. 0 CXXXIX.
CXL. Gender	CXLI. Between groups	CXLII. 0.187 CXLIII.	CXLIV.	CXLV. 0.187 CXLVI.	CXLVII. .447 CXLVIII.	CXLIX. 0 CL.
CLI. Education	CLII. Between groups	CLIII. 1.889 CLIV.	CLV.	CLVI. 0.629 CLVII.	CLVIII. .524 CLIX.	CLX. 0.010 CLXI.
CLXII. Occupation	CLXIII. Between groups	CLXIV. .968 CLXV.	CLXV	CLXVII. .492	CLXVIII. .822 CLXIX.	CLXX. 0.005

#### IV. Discussion

Transactions in bitcoin are still considered unsafe as the prices of bitcoins are highly volatile – they can increase or decrease over a short span. Transactions made using bitcoins cannot be reversed; the person receiving the money can only refund them. So unless we’re transacting with familiar and trustworthy people, money sent from our account has no guarantee. Since all bitcoin transactions are stored on its network, anybody

can gain access to view transactions and balances behind an address. Nevertheless, the identity of the user behind a particular bitcoin address remains hidden as long as the user doesn't reveal the information himself.

Nevertheless bitcoins are a huge hit, especially with countries like Japan and Russia, who have legalized the use of this cryptocurrency. Transactions for purchase and sale are made through bitcoins on digital wallets like GreenAddress, GreenBits, and Mycelium etc.

However, the scenario in India is certainly different. The government of India has not officially authorized the use of Bitcoin despite its significant demand by the people. India's apex banking institution i.e. the Reserve Bank of India has warned the users, holders and traders of cryptocurrencies against potential risks regarding the safety and finance.

"The creation, trading or usage of VCs including Bitcoins, as a medium for payment is not authorized by any central bank or monetary authority. No regulatory approvals, registration or authorization is stated to have been obtained by the entities concerned for carrying on such activities," the central bank had said.

The fact that the government is resilient to bitcoin has led to the latter gaining loyalty from people involved in suspicious activities like gambling or dealing in drugs. The further the technology develops, the greater will be the number of people who use bitcoin as a money-laundering mediator.

When countries like China enforced control over bitcoin exchanges, initially there was a tremendous fall in its price but soon, it shot up. It is impossible for the Government to eradicate bitcoins for the reason that the blockchains exist and are copied all over the internet. Therefore, rather than banning dealers, the government should provide guidelines for the operation of bitcoin exchanges because certain customers will still want to buy them and so will turn to foreign exchanges.

In its process of establishing a regulatory framework for the cryptocurrencies, the government of India decided to explore the citizens' opinion. They sought to know what the public wanted – banning, regulating or observing bitcoins and how. And in a country that has people of diversified traits, it would not be surprising to realize that while half the country supported regulation, the rest voted to ban. Those who supported regulation believed that this would boost the Indian economy while the opponents thought it would be perilous.

If the government of India legalizes Bitcoins in our country, they will be covered under the RBI Act of 1934. Taxes will be levied on investors and the returns from their investments. Experts like Raghuram Rajan, the former governor of the RBI, believe that despite their drawbacks, users will develop ways to ensure the safety of bitcoins and that they could also be the most prominent method of payment in future. The SegWit (Segregated Witness) software released in the Bitcoin Improvement Proposal has paved way for a user-friendly Bitcoin market. This update will ensue in the software once the miners develop the new version. It will make the use of bitcoins cheaper, faster and easier by eliminating transaction signatures which would create more room for transactions and also reduce the time for approval.

## **V. Conclusion**

In terms of creation, Bitcoins are definitely one of the greatest innovations of man. With the amount of popularity that it enjoys, it may not be possible for the government to completely ban bitcoins. Most banks these days are trying to use the blockchain technology and since the government has not authorized Bitcoins, it has decided to introduce its own cryptocurrency named 'Lakshmi'. This information was revealed by RBI's executive chairman Sudarshan Sen who also mentioned that the committee that proposed this idea is in its process of research. Therefore, whether bitcoin or not, a major part of transactions in the future will happen through the use of cryptocurrencies.

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