Bitcoin : Is it the Future Money in India? A Case Study on Internet Users of India

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Abstract :

Virtual Currencies networks of the global transaction are quite transparent, safe, and fast. This makes them good candidates for further development. However, they can not challenge the hegemony of sovereign currencies and central banks, especially those in major currency areas. Like other innovations, virtual currencies offer a challenge to financial regulator institutions, particularly due to their anonymity and trans-border character. This paper, thus, tries to examine the complex characteristics of Bitcoin, a form of Virtual Currencies. It also tries to analyze with the help of a case study whether it can be implemented in India. On analysis, different problems are barriers to the implementation of Bitcoin in India.

Keywords : Virtual Currencies, Bitcoin, India.

I. INTRODUCTION

Virtual Currencies have been in the news for long. People making an exorbitant amount of money out Bitcoin investment has grabbed eyeballs of many. Bitcoin waves have reached India too and the RBI has imposed a blanket ban on the usage and services interfacing cryptocurrencies and Rupee. With that being said, academic papers on the implication of crypto-economics in the Indian scenario is few and far in between. This paper serves to lessen this deficiency.

There is no consensus on the definition of Virtual Currencies. "For example, the European Banking Authority (EBA) defines a Virtual Currencies as a "digital representation of value that is neither issued by a central bank or public authority nor necessarily attached to a fiat (conventional) currency, but is accepted by natural or legal persons as a means of exchange and can be transferred, stored or traded electronically" (EBA, 2014). The European Central Bank (ECB) defines a Virtual Currency as a "type of unregulated, digital money, which is issued and usually controlled by its developers, and used and accepted among the members of a specific virtual community" (ECB, 2012)."

Unlike their 18th and 19th century predecessors in paper, Virtual Currencies are used globally, with no regard to national borders. However, like financial assets or money, investments in VCs pose considerable risk. VCs may be defrauded, the bankruptcy on the part of the issuer or intermediary, or speculative bubbles and bursts.

In April 2018, there were close to 1,500 Virtual Currencies; however, only a few recorded meaningful market turnover and capitalization. Bitcoin, the first Virtual Currency, created in 2009, is dominant among them. The Virtual Currency business has continuously developed in terms of numeracy of transactions, and market capitalization. However, so long as financial intermediate parties do not accept payments in Virtual Currencies, their transactional role will remain stunted and they will function as, the store of value—that is, they will serve as investment assets.

Despite their advanced technology and global outreach, Virtual Currencies are very far from a potential challenger to the dominant position of the monetary policies and sovereign currencies of central banks, especially in major currency areas. However, in extreme cases, such as during periods of political turmoil, war, hyperinflation, financial crisis, they can substitute sovereign currencies in individual economies.

Financial regulators are abhorrent of Virtual Currencies because of their cross-border circulation or anonymity. They fear that Virtual Currencies will facilitate tax avoidance, money laundering, fraudulent financial practices, the circumvention of capital controls. Such concerns may have ground in some instances but are not generalizable. "Mostly, transactions in Virtual Currencies occur from the free choices of economic agents and, therefore, should be treated by regulators as any other financial instrument—in proportional to their importance in complexity, market,

and associated risks. Given their trans-border character, regulations on Virtual Currencies need to be harmonized across jurisdictions (which is far from the case now). Investment in Virtual Currencies should be taxed just like an investment in other financial assets.""

PLAN OF THE STUDY

This paper aims to analyze whether Virtual Currencies would assume money role in the future by ending government monopoly over currencies. To that end, this paper initially studies the historical background of Bitcoin and the technical features that circumvent transactional bottlenecks to enable a digital currency in sections II and III respectively. Subsequently, the paper enumerates the actors involved in the Virtual Currency realm with their functions. The existing literature has been reviewed in section IV. Research objective and Date and methodology have been specified in sections V and VI respectively and the paper reviews macroeconomic models that have been proposed already and their implication in section VII. Basing on the above, this paper goes on to elucidate various advantages and disadvantages of Bitcoin in the same section. The paper finally concludes in section VIII, with the policy implications in section IX.

II. HISTORICAL BACKGROUND

Bitcoin came into 2014 by winning the 'Best Technology Achievement' Tech Crunch award in California. Bitcoin is an electronic peer-to-peer (i.e. with no involvement of the third party)payment network and digital currency. It started in 2009. At the heart of the creation of Bitcoin stands the text "Bitcoin: a Peer-to-Peer Electronic Cash System" of Satoshi Nakamoto, published on the internet in 2008. The development of Bitcoin accelerated on the basis of this text and the ideas conveyed in it. The domain bitcoin.org was registered in 2008 In January 2009 the first batch of bitcoins was generated (the so-called "genesis block" or "block 0". The first exchange rate for bitcoin was published in October 2009 by New Liberty Standard (US$1 corresponding to 1 309 bitcoins). Public trading began in 2010, and the recent market capitalization of Bitcoin amounts to over US$5.29 billion. "On average, the Bitcoin market encompasses less than 100 million US dollars in worldwide trading activity daily (for comparison, daily trading is US$16.5 billion for Visa and US$9.8 billion for MasterCard). Nonetheless, Bitcoin's success has resulted in other cryptocurrencies being created."."

III. TECHNOLOGICAL FEATURES

Attempts have been made to create a virtual currency that has been associated with the germination of online communities. The Internet has many advantages for the creation of a new means of payment specific to it and aimed at making transactions easier, safer and cheaper than traditional money. The double-spending problem (spending the same money twice) prevented earlier attempts from being successful.

"The Bitcoin transaction process uses cryptography to verify transactions, process payments, and control the supply of bitcoins (Badev and Chen, 2014). Cryptography has been used for long to secure information; but in this] case, it helps to control and create the supply of units of currency. The concept of cryptography is that of a message encrypted using a certain algorithm to render it unreadable for anybody who does not possess a key to decipher this message. A Bitcoin transaction is essentially an encrypted message that provides for a transfer of bitcoins from the sender's electronic address to the recipient's electronic address."

III.1 PLAYERS INVOLVED:

· Crypto currency users

"A cryptocurrency user is a natural person or legal entity who obtains coins to use them

(i) to purchase goods or services (from a set of specific merchants),

(ii) to make Peer-to-Peer payments, or

(iii) to hold them for as a speculative investment"

· Miners

""A second player is the "miner" who participates in validating transactions on the blockchain by solving a "cryptographic puzzle". Miners can be cryptocurrency users, or, more commonly, parties who have made a new business out of mining coins to sell them for fiat currency (such as US dollar or Euro) or other cryptocurrencies."

· Cryptocurrency exchange

Cryptocurrency exchanges are entities that offer exchange services to cryptocurrency users, against payment of a certain fee (i.e. a commission).

· Trading Platforms

""Trading platforms are market places that bring together different cryptocurrency users that are either looking to buy or sell coins, providing them with a platform on which they can directly trade with each other (i.e. an "eBay" for cryptocurrencies). Trading platforms are also referred to as "P2P exchanges" or "decentralized exchanges"."

· Coin inventors

Individuals or organizations who have developed the technical foundations of a cryptocurrency and decided upon the initial rules for its use.

· Coin offerrors

Coin offerors are individuals or organizations that offer coins to cryptocurrency users upon the coin's initial release, either against payment or at no charge.

Table .1:Taxonomy of cryptocurrency

Name	Permissionless / Permissioned	Decentralized	Initial offering by an identifiable person or entity?	Electronically traded	Directly convertible into fiat currency	Medium of exchange	Pseudo-anonymous / Anonymous
Bitcoin	Permissionless	☑	☒	☑	☑	☑	Pseudo-anonymous
Ethereum	Permissionless	☑	☑	☑	☑	☑	Pseudo-anonymous
Ripple	Permissioned	☑	☑	☑	☑	☑	Pseudo-anonymous
Bitcoin Cash	Permissionless	☑	☒	☑	☑	☑	Pseudo-anonymous
Litecoin	Permissionless	☑	☒	☑	☑	☑	Pseudo-anonymous
Stellar	Permissionless	☑	☑	☑	☑	☑	Pseudo-anonymous
Cardano	Permissioned / Permissionless	☑	☑	☑	☑	☑	Pseudo-anonymous
IOTA	Permissionless	☑	☑	☑	☑	☒	Pseudo-anonymous
NEO	Permissioned	☑	☑	☑	☑	☒	Pseudo-anonymous
Monero	Permissionless	☑	☒	☑	☑	☑	Anonymous
Dash	Permissionless	☑	☒	☑	☑	☑	Anonymous

Source: www.service.betterregulation.com

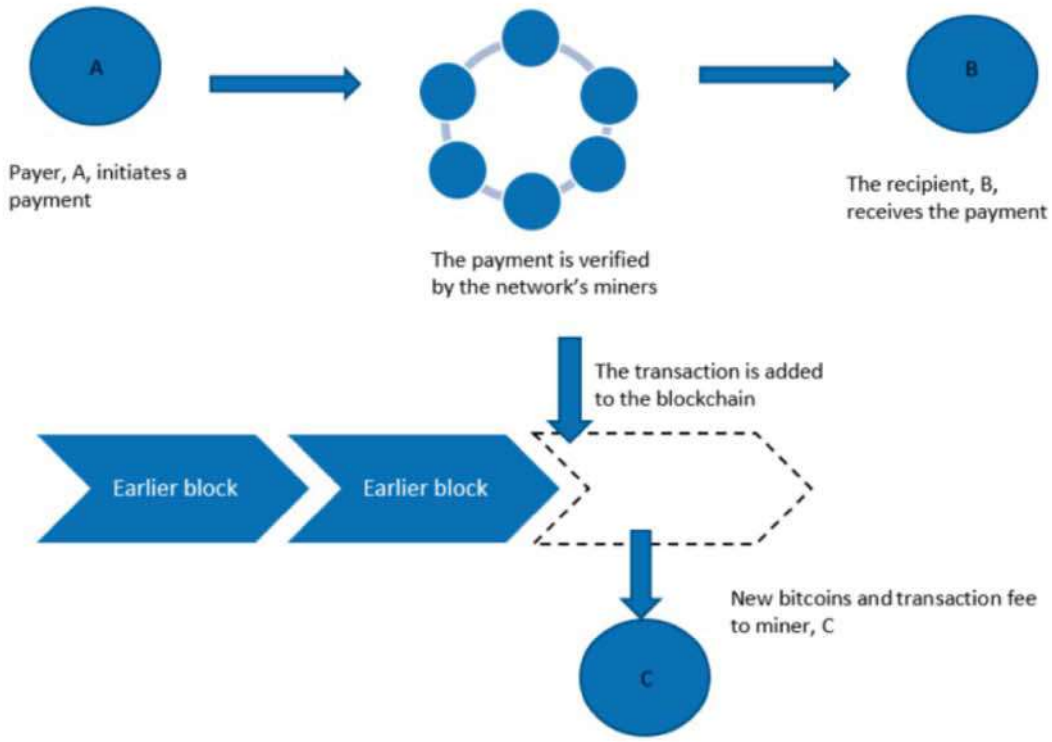
Figure 1: Coin timeline

Source: www.service.betterregulation.com

The creators of Bitcoin has limited the maximum number of bitcoins to 21,000,000. When this number is realized, no more bitcoins will be created and those miners will receive only the fees. When miners validate the transaction, it is added to a new block that later is added to the Blockchain.

Figure 2: Overview of the Bitcoin structure

Figure 1: Overview of the Bitcoin structure



Source: Söderberg (2018).

Source: Author's compilation

IV. LITERATURE REVIEW

Earlier research in this area has been devoted to providing an overview of Bitcoin and its operations5,6,7 (Yermack et al. 2016), has married theory and data to explain the velocity of Bitcoin and its use across countries as for gambling and illegal online markets, an investment vehicle, (Athey, Parashkevov, Sarukkai, and Xia 2016) and has studied the role that early adopters play in the use and diffusion of Bitcoin within a large-scale, field experiment (Catalini and Tucker 2017). "Researchers have also studied competition between alternative cryptocurrencies and their differences (Gandal and Halaburda 2014, Gans and Halaburda 2015, Dwyer 2015, Halaburda and Sarvary 2016); the changes they result for trading behavior (Malinova and Park 2016); their integration and interaction with fiat-based currencies and use for providing citizens with central bank money (Raskin and Yermack 2016, Seretakis 2017, Bordo and Levin 2017) and alternative payment (Beck, Czepluch, Lollike, and Malone 2016, Rysman and Schuh 2017); implications for regulation and governance (Wright and De Filippi 2015, Davidson, De Filippi, and Potts 2016, Kiviat 2015, Walport 2016); and the privacy trade-offs cryptocurrencies and digital wallets introduce for consumers (Athey, Catalini, and Tucker 2017). From perspective of businesses, scholars have contrasted the transformation brought about by blockchain to the introduction of communication protocols such as TCP/IP (Iansiti and Lakhani 2017, Ito, Narula, and Ali 2017), and have explored applications to digital platforms beyond finance and implications for the boundaries of the firm (Catalini 2017a, Catalini 2017b).""

V. RESEARCH OBJECTIVE

Given the above background, this paper has tried to

- review the realm of VC, specifically Bitcoin and
- analyse its possibility of being the future money, especially in India.

VI. DATA SOURCE AND METHODOLOGY

- DATA-This paper has used secondary data and published reports and articles as well as governmentofficial websites as its data source. It has also used primary data as a case study by interviewing 209 people through a well structured questionnaire, formed with the help of Google Forms and spread through the internet.

- METHODOLOGY-To analyse the responses, the paper has used simple charts and diagrams and has analytically reviewed existing literature.

VII. ANALYSIS

The analysis of cryptocurrency requires us to take a look on a multifaceted problem. At one end one needs to analyse the dynamics of Virtual Currencies and how they would influence at macroeconomic level and at the other end, one needs to analyse what it entails for sociology. This paper has tackled the broad spectrum of analysis in an incremental approach. It has initially focused on the simple dynamics of bitcoin in the hands of consumer, drawing on which it has listed relevant features of bitcoin and how it would interact with financial institutions. Eventually, it has carried out a speculative analysis with the help of a case study.

VII.1 MACROECONOMICS OF BITCOIN

Bitcoin supporters believe that:

– They see Bitcoin as a good starting point or a solution to end the monopoly central banks have in issuing money.

– They are strongly against the current fractional-reserve banking system through which banks can extend their credit supply above their actual reserves and, simultaneously, depositors can withdraw their funds in their current accounts at any time.

– The Bitcoin scheme takes inspiration from the former gold standard. *(Fig. 3)*

VII.2 KEY PROPERTIES OF BITCOIN

- **Decentralized** – ""A currency is said to be decentralized when no centralized authority is involved in issuing the currency. By having a fixed creation rate of bitcoins, the inventors aim to avoid speculations on the system, which can occur by corrupted actors within banks or central banks. A fixed creation rate, in theory, makes it impossible for the currency to inflate, however, it would theoretically start to deflate when the issuing will stop""

- **Lower transaction fees**–""Bitcoin offers three main advantages to its users. The first factor is reduced transaction costs, as the third-party intermediary is absent who charges users. Till date, there is no comprehensive research on the actual amount of Bitcoin's transactional cost advantage. Some, however, state that the average transaction fees are between 0 and 1 percent. Traditional online payment systems charge fees of 2 to 3 percent per transaction, so it is likely that Bitcoin is cheaper to use even when swapping it for conventional fiat money, which has a fee of about 1 percent. These benefits may, however, be offset by Bitcoin's high volatility"

- **Open source** – ""As Ludvig and Tristan (said, "everyone who knows programming can review the code of Bitcoin and check what it does"), this gives a sort of transparency to everyone who wants to learn more about how these virtual coins are generated

- **Accounts cannot be frozen** – Making it impossible to freeze someone's account, eliminates any subjective judgment regarding an individual's actions and activity. It is free of political influences.

- **Does not cost to start accepting Bitcoin** – It makes it attractive for businesses to try it out as a way of payment and draw in customers that prefer using bitcoins.

- **Easy to set up**– the scale of difficulty is very subjective. It is determined by the level of skills and information an individual who wants to start using bitcoins has. However, there are accessible guidelines that make it easy to get started.

- **Anonymous online transactions** – Anonymity does not necessarily mean something negative. Not everyone who wants to be anonymous has bad intentions. Being anonymous gives some kind of privacy and "minding its own business" kind of behavior.

- **Anonymity** – makes it easier for those who want to use bitcoins to buy drugs and do other illegal things, or finance illegal businesses.

- **Volatility** – Bitcoin is sensible to other potential new cryptocurrencies. Who knows what can happen if within some months there is another new cryptocurrency in circulation that has better protocol and security solutions than Bitcoin and therefore attracts more users? This could bring to those who have invested and bought bitcoin great loses. In other words, it depends on its popularity.

The volatility of Bitcoin would discourage many potential buyers. Falling prices may deter selling by hoarders of bitcoins dreaming higher returns in the future, or it may cause them to panic and sell. There seems to be a consensus among observers that the recent instability in prices is one of the main hurdles to the wider use of Bitcoin as a medium of exchange. Its adoption for day-to-day use is directly related to price stability, needed by consumers and businesses for planning their consumption and savings decisions."*(Fig. 4)*

- **Security threats** –"Even though counterfeiting bitcoins is not feasible as all of them have a unique identity, many problems have emerged concerning other aspects, such as security of the exchange platforms and wallets. Cybercrime is rising with bitcoins gaining more attention, while there have also been problems signaled with Bitcoin-based Ponzi schemes. Bitcoin's prime security focus is on preventing the same unit being spent twice, whereas it cannot validate whether the true owner of a key signed the transaction. Fundamentally, since Bitcoin is outside the banking system and not backed by any central body, in most cases users cannot recover any of their losses since they are not covered by deposit insurance.

- **Immaturity and risks**- Bitcoin is in a nascent stage which entails various risks. First of all, it is not yet widely regarded as a payment method by merchants. Most uses of Bitcoin are mostly speculative in nature (keeping bitcoins in the hope of price increases), as in the retail and commercial sectors it remains a niche phenomenon. And as speculation fuels volatility, the commercial world is ever more reluctant to accept Bitcoin widely. Furthermore, Bitcoin's security and operational robustness may be exposed to unforeseen challenges in the future as Bitcoin matures and handles larger transaction volumes. A flaw might have a detrimental effect on the whole system.

- **Lack of supply elasticity** -Bitcoin generation is limited, which means it has an inherent deflationary bias. On average, the supply of Bitcoins will increase by 0.6 percent a year. If the Bitcoin economy grows faster than this, the currency will be scarce and the price of bitcoins will rise. Simultaneously, the price of goods expressed in bitcoins will fall, causing a deflationary effect. Furthermore, the pace of the issue of bitcoins will most likely be slower than

that of physical currencies, which is likely to lead to its exchange rate increasing significantly (this theory can be thought out by looking at the reality of volumes in current use). This lack of supply elasticity is what makes Bitcoin's issuance independent of general economic activity and its wider acceptance as a means of payment (and therefore of increased demand). This encourages its use as a speculative instrument – given its expected future rise in value – rather than as a means of payment.

- **Money laundering, speculative investments** – Research focussed on money laundering and tax fraud via Bitcoin is limited due to difficulties in obtaining data. OAs earnings are not subject to taxation, the identity of traders remains anonymous, no bank account is needed and there are no third parties with reporting obligations involved, Bitcoin has a high potential for tax evasion.

- **Divisibility** – As Segendorf mentioned during the interview, the pricing for Bitcoin is not something easily definable. For example, buying cheap goods and services becomes suddenly very complicated, as you have to divide a bitcoin in multiple decimals. Neither is regarded to be a practical currency when it comes to physical usage.

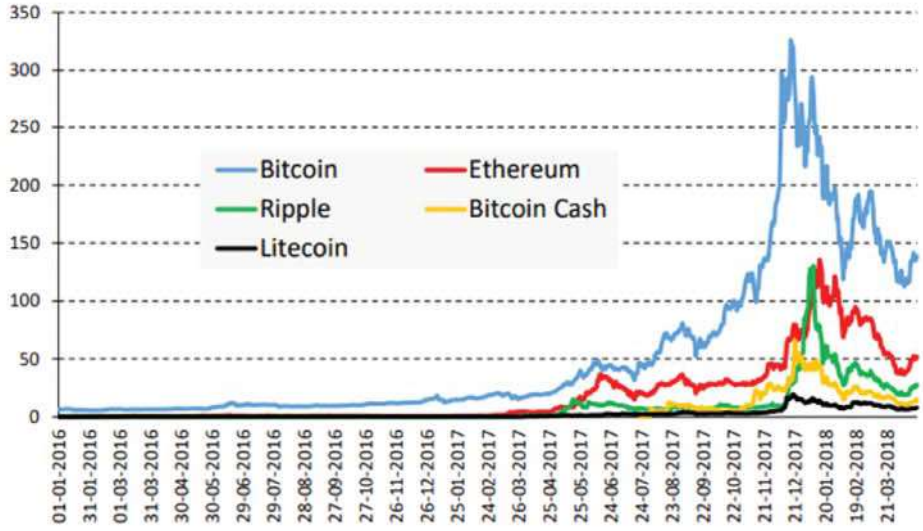
- **Exposed Digital wallets** – Something frightening with digital wallets is that they can be hacked. Or in case of losing either private or public key, it will make it impossible to log into your digital wallet, therefore lose the bitcoins in it. There are no central agencies or units that keep track of these keys or issue replacement ones.

- **Relying on an exchange platform** – Having to trust something you do not completely comprehend, like very complicated algorithms, makes many skeptical and holds them back from trading with bitcoins. Relaying on exchange platform means that one has to accept their exchange rate as best at the moment."

Table 2: Experiences from other countries

Scope / content	Country	Additional information
Prohibition	China	Banks and payment systems prohibited from dealing in bitcoins. Individuals free to trade.
	Russia	Bitcoins cannot be used by citizens and legal entities.
	Iceland	Foreign exchange activities with Bitcoin illegal.
Prohibition of ATMs	Taiwan	Approval for Bitcoin ATMs refused.
Protection from money laundering & illicit activities financing	Singapore	Financial intermediaries to verify the identities of their customers and report suspicious transactions.
	USA	Bitcoin exchanges and most miners obliged to collect information on potentially suspicious transactions and report these to the federal government
Taxing Bitcoin		The sale, exchange or use of Bitcoin for payment in a real-world economy transaction may result in tax liability.
	Japan	The tax will cover gains from trading bitcoins, purchases made with bitcoins and revenues from transactions. Banks and securities firms will be prohibited from Bitcoin trades.
	Finland	Rules on taxation of capital gains apply when profits are made from transfer to another currency. Increase in value in Bitcoin after it was obtained as payment is also taxable.
	Germany	Profits from mining or trading subject to capital gains tax unless hoarded for at least one year

Source: www.epthinktank.eu

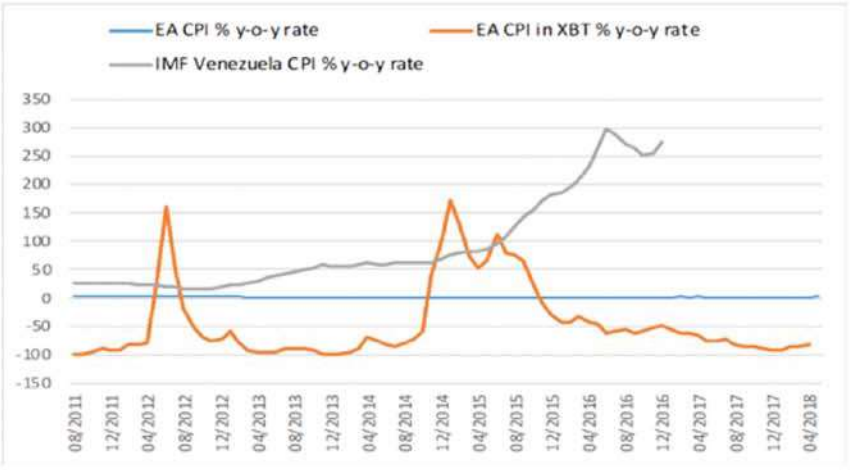


Source: https://coinmarketcap.com, date of access: 20 April 2018.

Figure 3: Market capitalization of major VCs, 2016-2018 (US$ billion)

Source: www.bitcoincharts.com

Figure 4: Bitcoin prices (in US$ - left hand scale) and trading volumes (in thousands, right hand scale)



Source: Bruegel based on Bloomberg, ECB and IMF

Figure 5: CPI % rate variation

VII.3 RISK TOWARDS FINANCIAL INSTITUTION WITH THE PROLIFERATION OF CRYPTOCURRENCIES

To understand what kind of challenges Virtual Currencies can create for central banks concerning their supposed monopoly on money issuance and the monetary policies conducted by them, it is worth taking a look back at the evolution of private money. Despite their technological novelty, Virtual Currencies are a contemporary form of private money.

It seems that there were two major advantages of sovereign currencies: network externalities and the potential ability to address the problems of information asymmetry and adverse selection. Network externality implies that a given currency is widely accepted by other economic agents on a given market and performs all functions of money.

Unfortunately, this was not possible where several private currencies circulated in parallel and competed with each other. The multiplicity of private currencies implied higher transaction costs for all economic agents on a given territory.

Looking at the technological characteristics of Virtual Currencies at least some of them (like Bitcoin) offer the chance to eliminate at least part of the above-mentioned disadvantages of private money. The transparency of their functioning and the predetermined algorithm of their creation reduce information asymmetry and the risk of over-issuance. However, their digital form, the labor-intensive mechanism and complicated of their creation, and the absence of political will to accept them as official legal tender in any jurisdiction will make them unlikely competitors to sovereign money.

The cryptocurrencies are not performing the functions of money very well. As a result, they can only be regarded as speculative assets, which are expected to yield returns only as a result of capital gains.

- The first reason is the inherent volatility given its volatility, bitcoin cannot perform well function expected from a currency. With inflation (and deflation) rates closer to those observed in Venezuela than those observed in the euro area, bitcoin is not a good store of value. This also means that retailers who accept bitcoin do not want to take the exchange rate risk and thus update their prices in bitcoin frequently and exchange bitcoins just after the transactions. *(Fig. 5)*

- Another reason why cryptocurrencies are not a good medium of exchange is the time they take to be recorded in the decentralized ledger and cost of the transactions.

VII.4 INTERACTION BETWEEN CENTRAL BANK AND CRYPTOCURRENCIES

The interaction between cryptocurrencies and central bank monetary policy is treated in detail by Fernandes-Villaverde and Sanches (Fernandes-Villaverde & Sanches, 2018). Their theoretical model suggests that the coexistence of central bank and private money hinges on the type of monetary policy the former follows. In particular, privately-issued currencies would be used only if the official currencies do not ensure price stability but would lose their value as a medium of exchange when the central bank guarantees the real value of money balances.

The ramifications are two-fold.

- First, the simultaneous existence of government money and cryptocurrencies that are valued as mediums of exchange is not a theoretical impossibility.

- Second, the central banks have the advantage of choosing a specific type of monetary policy they can render cryptocurrencies unusable as a medium of exchange.

From a more practical standpoint, central banks could face some risks from the emergence of cryptocurrencies as relevant mediums of exchange with stable purchasing power.

First, the extent to which economic agents of cash and bank deposits substitute for cryptocurrencies will determine the effectiveness of the monetary policy.

Second, the shrinking role of central bank money reduces seigniorage revenue that creates a possible fiscal risk.

Lastly, a threat does not arise from the potential use of cryptocurrencies as money, but from their attraction as investment assets.

VII.5 FINANCIAL STABILITY IMPLICATIONS

In a cryptocurrency world, full-reserve banks would be irrelevant: there would be no need to resort to an intermediary to complete payment. Liquidity risk would be less of a concern for the holders of equity, but they would also be more vulnerable to credit risk than bank depositors because they would not gain from the seniority that bank depositors enjoy in case of default compared to other creditors.

VII.6 CRYPTOCURRENCY IN INDIAN SENARIO

- Financial Inclusion:

Financial inclusion goes hand in hand with financial planning capability, but after 2014 that relation has been watered down in India as her government has pushed for massive account ownership programs from the top down. So, despite a massive increase in account ownership in India, it is not prudent to suggest that financial inclusion has increased. Thus virtual currency would face a rather hard barrier to penetrate.

- Internet Access & Digital literacy:

Despite being the world's second-largest online market, only 26% of Indians accessed the internet in 2015. Internet penetration rate stood at only 15% in 2015. Bitcoin would have to overcome this hurdle to gain traction in India.

- Governmental regulation:

Reserve Bank of India has issued a circular to notify all the banks to cease dealing with and provide services that have anything to do with virtual currency. In effect, it has deemed VCs like bitcoin illegal. However, the Government has shown interest in applying the underlying technology of bitcoin i.e. the blockchain for various administrative activities. Mention must be made of Andhra Pradesh government which has initiated the transition of government records of titles of lands to a blockchain ledger.

VII.7 CASE STUDY FOR THE INDIAN SCENARIO

A total of 209 responses have been collected where the paper has tried to check some parameters which have been described below. This case study has been done with participants mostly in the age range of 18-30, and who reside mostly in urban or semi-urban areas.

The education qualification and the case study regarding residence has been shown in the *Fig. 6 and Fig 7.*

The reason for such bias may be interpreted by the fact that these are the people who have the highest potential in knowing about internet usage, smartphone usage, and cryptocurrencies. Inferences about people of the earlier generations as well as of rural areas are thus implicit.

The results have shown that 69.8% of the participants do not want to invest in Bitcoins whereas 30.2% would like to do. *(Fig. 8)*

A study of the results has reflected that there are two major reasons behind such figures:

- Zero awareness about Bitcoin
- Presence of awareness but other factors like education, gender bias, per capita income and fear of risk factors related to Bitcoins.

VII.7.1 CASE 1: FACTORS AFFECTING AWARENESS LEVEL

85.9% of the participants are aware of the term "Bitcoin" whereas 14.1% have no idea about it. *(Fig. 9)*

- **Role of gender**

56.1% of the participants are male and 42.9% of the participants are female. 1% have reported belonging to "other" gender. The paper emphasizes only on the male and female genders, the share of "other" being very less. *(Fig. 10)*

It can be concluded that males are more acquainted with the concept of Bitcoin. Gender bias regarding education and social benefits, thus, can be a reason behind the low popularity of Bitcoin in India, especially among females. Female education should be boosted to implement such a new state of the art. *(Fig. 11)*

- **Role of residence:**

68.3% have reported being urban residents, 23.9% to be semi-urban and 7.8% are semi-urban.The paper now analyses urban and semi-urban participants.

It can be seen that the area of residence is not a very crucial factor; awareness percentage of urban and semi-urban doesn't differ by a huge percentage, though a difference can be pointed out. *(Fig. 12)*

- **Role of education:**

Thus, education plays an important role in the awareness of Bitcoin. As it is clear, a higher percentage of the graduates are acquainted with "Bitcoin" *(Fig. 13)*

- **Role of per capita income**

Records of per capita income (monthly) have yielded the median to be 20000 Rs. Approx 92 participants have been found to be above the median and 112 participants are below the median (others did not disclose).

Thus, greater availability of income shows some bias; people with greater access to more income are probable to afford higher education, quality internet and more access to information. Per capita income plays a crucial role in building up the knowledge pool of common people.

Thus, it can be concluded that gender, level of education and per capita income have played crucial roles in the determination of the level of awareness among individuals. *(Fig. 14)*

VII.7.2 CASE 2: GIVEN PEOPLE HAVE HEARD ABOUT BITCOIN,WHAT FACTORS ARE AFFECTING ITS IMPLEMENTATION?

85.9% have heard the term "Bitcoin". Out of this, 52% knows the working procedure of Bitcoins where the rest doesn't. *(Fig. 15)*

85% of the people who have heard the term "Bitcoin" have known it from the internet. And only 15% have been recorded to know it from news channels/books/magazines/word of mouth.

Thus, it can be said that a major reason for unawareness about Bitcoin may be the fact that the Government and media do not play their roles in spreading the news about the state of the art. Internet being an international platform has proven to be the best platform. *(Fig. 16)*

Out of the people who know the working procedure of Bitcoin, only 35% are willing to invest in it whereas a large portion of 65% is not ready for the same.

Most of the reasons the participants have provided have included the risk factors of Bitcoin, as well as a lack of knowledge about the future since many of them, consider it to be a bubble. *(Fig. 17)*

94% of the people who know the working procedure of Bitcoin is comfortable with online transactions. *(Fig. 18)*

But only 65% of these comfortable people are willing to invest in Bitcoin.

Thus, this partly clarifies the fact that fear of digital theft and wreckages are not the only part for the lower popularity of Bitcoins since those are probable to happen in other online transactions, too. *(Fig. 19)*

Also, 46.6% have no idea that Bitcoin is highly regulated in the country. *(Fig. 20)*

This shows a lack of awareness about cryptocurrencies among people.

VIII. CONCLUSION

In modern democracies, currency management goes through layers of legitimacy and accountability. A modern authority that controls the currency will be evaluated according to how well it sticks to the implicit social contract agreed through democratic procedures. How could a smart algorithm that is automatic and anonymous ever be held accountable for failing to deliver agreements?. No algorithm, no matter how smart (and indeed benevolent), will

eliminate the possibility of crisis. It is only this system of checks and balances that permits modern lenders of last resort to create money out of thin air and provide ample liquidity during a crisis. As soon as this system breaks down and trust in authorities vanishes, the currency ceases to be a means of payment or even a unit of account. The currency is only as strong as its lender of last resort, and the lender of last resort is only as strong as the support it has from its constituents. Constituents, in turn, develop trust depending on how well social contracts are adhered to. Coming to India, the gulf between technical and financial obscurity of bitcoin and the technical and financial understanding of genera populace means that the introduction of Virtual Currency would do more harm than good in near terms. In short, India is not yet ready for cryptocurrencies.

IX. POLICY IMPLICATIONS

India has a lot to move ahead and such technology as well digitization is yet to penetrate deep into the strata of the population. Before implementing Virtual Currencies, a priority should be given to improve the education quality of the country, the gender gap should be reduced, and more people should be brought under the light. Digitization has to be of a greater level so that people are not scared of new technology. Trust has to be developed since VCs are decentralized. Only after overcoming these hurdles can India be ever ready for such drastic changes in the realm of Economics.

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Source: Case Study

Figure 6: Education Qualification

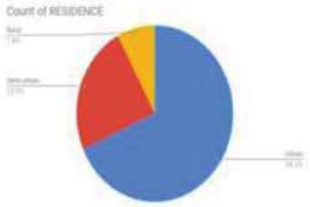
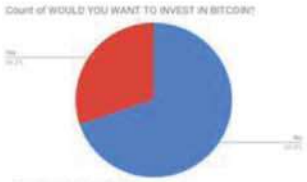
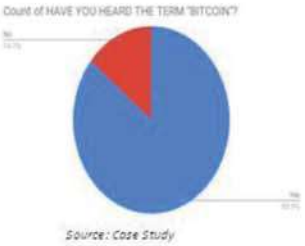


Figure 7: Residence



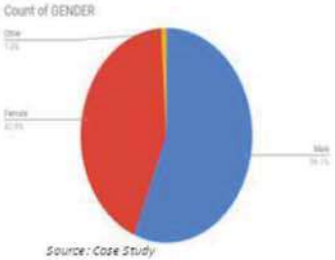
Source: Case Study

Figure 8: Share of participants interested/not interested in Bitcoin investment



Source: Case Study

Figure 9: Awareness level of Bitcoin



Source: Case Study

Figure 10: Gender proportions

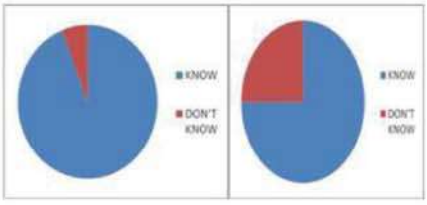
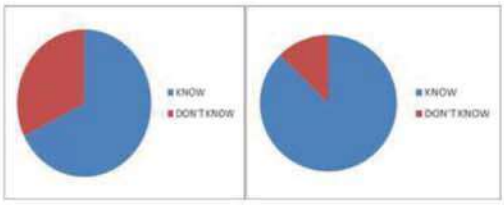


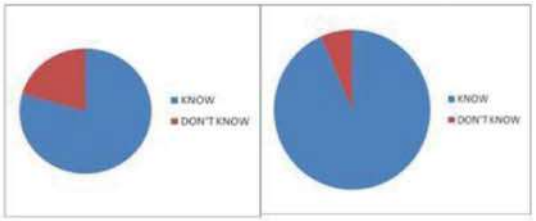
Figure 11: Awarness of Bitcoin in male(left) and female(right) population individually.

Figure 12:Awareness of Semi-urban(left) and Urban(right) population about Bitcoin



Source: Case Study

Figure 13: Awareness of Bitcoin in Undergraduate(left) and Graduate/post graduate(right)



Source: Case Study

Figure 14: Awareness in richer population (left) and poorer population (right)

Source: Case Study

Figure 15: Working procedure of Bitcoin

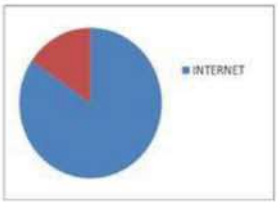


Figure 16: Source of awareness

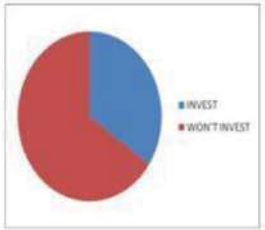
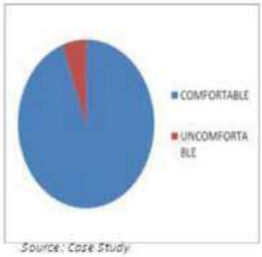
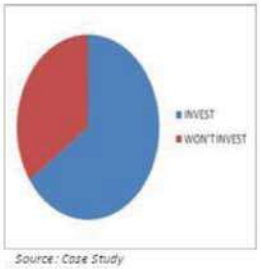


Figure 17: Investment decision of people who know the working procedure of Bitcoin



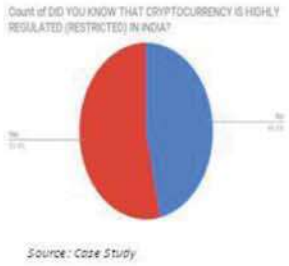
Source: Case Study

Figure 18: Comfort level of people regarding online transactions given they know the working procedure of Bitcoins.



Source: Case Study

Figure 19: Investment decision of people in Bitcoins, who are comfortable with online transactions



Source: Case Study

Figure 20: Percentage of people knowing about Bitcoin regulation in India

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