

An Empirical study on Impact of Digital Currency and Digital transactions

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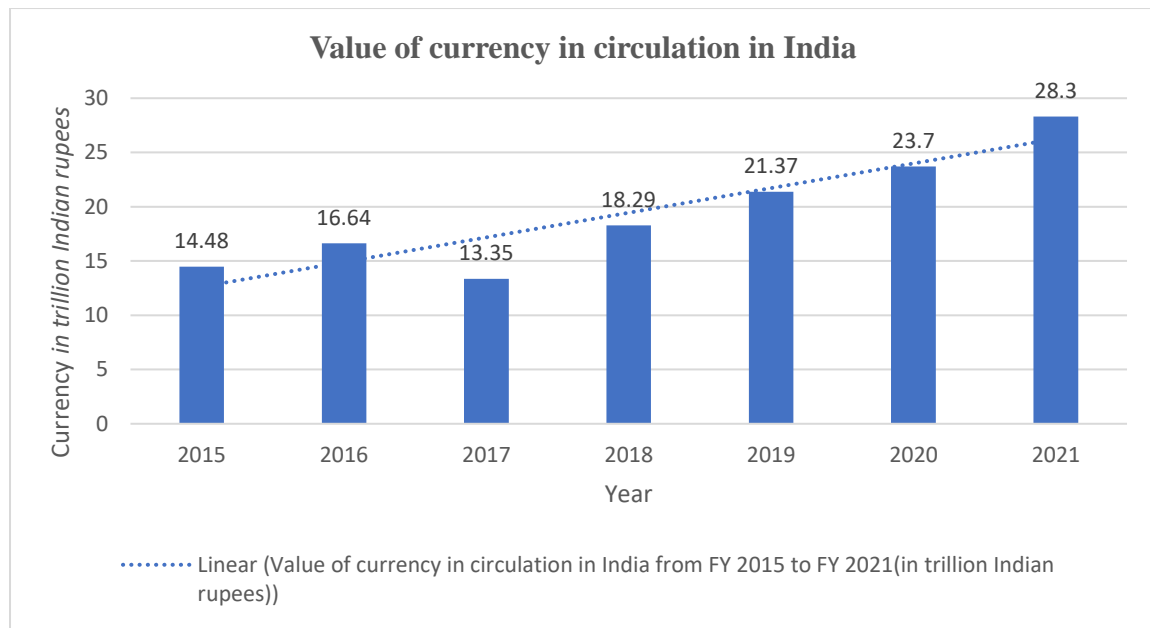
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Abstract: We are transitioning from paper cash to digital currency in this new era of digitalization, where the world is moving quicker with the advancement of the digital revolution. With the invention of the Internet and the digital world, one of society's most crucial aspects, namely, monetary exchange, is likewise shifting from physical to digital. Many operations in our everyday lives have been combined online as a result of the fast growth of information and communication technology by making them more flexible and effective. A massive development in the increase of internet users has reactivated virtual concepts and generated a new commercial phenomenon known as digital money, which is used to expedite financial transactions such as buying, selling, and trading. Online trading and settlement technologies are transforming the world's transaction procedures. India is anticipating a slew of innovative government interventions. The technique and problems of transactions are changing as a result of the introduction of digital money into the globe. This research study attempts to examine the current state of digital/virtual currencies, as well as their potential influence on developing economies such as India and perception of individuals on the digital transactions. The study aims to determine the primary impact of digital currency on individuals, businesses, financial institutions, and other important aspects of the economy.

Keywords: Virtual currency, Indian Economy, Economic Development, Digital Payments.

I. INTRODUCTION

A mode of trade that is created, preserved, and transmitted digitally is known as virtual money. Unlike the coins and notes of traditional currencies, digital currencies are not normally linked to any nation's government or reflected in tangible ways. Most people think of cryptocurrency when they hear the word "digital currency," which is the most popular category of it. To protect the operations involved in creating units and carrying out transactions, cryptocurrencies rely on encryption. They are accepted by more and more merchants and utilized for purchases both offline and online like traditional money. The very first extensively used cryptocurrency is 'Bitcoin', depends on the distributed ledger technology of the blockchain to avoid a single point of failure and guarantee the integrity of the transaction log. Blockchain technology is being investigated in many sectors as a safe and inexpensive solution to construct and administer a distributed system and retain records for all varieties of digital transactions, as the majority of other well-known cryptocurrencies also use it. Another kind of virtual money is virtual currencies, which are restricted to specific software-based settings as means of exchange. The Second Life Linden dollar was one of the very first electronic money.

Fig. 1: Value of currency in circulation in India from FY 2015 to FY 2021 (in trillion Indian rupees)

Source: (Value of currency in circulation in India, 2022)

Virtual currencies are only available in a digital format and lack any tangible characteristics. Digital currency transactions are carried out through computers or electronic wallets linked to the network or specific networks. Contrarily, tangible currencies have distinct physical qualities and traits, such as banknotes and coins that have been produced. Only whenever these currencies are physically in the custody of their bearers are processes that require them conceivable. Similar to physical currency, digital currencies have been used. They can be applied to both paying for products and services. In some online groups, such as games forums, betting websites, or media platforms, they may also find limited applications. Instantaneous inter payments are also made possible by digital currency. For instance, if both parties are linked to the same channel, an individual from the United States may send repayments in digital currency to a client in Malaysia.

There is no denying that the age of information and communication technologies has given rise to several excellent opportunities. The finance and commercial sphere are one of the industries that gain from these technology and online connections. Electronic currencies and online financial transactions are becoming less challenging than they once were. (Dr. Abdul Razak, 2019) This made it simple to deal with the situation and the unexpected ban on old bills. And there are several advantages to conducting business online. The time is now to maximize the use of debit cards, credit cards, e-wallets, and online banking. Virtual world concepts have been triggered by an increasing number of online users, resulting in a new commercial phenomenon. As a result, new market, transfer, and currency models have emerged. Cryptocurrency is one of the astonishing new financial instruments that has developed in recent years. Any form of currency other than fiat money that may be utilized in a variety of financial activities, whether they are digital or physical, is referred to as cryptocurrency. The four negative characteristics and the desire to utilize modern technology are directly related, according to the UTAUT model (Venkatesh, 2003). Cryptocurrencies are significant and immaterial items that can be utilized electronically or digitally in a wide range of services and platforms, including peer-to-peer network infrastructure, virtual worlds, social network sites, and internet community diversions.

An invention that could have a variety of effects on various domains, particularly on payment networks and applications, is the use of virtual currencies and distributed ledgers. (CPMI, 2015) The disruption of current business structures and processes as well as the introduction of global financial, economic, and social connections and connections are only a few examples of these effects. Even if the present digital currency systems fail, new ones will likely be continuing to arise and advance based on the same fundamental practices and distributed ledger technology. Despite their early creation, cryptocurrencies have seen rapid growth and widespread market adoption. Assets tied to cryptocurrencies have started to appear in the strategies and trading methods of numerous hedge funds and asset managers. (Fan Fang. et, 2022) Parallel efforts have been made by the academic community to study bitcoin trading. The first completely digital assets that asset managers have included are cryptocurrencies. Although they share certain characteristics with more conventional assets, they have their unique nature, and our understanding of how they behave as assets is constantly developing.

2. LITERATURE REVIEW

In order to assess the purpose of this study and gather the necessary background information to create research objectives, this section will analyze recent literature and present an outline of theoretical work.

Digital currencies known as cryptocurrencies utilize cryptography to safeguard and validate transaction processing. The development of such currencies is managed and regulated through the use of cryptography. A couple of instances of cryptocurrencies include Bitcoin and Ethereum. Cryptocurrencies may or may not be authorized, according to the region. (Alex, 2019) The majority of people in India still rely on cash-based money transfers because of the country's developing digital economy, poor internet communication, absence of digital literacy and understanding of financial operations, fees associated with electronic payments, and costs associated with maintaining bank accounts. A cashless society can be realized by implementing suitable electronic money mechanisms. (Stolper, 2017) Cryptocurrencies are regarded as a type of financial asset. Financial education has been characterized as a person's level of understanding of financial concepts and their ability to use that understanding to make financial decisions. (Das, 2010) Money as a form of payment is costly for the governments, according to the Cashless Payment System in India- A Pathway. The nation must transition from a cash-based to a cashless payment system. This will lower the cost of managing currencies, track operations, detect frauds and tax evasion, among other things, improve financial inclusiveness, and link the alternative economy with the mainstream.

Encouraging digital/payment gadgets, such as card payments and instrumentation. The terms "cashless system," "less money economy," and "cashless transaction system" refer to a reduction in the use of actual currency for receipts and payments. To settle receivables and payables, digital operations are used rather than cash. (Jing, 2007) asserted that when gold was demonetized, the role of gold as exchange steadily weakened. But some other duties, like worth preservation, take on increasing significance. Countries all over the globe are attempting to modify the amount of gold bullion they retain to meet the ideal composition of the global holdings. Bitcoin, Litecoin, Ether, and other cryptocurrencies are currently dominating the financial world as more individuals invest in and purchase them. However, there is still a lot of misinformation and bias out there, which diminishes cryptocurrency's overall usefulness. Given its fluctuating nature, educating consumers about such alternate kinds of payment is crucial. In this post, we'll try to present a comprehensive view of cryptocurrency and how it's influencing the modern world. (Momtaz, 2019) investigates the performance of cryptocurrencies released through initial coin offers (ICOs) three years following the original exchange listing. Even if 4 out of 10 initial coin offerings (ICOs) lose value on the first trading day, the average (median) ICO underpricing is 15% (3%). Returns are predicted by liquidity, market capitalization, and high-low price ratios. The mean and median of long-term buy-and-hold returns are positive and negative, respectively. The median Initial Coin Offering (ICO) loses 30% of its value for holding times of one to twenty-four months. The bitcoin market has a substantial positive skewness. Additionally, a size impact that is an empirical regularity in the data shows that large ICOs are more frequently expensive and underperform over the long term.

Implementation of advanced electronic payment mechanisms can lead to a cashless economy. All that is needed are completely tested new financial regulations, strong centralized supervision, and regular monitoring of the bankers, government agencies, and other commercial service providers. (Dr. Budheshwar Prasad Singhraul, 2018) Safe and secure features like instant payment certification, an accurate account summary, no hidden fees, complete control over money, and a transaction's processing time is shortened by providing all necessary documentation Overall, the majority of the world's main developed nations are transitioning to a cashless society, which is fantastic. The entire concept of cryptocurrency is based on utilizing the internet and the way it functions. (R.S, 2018) Cryptocurrency operations are confirmed by the user's interconnected computers to the currency's system, as opposed to traditional financial institutions that depend on them to do so. It becomes difficult to raise the supply of money above a predetermined algorithmic rate since the currencies are secure and encoded.

In this research, we provided a longitudinal description of the Bitcoin blockchain, emphasizing the development of facilities and the widening discrepancy between the theoretical confidentiality provided by the Bitcoin communication protocol and the exact anonymity that users are presently achieving as a result of certain usage idioms. (Sarah Meiklejohn, 2013) And created a brand-new segmentation heuristic based on changing addresses to complete this operation, enabling us to group addresses that belong to the same user. Then, the study identifies important institutions and the relations between them using a limited number of transactions identified through experimental encounters with various services. Even our modest experiment shows that this technique can provide significant insight into the makeup of the Bitcoin economy, how it is used, and the parties involved. (Gao, 2016) Cryptocurrency non-users believed they were incapable to adopt them. Through

the promotion of electronic payments, demonetization effectively pushed for more transparent transactions, greater accountability, and a decrease in black money. Due to the expansion of the internet, the majority of the retail industry began to take on future directions. Both the business practices and the payment options have also changed. Although we may anticipate that this will have a more positive impact on the Indian economy in the long run, in the short run, it has primarily harmed consumers and enterprises.

3. OBJECTIVE OF THE STUDY

- (i) To understand the conceptual background of bitcoin and its terms.
- (ii) To find out the status of India in comparison of other countries in terms of cashless economy
- (iii) To review the Pros & Cons of Digitalization of currency in respect to Developing economy
- (iv) To evaluate the level of user awareness regarding the use of digital currencies/payments

4. HYPOTHESES

Hypotheses for fourth objective

Ho: There is no association between gender and trusting of digital payments technology

Ho: There is no association between Gender and the opinion to split the crypto currencies according to locations for raising awareness

5. RESEARCH METHODOLOGY

5.1 Sources of Data: In order to address the study's objectives and evaluate its hypotheses, a questionnaire is produced based on an analytical method and a descriptive approach to previous studies that have been conducted in the same field.

i. Primary Data: The main information comes from the thoughts, perspectives, and viewpoints of knowledgeable individuals who are either intimately engaged in the operations on either side or who are simply curious about the topic. Questionnaires are the tools used to get the data.

ii. Secondary Data: The data needed for the study is collected through secondary source. Which includes Government records, industry records, Journal Publications, other data and information through books, journals, e-journals, periodicals, etc.

5.2 Research design: To define the insights of the cashless society and cryptocurrency, the study prefers to employ a descriptive and quantitative research design.

5.3 Sampling method: This study's recommended method of sampling is convenience sampling to gain the perception and opinion on the concept. A systematic questionnaire is to be used to test the primary data.

5.4 Sample size: The study has composed response from 77 respondents through questionnaire. owing to their low prices and speedy completion (Rose, 2015). questionnaire considered most efficient.

5.5 Statistical tools used: The information and data used in the current study were gathered from secondary sources such as magazines, journals, publications from the RBI, internet sites, the Economic Times of India, Business Level, and research papers and represented in Graphs, Figures and Tables for the conceptual analysis and descriptive study. And to analyze the fourth objective statistical tools like percentage analysis, regression model analysis, non-parametric tests, Chi-square test and IBM SPSS software were used. The finished sample was examined using SPSS, and no mistakes or incomplete information were found (Pallant, 2010).

6. ANALYSIS AND INTERPRETATION

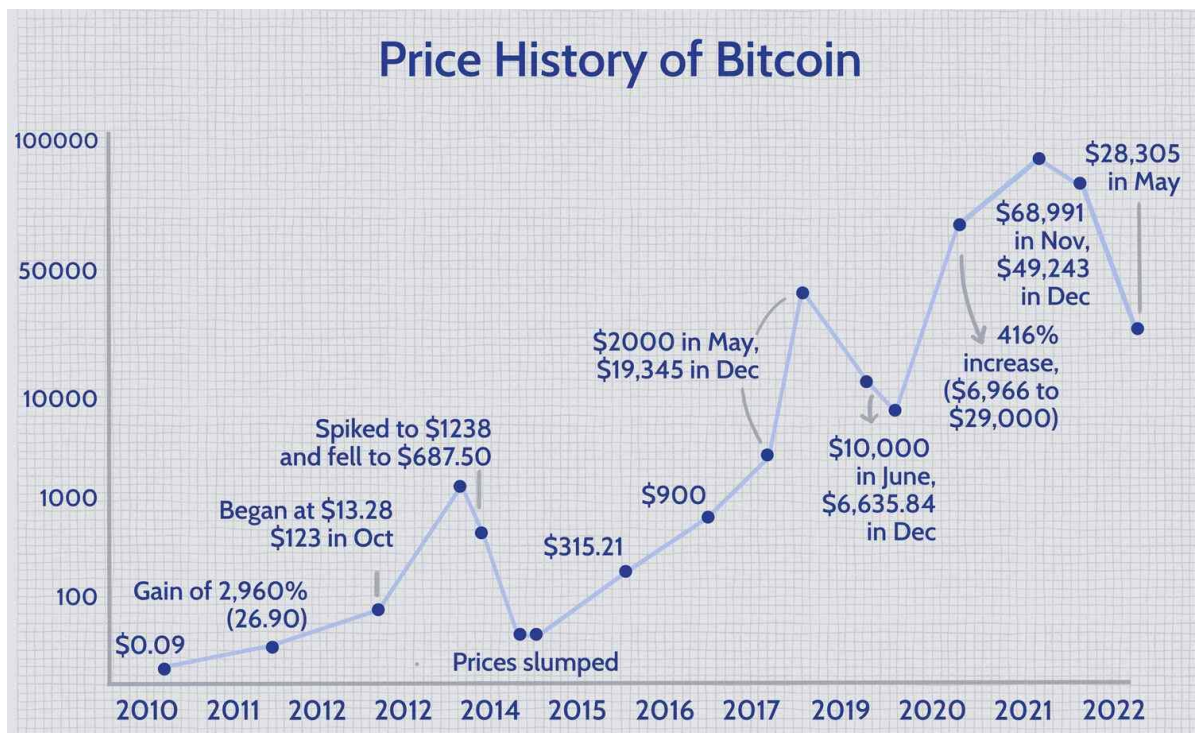
6.1 Bitcoin and its terminology

Bitcoin is a prospective anti-poverty strategy that has the potential to enhance the fundamental financial services and standard of living for individuals in underdeveloped countries. According to estimates, 64 percent of the people in developing nations do not have access to these services. This may be because serving the poor in rural areas is very costlier than traditional banking. For their financial demands, citizens in these nations are turning to mobile banking services. The use of Bitcoin in developing nations will allow for the expansion of mobile financial services. Since bitcoin is an accessible

transfer mechanism, it can give people in impoverished countries access to low-cost payment institutions on a worldwide scale. Completely digital money made up of sequences of data is offered by Bitcoin. Based on encrypted communications, open-source programming offers a mechanism where individuals can create a personal currency and transfer funds in these currencies without using banks or central institutions. This arrangement aims to bring online payments closer to in-person cash transactions. The framework of the system provides financial incentives that draw and control the system's free sponsors. A network is created as each sponsor contributes computing resources. Proponents of the system are drawn to the possibility of competing for newly issued bitcoins.

Bitcoins are kept in the kind of sequences of digits and characters called anonymous identities, each of which has a private key and a public key that work in tandem. The private key can be comparable to the PIN used to connect a bank account and the public key to the bank details of a bank account. If A desires to pay B money, A requires B's public key. Then, using B's public key and A's private key, A encrypts a specified number of bitcoins to ensure that only B can decode the transaction and utilize the money. (Jani, 2017) New financial transaction commands are gathered by the program and validated by system participants every 10 minutes. To accomplish this, all new transactions are added to the blockchain, a public database that contains all previous transactions made through the Bitcoin system. The authenticity and correctness of the orders are confirmed by contrasting the fresh bitcoin payment demands with the record of all prior requests. A bitcoin operation can only be regarded as secure after a series of network affirmations for a variety of technical considerations. The aforementioned mining procedure serves as an incentive for system users to take part in the authentication phase.

Fig. 2: Price History of Bitcoin



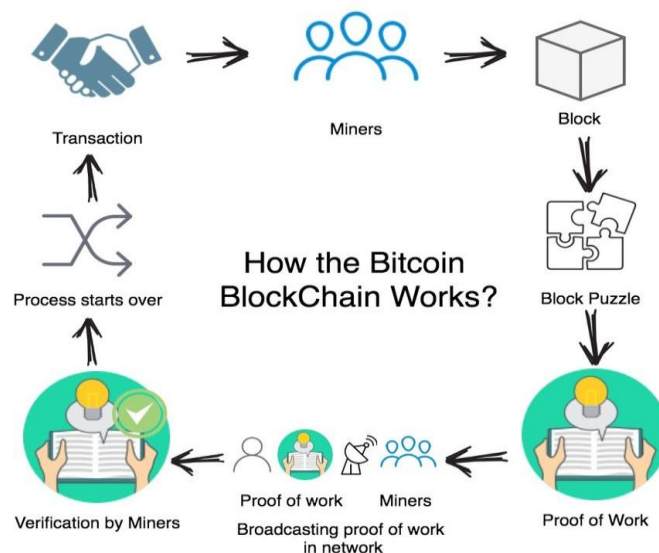
Source: (Bitcoin's Price History, 2022)

The details about the preceding blockchain and transactions are also taken into account when solving the math puzzle to earn freshly minted bitcoins or processing fees. As a result, mining for bitcoins also contributes to verifying the legitimacy of fresh transaction instructions and adding them to the blockchain. The approach purportedly provides a novel approach to the issue of reaching agreements between parties who are suspicious of one another. Technically speaking, this procedure uses a lot of electrical and processing resources. Mining industry rivalry has encouraged constant improvement and spending on computer processing capabilities. Given the price of computer equipment and power, entrance barriers have increased as a result, which raises the possibility of increased mining consolidation. It will become more and more difficult to maintain the ever-expanding blockchain throughout the period. Because of this, fewer sponsors might be prepared to fund the keeping of public records, which would render the network weaker and more susceptible to assault. Following are the major terms used in the bitcoin process. Citizens might perhaps trust the Bitcoin currency greater than those issued by central banks if Bitcoin stabilizes (Berndsen., 2014).

6.1.1 Blockchain and Blocks: Unquestionably the most brilliant innovation of the twenty-first era is blockchain. Blockchain was first meant to timestamp digital records so that they could not be altered or backdated when it was first disclosed in 1991 by a group of researchers. Blockchain was later adopted by Bitcoin as the digital currency, and today its possibilities are being investigated for use in other industries. As a result, it is seen as a cutting-edge technology that can transform the world, especially as Bitcoin becomes more and more well-known on both a technological and financial level. Blockchain is a group of computers (referred to as nodes) that share a history of transactions that is verified by each desktop device that would like to participate in an operation. It is a public distributed database that is available to everyone. It is a blockchain with backlinks. The Bitcoin network is irrespective of a centralized third party thanks to the decentralized nature of the system. The Genesis block is the first block ever produced in the Bitcoin network. (Satapathy, 2021)The length of the Genesis block is 0, and the length of the block increments by one for each block that is constructed on top of it. This Genesis block is connected to all the other blocks. The block's size in bytes, its header, which includes a variety of sections, and the total amount of transactions are the pieces of data

6.1.2 that are recorded on it. One crucial piece of block architecture information is the block header. The block identification for each block is a hash of the block header.

Fig.3: How Bitcoin Works?



Source: (Suman Ghimire, 2019)

6.1.3 Mining: By resolving puzzles, the technique of mining is given birth to new bitcoins. It comprises computer systems attempting to solve the equation challenges while outfitted with specific chips. The first person to figure out the riddle and use one of these systems to mine bitcoins is rewarded. (Nakamoto, 2009)Additionally, the cryptocurrency's network's operations are trusted because of the mining operations' confirmation of them. After Bitcoin's introduction, it was briefly mined on desktop computers using standard central processing units (CPUs). However, the procedure was incredibly slow. Today, massive mining pools dispersed over many different regions are used to generate cryptocurrencies. To mine bitcoins, bitcoin miners combine mining rigs that need a significant amount of energy. The climate is defined as being negatively impacted by bitcoin mining in areas where electricity is produced using fossil fuels. To lessen Bitcoin's influence on climate change, many bitcoin miners have relocated their activities to locations with renewable energy resources.

6.1.4 Proof of Work (PoW): Proof of work (PoW) is a decentralized consensus process that forbids system gaming by requiring network participants to invest time and effort in resolving an arbitrary mathematical conundrum. In bitcoin mining, proof of work is frequently employed for transaction validation and ticket mining. The initial cryptographic validation procedure, introduced by Bitcoin, is proof of work. Mining and proof of work are concepts that are connected. The network needs a lot of computing power, which is why it's dubbed "proof-of-work." (Investopedia, 2022)By competing to be the first to solve a mathematical puzzle, virtual miners from all over the world protect and verify proof-of-work blockchains. The network rewards the victor with a specified amount of cryptocurrency and allows them to upgrade the blockchain with the most recent verified transactions. Particularly for a very basic but extremely valuable cryptocurrency like Bitcoin, proof of work has several significant advantages. It's a tried-and-true method for keeping a decentralized blockchain safe.

6.2 Digital/Cryptocurrency and the globe

At present there are 20,268 cryptocurrencies in total, with a market capitalization of \$1.025 trillion. A total of \$107 billion is traded in cryptocurrencies every 24 hours, with Bitcoin having the greatest market capitalization at nearly \$420 billion, more than double its nearest competitor Ethereum. (Investing.com, 2022) Tether, USD Coin, and Binance USD are three of the top 20 cryptocurrencies that are directly correlated to the value of the US dollar, and about 8% of US citizens trade cryptocurrencies. In comparison to other continents, Asia has over 4 times as many cryptocurrency users. 95% of cryptocurrency owners and cryptocurrency enthusiasts are familiar with Bitcoin worldwide. (coinmarketcap., 2022) There will be 20,268 cryptocurrencies in use as of July 2022. But not all cryptocurrencies are useful or active. When numerous "dead" coins are excluded, only 10,953 live cryptocurrencies remain. Around 300 million people utilize cryptocurrencies worldwide. And about 18,000 companies already accept payments in the form of cryptocurrencies.

Table 1: Cryptocurrencies, prices and market capitalization (As of August 2022)

Sl. No	Names	Price	Market Capitalization
1	Bitcoin (BTC)	\$23477.44	\$445.52B
2	Ethereum (ETH)	\$1738.03	\$208.78B
3	Tether (USDT)	\$1.02	\$66.51B
4	USD Coin (USDC)	\$1.00	\$54.21B
5	BNB	\$319.10	\$51.48B
6	XRP	\$0.37	\$17.89B
7	Binance USD (BUSD)	\$0.99	\$17.82B
8	Cardano (ADA)	\$0.52	\$17.62B
9	Solana (SOL)	\$41.97	\$14.40B
10	Polkadot (DOT)	\$9.16	\$10.01B

Source: (Crypto currency prices, 2022)

Table 2: Cryptocurrency Regulation around the world

Countries	License required	Central Bank Currency Project	Legal Tender	Exchange
UK	Yes	Yes	Not	Legal
Switzerland	Yes	Yes	Yes	Legal
EU	Yes	Yes	Yes	Varies
Canada	Yes	Yes	Not	Legal
United States	Yes	Yes	Not	Legal
Mexico	Yes	Yes	Yes	Legal
Chile	Yes	Yes	Yes	Legal
Argentina	No	No	Not	Legal
Brazil	No	Yes	Not	Legal
India	No	Yes	Not	Considered
China	No	Yes	Not	Illegal
Singapore	Yes	Yes	Not	Legal
Thailand	Yes	Yes	Not	Legal
Australia	Yes	Yes	Yes	Legal
Hong Kong	Yes	Yes	Not	Illegal
South Africa	Yes	Yes	Not	Legal
Japan	Yes	Yes	Yes	Legal

Source: (Cryptocurrency regulation around the world, 2022)

i. India: Following consumer safety, AML, and market virtue worries, the Reserve Bank of India restricted bitcoin transactions in 2018 and forbade Indian banks from working with cryptocurrency exchanges. However, the Indian Supreme Court overturned the restriction in 2020 and made it clear that there are no restrictions. India has promoted innovations and the adoption of blockchain despite ongoing worries, mistrust, and previous prohibitions on cryptocurrency. (SUSANNAH HAMMOND, 2022) Additionally, it has started developing digital rupees, a state-backed CBDC. In 2021, a suggested framework for regulating cryptocurrencies was posted on the Lok Sabha websites. In the last stages of the legislature, the Cryptocurrency and Regulation of Official Digital Currency Bill, 2021, was shelved, although it will probably come up again in the future. In February 2022, the Advertising Standards Council of India published new guidance on the promotion of cryptocurrencies and NFTs. Consumers frequently identify the phrases "money, securities, custodians, and depositories" with regulatory requirements, therefore the new rules, which go into effect on April 1, forbid their use in marketing.

ii. UK: The nation's Crypto-assets Commission is made up of the Bank of England, HM Treasury, and the UK Financial Conduct Authority (FCA). For crypto-assets, the FCA has developed KYC, AML, and CFT requirements. To encompass VASPs, it has also developed regulations, but it has taken care to avoid stifling innovation. If a cryptocurrency exchange has not yet sought an e-money license, it must register with the FCA. Since taxes are dependent on activity, cryptocurrencies are not regarded as legal money. The trading of cryptocurrency derivatives has been outlawed by the FCA. In April 2021, the Law Commission released a call for evidence on digital assets. Before the release of a memorandum on digital products that would include recommendations for new regulations, the request solicits feedback from stakeholders.

iii. Russia: Vladimir Putin, the president of Russia, approved legislation governing the exchange of digital financial assets in 2020. The law, which came into force on January 1, 2021, recognizes digital currencies as a form of investment and a method of exchange. However, you cannot buy any products or services with digital currency. Before now, digital currencies were prohibited. If Russian banks and markets affiliate with the Central bank, they can operate trading for digital capital instruments. A "system for organizing the circulation of digital currency" is established by a law "On Digital Currency" that was sponsored by the Ministry of Finance in February 2022.

iv. Canada: Bitcoin marketplace funds have been authorized in Canada (ETFs). Canadian crypto trading systems and traders now need to register with their respective provincial regulators, according to recommendations from the Canadian Securities Administrators (CSA) and the Investment Industry Regulatory Organization of Canada (IIROC). Canada established a transparent registration process in 2021 for trading systems that provide depository functions to Canadian customers. Under the new regulations, several businesses have registered. Canada has also offered recommendations for marketing and advertising cryptocurrency. For the Income Tax Act, the Canada Revenue Agency (CRA) normally classifies cryptocurrencies as commodities.

v. South Africa: Plans to create a licensing legislative regime have been made public by the South African Reserve Bank, the Financial Sector Conduct Authority (FSCA), the National Treasury, and an Intergovernmental FinTech Steering Committee. FATF AML standards would be codified under the guidelines. The regulatory regime, which is anticipated in 2022, was created in reaction to significant cryptocurrency frauds that misled investors. The FSCA also seeks to address the general stability of the financial system and how cryptocurrencies will integrate with conventional financial operations. South Africa does not recognize virtual money as legal tender.

vi. Thailand: Cryptocurrencies are governed by the Securities and Exchange Commission of Thailand following the Interim Order on Digital Asset Businesses B.E. 2561, which was published in 2018. According to the regulation, digital asset companies must submit an application for a license, keep an eye out for discriminatory trade methods, and are classified as "financial institutions" for AML considerations, among other requirements. The Thailand Central Bank has stated time and time again that it opposes the usage of cryptocurrencies for payment. The central bank and markets watchdog revealed intentions to forbid proprietors of digital assets from supporting the utilization of cryptocurrency as a form of payment for goods and services in January 2022.

vii. Singapore: The Monetary Authority of Singapore (MAS) oversees the regulation of cryptocurrencies. The Payment Services Act of 2019 governs trades and transfers for both fiat cash and cryptocurrencies. Offers the flexibility and token sales are both subject to the Securities and Futures Act. Recommendations to Prohibit Cryptocurrency Exchanges by the General Public were released by the MAS in February 2022. The updated regulations make clear that companies offering digital payment token (DPT) services are not permitted to advertise or market their products to the general public in Singapore.

viii. Philippines: VASPs must register with the Bangko Sentral ng Pilipinas (BSP), the country's central bank. The BSP created an AML mechanism under FATF recommendations. Transactions of fiat currency and virtual commodities are necessary for BSP authorization. Crypto service providers are expected to abide by all applicable BSP regulations since all operations are considered international wire transfers. Regulations for financing facilities enterprises, such as those governing protection for consumers, IT risk evaluation, and liquidity risk mitigation, must also be followed by BSP-licensed companies.

ix. Japan: The world's most advanced and matured regulatory framework for cryptocurrencies is found in Japan. Transactions for cryptocurrencies must license and adhere to established AML/CFT and other laws. Japan became the first nation to establish the Japan STO Organization and the Japanese Virtual Currency Exchange Association (JVCEA) in April 2020. Regulatory compliance is promoted by the JVCEA and the STO Association, which also play a vital role in developing best practices and guaranteeing adherence to laws.

x. Hong Kong: Hong Kong has always aimed to become a centre for digital innovations. However, a stringent regulations structure and license criteria for VASPs have been implemented by the Hong Kong Securities and Futures Commission (SFC). Hong Kong started taking action to fix the legal gaps that had permitted the operation of cryptocurrency exchanges. However, the Hong Kong Monetary Authority (HKMA) published two publications in January 2022, one on stable coins and the second on exchange-traded funds related to cryptocurrencies.

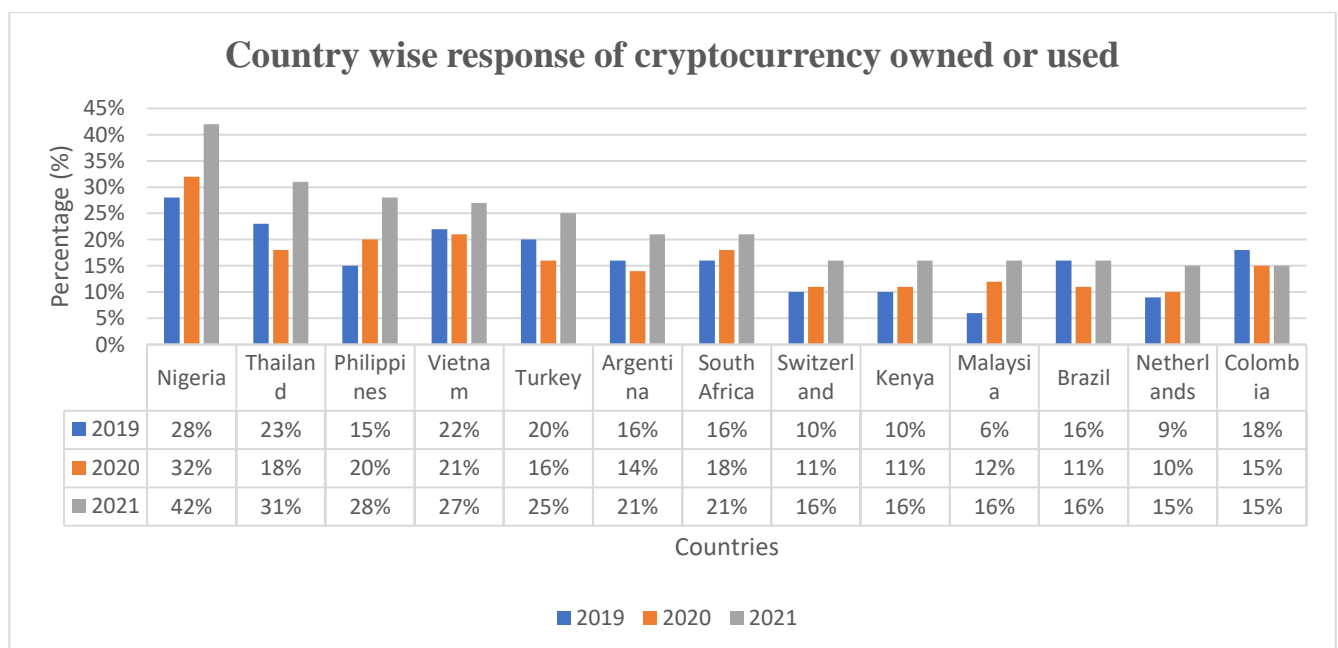
xi. China: In 2013, the People's Bank of China prohibited banking institutions from transacting in cryptocurrencies. Subsequently, the prohibition was extended to include crypto exchanges and initial coin offerings (ICOs). Due to its inexpensive electricity, China was the mining capital of the world. At its height, it was believed that China accounted for more than 65% of global bitcoin mining activity. Cryptocurrency mining was under consideration for a government ban, although that decision was later reversed in 2019. According to Vice-Premier Liu He's financial governing body, China's Financial Stability and Development Committee, in May 2021, the Chinese government would "start cracking down on bitcoin mining and dealing behaviour, and decisively prohibit the transfers of private risks to the nation."

xii. Switzerland: One of the countries in the world that is most accepting of cryptocurrencies is Switzerland. The Swiss Financial Market Supervisory Authority (FINMA), Switzerland's banking industry regulation, has established license criteria for blockchain enterprises as well as all forms of cryptocurrency organizations, including bitcoin kiosk activities. With the ratification of the National Act on the Transformation of Federal Statute to Advancements in Distributed Ledger Technology in July 2021, Switzerland substantially enhanced its legislation relating to tokens (the DLT Act).

xiii. Brazil: Many Brazilians went to cryptocurrencies in 2021 as the Brazilian real faltered. Around 10 million Brazilians currently engage in the cryptocurrency industry, according to CoinMarketCap. Over the past few years, Brazilian authorities have introduced several legislations and established a legislative "sandbox." A report on cryptocurrency taxation in Brazil has been released by the Special Directorate of Federal Revenue. The digital real, a CBDC, might be introduced as early as 2023, according to the Central Bank of Brazil.

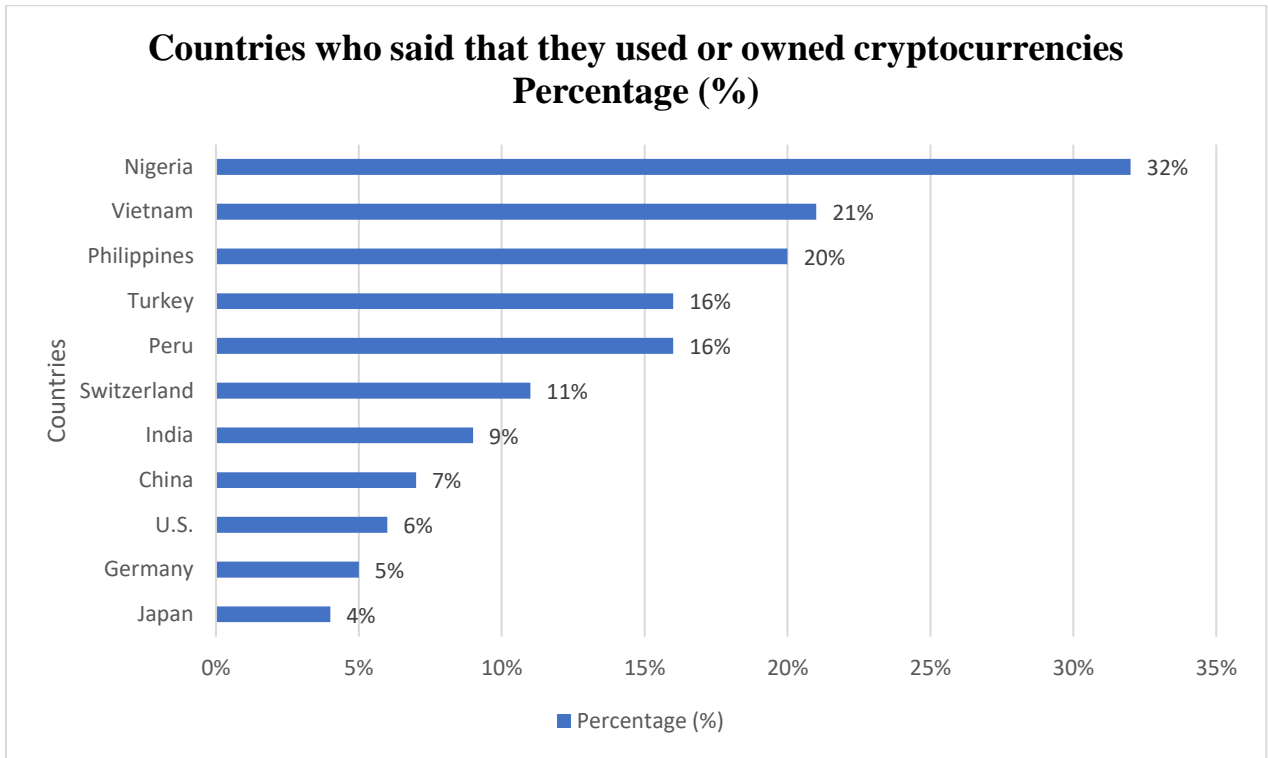
xiv. United States: Despite duplication and divergent perspectives among authorities, the regulatory structure for cryptocurrency is developing. The Federal Reserve Board, the Commodity Futures Trading Commission (CFTC), and Treasury's FinCEN have all provided their distinct interpretations and recommendations, despite the Securities and Exchange Commission (SEC) being commonly seen as the most influential supervisor. The agencies are required to coordinate their regulatory activities under a White House Executive Order that was published in March. The majority of cryptocurrency clients, markets, trading systems, mining operations, and investment vehicles are based in the United States.

Fig.4: Share of respondents who are indicated they either owned or used cryptocurrencies in 56 countries and territories worldwide from 2019 to 2021



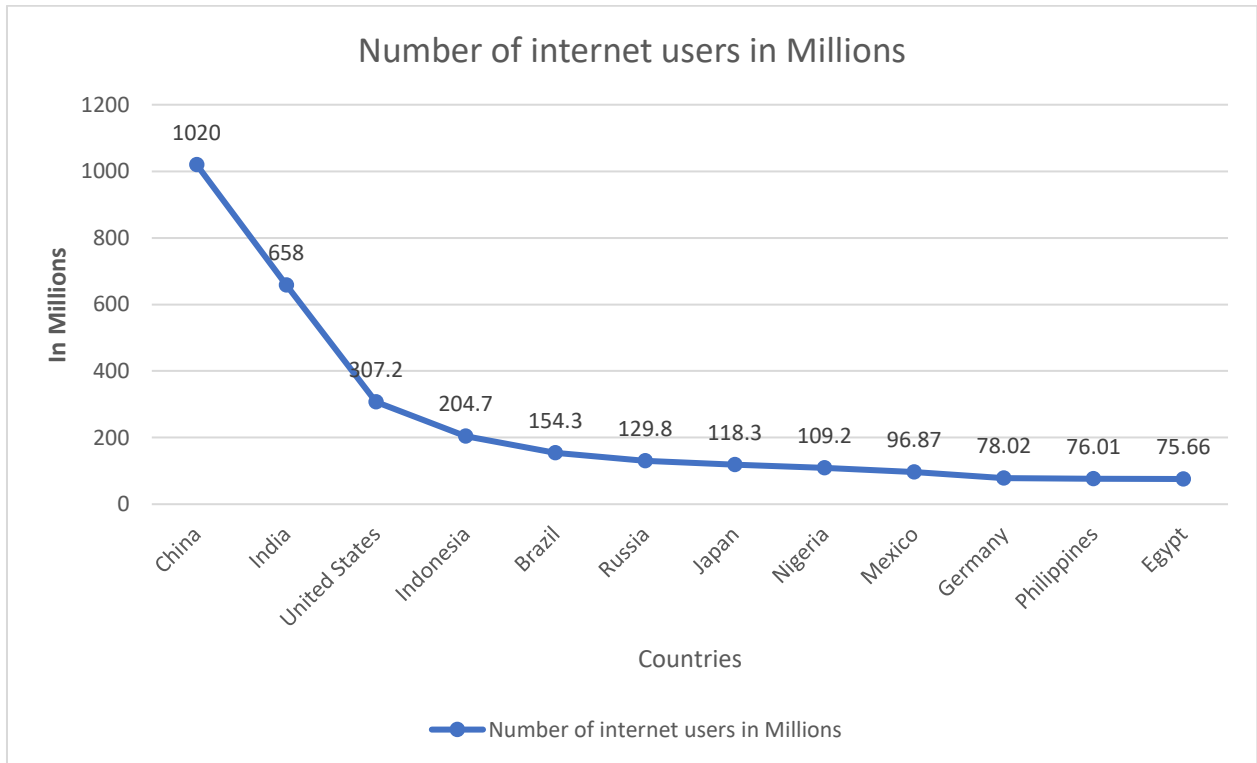
Source: (Statista, 2021)

Fig.5: Share of respondents in selected countries who said that they used or owned cryptocurrencies as of survey 2020 (About 1000-4000 respondents per country)



Source: (Statista Global Consumer Survey, 2021)

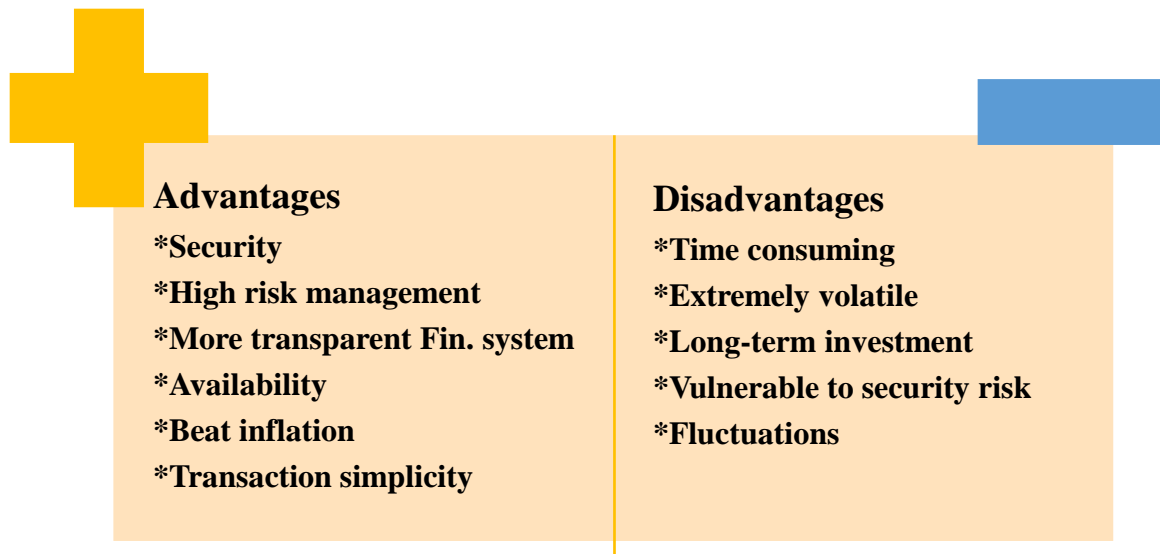
Fig.6: Countries with the largest digital populations in the world as of January 2022(in millions)



Source: (Countries with the largest digital populations in the world as of January 2022, 2022)

6.3 Pros & Cons of Digitalization of the Indian economy

Fig.7: Advantages and disadvantages chart



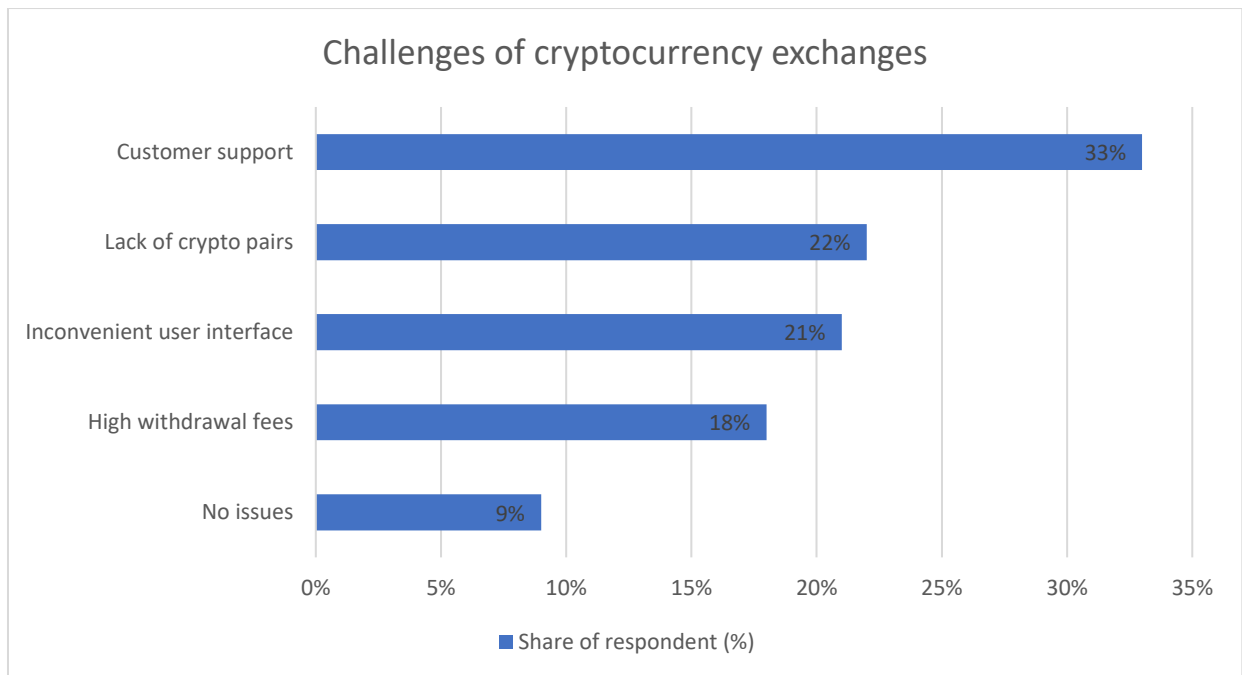
6.3.1 Benefits of cashless economy

In a cashless economy, all operations and payments are conducted electronically, either through bank account transfers or card transfers. Governments may better manage the banking system by using the digital economy, which also makes it easier to trace and monitor all financial activities. Since digital currency provides so many advantages over traditional payment methods, A written record will make it easier to monitor expenditure, evaluate spending habits, and create better budgets. Better budgets result in more restrained expenditures, which may also lead to better investment practices. (Alex, 2019) The convenience of completing financial transactions is undoubtedly the main driver for becoming digital because it eliminates the need for carrying large amounts of cash, plastic cards, and even standing in line for ATM withdrawals. (Marin, 2002) According to the digital economy justification for Russia, barter enables the industrial sector to sell its products for more than its market valuation, which enables the counterparties to simulate that this industry is adding value. Spending with digital currency is safer and simpler, especially when travelling. Another advantage of a cashless economy is that it makes it simpler to track unlawful and unreported transactions, as cash transactions are notoriously hard to detect, especially if they don't go through the financial system. However, because all of these documents are kept by the banks, it is simpler to follow digital payments, which leads to more transparent transactions and a decline in fraud overall. It becomes simpler for a person to keep track of all transactions and keep a record of them, which will also help complete tax filings. Another advantage of a cashless society is that it is helpful to follow black money and unlawful activities. Because electronic wallets always create a physical trace, there will be less tax evasion, and financial fraud will decrease. When the tax department has access to a log of every commercial transaction, it is more difficult to conceal earnings and avoid taxation.

6.3.2 Drawbacks of cashless economy

A cashless economy has many benefits, but there are also drawbacks. These include identity theft, confidential information leakage, a lack of information protection, and other issues that can cause significant economic losses. Before the traditional cash economy transforms into a modern cashless economy, several concerns must be fully handled. The cashless economy has several problems majorly the protection of private data protection will also be a significant issue, and currently, identity fraud is among the top concerns associated with the digital economy. Internet scams are becoming more common in today's digital economy, and greater usage will undoubtedly raise the risk of cybercrime. The loss of a mobile phone used for electronic transfers increases the risk of identity theft and can be extremely problematic for people traveling overseas or living in places without adequate banking services or other payment choices. (Alex, 2019) Those who have no basic computer literacy may be vulnerable to online scams and bank account hijacking, which could cost them their hard-earned money. They prefer to conduct cash transactions over digital ones because they feel more secure doing so.

Fig.8: Problems that are crypto traders facing in trading



(Source: Encrybit- The future of exchange @ Statista.com)

People who are poor, employed in unorganized industries, and those without bank accounts are especially susceptible and will struggle in digitalization since they have access to digital technology for business transactions but no method to be paid or receive financial assistance. The perception of many customers that they are losing control over their finances as we move toward a digital economy is one of the main concerns. Many consumers are at ease using actual money, whether it be coins or bills. India has a cash-based economy that relies heavily on cash. This makes it challenging to fast transition to digitization due to the low application of E-Systems, digital incompetence, and in-built currency handling habits. Although most urban regions have high-speed internet access, semi-urban and rural areas lack reliable internet access, which exacerbates the issues with a cashless economy. Even with the growing availability of ATMs, Network equipment, and local banks, there is still a sizable urban-rural divide in many regions of India, which must be crossed to successfully implement a cashless economy.

6.4 Awareness regarding the use of cryptocurrencies/ Digital Transactions

Preliminary research was carried out in 2022 to gather information on various elements of cryptocurrencies regarding prove the hypotheses results. To get a complete image from a pragmatic standpoint, the poll sought to gauge the prevalence of cryptocurrency adoption. It investigated the types of digital currencies the respondents used, how frequently they used them, and how they spent them. In addition, the study investigated individuals' trust in using cryptocurrencies at a time when doing so is not entirely monitored and regulated. The poll looked into the individuals' knowledge of the potential of cryptocurrencies. To save respondents' time and entice them to respond, the survey's 15 questions were constructed to be filled in a limited amount of time (5 to 10 mins). And created the questionnaire using the internet survey tool Google Forms, (Rose, 2015) Online distribution was deemed to be the greatest option when choosing distribution methods. This was because it provided a wider audience than alternative channels and was seen to be the most efficient due to its low expenses and rapid completion rates, which then emailed to complete forms to respondents. The study has used percentage analysis and Chis-square for interpretation of outcomes.

Table 3: Participant's information 1

Groups	No.	%
Total Respondents	77	100
Male	35	45.45
Female	42	54.54

Table 4: Participant’s information 2

Groups	No.	%
Between 20 to 30	70	90.09
Between 31 to 40	05	6.50
Between 41 to 50	02	2.6

Table 5: Participant’s information 3

Groups	No.	%
Students	39	50
Professionals	26	34
Self-employed	05	6
Prefer not to say	07	9

6.4.1 Hypotheses:

Ho: There is no association between gender and trusting of digital payments technology

Ha: There is an association between gender and trusting of digital payments technology

Table 6: Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Gender trust on digital payment technology	77	100.0%	0	0.0%	77	100.0%

(Source: IBM SPSS 2022)

Table 7: Gender trust on digital payment technology Cross-tabulation

		Trust on digital payment technology			Total	
		Yes	No	No opinion		
Gender	Male	Count	14	17	4	35
		Expected Count	14.5	14.1	6.4	35.0
		% Within gender	40.0%	48.6%	11.4%	100.0%
	Female	Count	18	14	10	42
		Expected Count	17.5	16.9	7.6	42.0
		% Within gender	42.9%	33.3%	23.8%	100.0%
Total		Count	32	31	14	77
		Expected Count	32.0	31.0	14.0	77.0
		% Within gender	41.6%	40.3%	18.2%	100.0%

(Source: IBM SPSS 2022)

Table 8: Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.748 ^a	2	.253
Likelihood Ratio	2.811	2	.245
Linear-by-Linear Association	.315	1	.575
No of Valid Cases	77		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.36.
 b. (.0253>0.05)

(Source: IBM SPSS 2022)

Conclusion: the calculated Pearson’s Chi-square value is 2.758 and corresponding value is 0.253 which lies above the significance level of 0.05 ($0.253 > 0.05$). Hence the null hypothesis (H_0) accepted.

6.4.2 Hypotheses:

H₀: There is no association between Gender and the opinion to split the digital currency according to locations for raising awareness

H_a: There is an association between Gender and the opinion to split the digital currency according to locations for raising awareness

Table 9: Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Gender and the opinion to split the crypto currencies/payments according to locations for raising awareness	77	100.0%	0	0.0%	77	100.0%

(Source: IBM SPSS 2022)

Table 10: Gender the opinion to split the crypto currencies/payments according to locations for raising awareness
Cross-tabulation

			opinion split based on the geographical location			Total
			Yes	No	No Opinion	
Gender	Male	Count	19	13	3	35
		Expected Count	18.2	12.3	4.5	35.0
		% Within gender	54.3%	37.1%	8.6%	100.0%
Female	Count	21	14	7	42	
	Expected Count	21.8	14.7	5.5	42.0	
	% Within gender	50.0%	33.3%	16.7%	100.0%	
Total		Count	40	27	10	77
		Expected Count	40.0	27.0	10.0	77.0
		% Within gender	51.9%	35.1%	13.0%	100.0%

(Source: IBM SPSS 2022)

Table 11: Chi-square tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.110 ^a	2	.574
Likelihood Ratio	1.146	2	.564
Linear-by-Linear Association	.581	1	.446
N of Valid Cases	77		
a. 1 cell (16.7%) have expected count less than 5. The minimum expected count is 4.55.			
b. ($0.574 > 0.05$)			

(Source: IBM SPSS 2022)

Conclusion: the calculated Pearson’s Chi-square value is 1.110 and corresponding value is 0.574 which lies above the significance level of 0.05 ($0.574 > 0.05$). Hence the null hypothesis (H_0) accepted.

7. FINDINGS

- Out of 77 respondents, 45.45% of respondents were male and 54.54% were female respondents.
- Concerning to the nature of work, 50% of respondents are belong to students or academicians' group, 34% of respondents are professionals, 6% are self-employed category and 9% of respondents not willing to disclose.
- Most of the respondents belongs to 20 to 30 age group is about 90.9%.
- Out of 77 respondents, about 80.5% are well aware of cryptocurrencies.
- About 15.6% of the respondents said they are willing to invest in cryptocurrencies.
- About 35.1% of the respondent said that nature of bitcoin is extremely volatile, 23.4% said as a profit-making tool of many, 25% said it's not so authentic in nature of transacting, 14.3% said as predominant currency.
- 40.3% of the respondent said age groups doesn't matter for holding a cryptocurrency, 42.9% said age groups decides the holdings of cryptocurrency.
- 88.3% of the responded said that financial knowledge is required for transacting cryptocurrencies.
- 41.6% of the responded said that cryptocurrency technologies are trustworthy for online transactions and about 40% said they're not trustworthy.
- 89.6% of the people are well known of bitcoin, 17% are known USD Coin and remaining are aware of Ethereum, Tether and other.

8. SUGGESTIONS

- ❖ The Indian economy is modernizing and progressively shifting away from a cash-based economy toward a cashless, digitized one. Digital operations are easily taxed and detectable, which is opening the road for the eradication of black money circulation. Eliminating the underground or black markets, which frequently hurt economic systems so, digitalization is the potential solution.
- ❖ To prevent fraud and damage, the protective component must be strengthened hence, much trustworthy application needs to implement to get the trust of the users.
- ❖ To boost awareness, complexity needs to be clarified and literacy levels need to be raised. Many government applications need to be implemented in attachment to the payment system in order to assure the negotiation of the transactions.
- ❖ To encourage and provide a road for cryptocurrency investment, governmental regulations and requirements should be presented in an informative form.
- ❖ Cryptocurrencies have the potential to significantly improve financial inclusion for both individuals and businesses in developing nations. Cross-border payments can be made better, particularly by lowering transaction costs and time so, respected authorities need to implement maintaining accuracy and awaited measures.
- ❖ Currently, there are relatively few ways that cryptocurrencies help underdeveloped nations with their economic progress. The adoption of cryptocurrencies, the price stability that results from them, and future development all largely rely on these factors.
- ❖ Bitcoin and other cryptocurrency-related technological advancements may stimulate productive and innovative payment methods and other applications.

9. CONCLUSION

Concerning other industrialized nations, India is still highly underdeveloped when it comes to the use of digital payment systems. While many nations have advanced their electronic payment systems, India is still in its early stages. The majority of the population is still reliant on cash transactions due to a lack of reliable internet connectivity, a lack of insight and understanding of financial transactions, fees associated with card transactions, and inoperative bank statements. India must develop new regulations for online commerce. Bitcoin in its current form consequently cannot be expected to create meaningful competition for authorized currencies in their recognized arena, although highlighting the absence of competition in some payments sectors and possibly assisting competitiveness by promoting innovation in payment services.

Its architecture suggests long-term instability, which makes it unsuitable for use as a monetary unit, payment method, or brand value in the market. It is advised that the government support its agencies and private enterprise network operators to greatly enhance the dissemination of financial education, particularly in rural areas. The government could offer additional rewards or interest rates on funds saved in bank accounts as well as additional benefits on electronic money payments. In addition, there should be temporary reductions in fees for digital transactions or a complete exemption from digital banking for the first few years. This will assist India's transition to digital transactions to proceed more quickly.

Conflicts of Interest

The authors declare that they have no conflicts of interest regarding this paper.

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