# A Study on the Awareness and Adoption of Cryptocurrency on an International Scale

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## DECLARATION BY STUDENT

I hereby declare that the data presented in this dissertation report entitled, "A Study on the Awareness and Adoption of Cryptocurrency on an International Scale" is based on the results of investigations carried out by me in the (MBA Financial Services) at the Goa Business School, Goa University under the Mentorship of Dr. Pinky Pawaskar and the same has not been submitted elsewhere for the award of a degree or diploma by me. Further, I understand that Goa University or its authorities will not be responsible for the correctness of observations / experimental or other findings given the dissertation.

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## COMPLETION CERTIFICATE

This is to certify that the dissertation report **"**A Study on the Awareness and Adoption of Cryptocurrency on an International Scale**"** is a bonafide work carried out by **Mr Quentin Hansie D'Mello** under my supervision/mentorship in partial fulfilment of the requirements for the award of the degree of **(MBA in Financial Services)** in the Discipline MBA in Financial Services at the Goa Business School, Goa University.

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# A Study on the Awareness and Adoption of Cryptocurrency on an International Scale

## 1. Introduction

In the early stages of society money as a concept did not exist. Most people during that time acquired goods from one another using a concept called the barter system in which people would exchange one item for another. This meant that if one person wanted a certain amount of rice, they could trade an equivalent value of a different item like wheat for that rice.

However, the main issue with this system was that people could not reach a common consensus regarding what amount of a particular item was equivalent to an amount of an item being exchanged. To combat this issue currency was introduced. More specifically, coins. Since these coins were made of precious metals like gold and silver, people accepted that these coins were worth something and had some value as the coins could be accepted by one person who can then trade this coin with someone else and as such became popular.

As society got more evolved and banks became more established and Governments started getting control, people realized that if there was trust in the system, they could move away from carrying blocks of precious metals and start carrying more convenient paper notes instead. The paper money worked the same way but instead of the money having value because it's made of a precious metal, the notes had value because the Government said it does. If one looks closely as a standard note all it is, is a paper receipt that promises to pay the holder of that receipt a particular amount of money.

Today, we have gone one step further than this. Most transactions that are carried out are in a digital format. In essence financial transactions nowadays are nothing but entries on a spreadsheet. As such we don't even see our money anymore, which ultimately brings us to the next stage in the evolution of currency and that is cryptocurrency.

This concept of using cryptocurrency and more specifically bitcoin as a currency was first proposed in a research paper published in 2008 by an anonymous author known as Satoshi Nakamoto called, 'Bitcoin: A Peer-to-Peer Electronic Cash System'. (**Nakamoto**, **2008**) The main advantages of bitcoin as a cryptocurrency are that it is a decentralized currency. This means that a single ledger is used to keep track of all transactions made using this currency, however, a copy of this ledger is maintained and kept track of by millions of people all around the world. These individuals are known as bitcoin miners. Along with this another advantage of cryptocurrency is that it is completely encrypted by a process called cryptography. In the case of Bitcoin, blockchain is used as a secure type of ledger.

"Cryptocurrency is simple and attractive as it is used globally thereby making different nation currency transactions easy and hassle free." **(Yousuf Javed et al., 2020)** As such, it is important to understand the current level of awareness of cryptocurrency around the world to ascertain whether society is ready to make the next step towards the age of completely encrypted digitalization.

## 2. Literature Review

As stated earlier, the concept of cryptocurrency has been around since the early years of the 21st century when **(Nakamoto, 2008)** published his paper on using cryptocurrencies like bitcoin to make secure peer to peer transactions without the involvement of banks. However, it has only been in the last 6 years that cryptocurrency has become a mainstream topic of discussion. Due to the rising popularity of cryptocurrency, study was conducted by **(Al-Nefaie & Aldhyani, 2022)** to determine and predict the

future value of bitcoin to help investors take more informed decisions. **(Jalan et al., 2022)** authored a paper that talks about analyzing the demand elasticity of Bitcoin and Ethereum in terms of price, transaction fees and energy usage. **(Benhamed et al., 2023)** talks about analyzing the factors that determine price fluctuations and volatility using the Gets reduction method. **(Chen et al., 2022)** conducted a study that looked at the factors that influence the adoption of cryptocurrency in Malaysia, considering variables like social influence, transparency, attitude, traceability etc. However, on the other end of the spectrum, **(Mashatan et al., 2022)** conducted a study that looked at how a lack of central authority and a lack of adequate regulations may cause security and privacy concerns among potential investors in cryptocurrency. This was also corroborated by **(Yousuf Javed et al., 2020)** whose paper talks about how cyber threats, criminal activities, lack of any governing authority, volatility etc. are some of the main issues due to which people are less inclined to utilize cryptocurrency as a means of payment.

In 2014, **(Glaser et al., 2014)** published a paper that tried to address whether investors in cryptocurrency viewed it as an asset or as a currency. The conclusion drawn by this study noted that investors generally viewed cryptocurrency as an asset to invest in and later sell when the value increases, rather than utilize cryptocurrency for the purpose of purchasing goods and services. However, the earliest evidence of cryptocurrency being used as a means of payment occurred in 2010 when a programmer by the name Laszlo Hanyecez purchased two pizzas from the pizza chain 'Papa John's' for 10,000 Bitcoins which he had mined and at the time was worth around 30 dollars. Therefore, there is real world proof of cryptocurrency being used as a currency and as a means of payment for goods and services.

A study was conducted by **(Sharma et al., 2021)** which looked at the awareness rate of cryptocurrency among different countries around the world during the period from February 2018 to February 2019. The research paper concluded that developed countries are well aware and have integrated cryptocurrency well into its society whereas, "Developing countries are lagging behind compared to their developed counterparts.

I am contributing to the research gap to extend the scope of the study conducted by **(Sharma et al., 2021)** by looking at the awareness of cryptocurrency among developed and developing countries around the world during the period from January 2019 to January 2022 in order to understand whether the conclusions drawn still stand true today. Along with this, a study is being done on the countries that have a low awareness or adoption rate of cryptocurrency to understand the reasons behind it. This time frame has been chosen as these were the years during which investment and awareness of cryptocurrency was at its peak across multiple news and social media platforms and adoption was at an all-time high.

## 3. Methodology

The present study aims to conduct an in-depth analysis of the awareness and adoption rate of cryptocurrency among developed and developing countries and to draw conclusions as to why some countries have a higher awareness and adoption rate while some countries do not. For this reason, data was gathered from sources like Google Trend time series data, Google Trend country interest data, Bitcoin node network data and relevant research papers and published reports.

The data has been collected for a time period of 3 years from January 2019 to January 2022 pertaining to 6 developed countries i.e., United States, United Kingdom, Germany, Switzerland, Canada, and Japan as well as 8 developing countries i.e., India, China, Malaysia, Egypt, Mexico, Saudi Arabia, Brazil and Ecuador. The details about the dataset being used are stated below.

- Google Trend Time Series

  This database is owned and controlled by Google LLC and publishes data that shows the number of google searches being made about a particular search term over a period of time. Data acquired is normalized for each country between 0 and 100 in order to make analysis of data more coherent. The search term that have been looked at are 'cryptocurrency' and 'bitcoin'. (source: trends.google.com)

- Google Trend Country Interest

  This database is owned and controlled by Google LLC and publishes data of number of search queries of a particular term segregated on a country wise basis. Data acquired in normalized for each country between 0 and 100 in order to make analysis of data more coherent. The countries that have been looked at for the purpose of acquiring this data are, United States, United Kingdom, Germany, Switzerland, Canada, Japan, India, China, Ukraine, South Africa, Malaysia, Egypt, Mexico, Saudi Arabia, Brazil, and Ecuador. (source: trends.google.com)

- Bitcoin Node Network Data

  Bitcoin nodes are computers that act as servers connected to the bitcoin network in order to help validate transactions. As such, these nodes can be used to estimate the size of a bitcoin network in a particular country. (source: bitnodes.io)

- Along with these databases other relevant research papers and news articles have been used to acquire information.

## 4. Analysis and Discussion

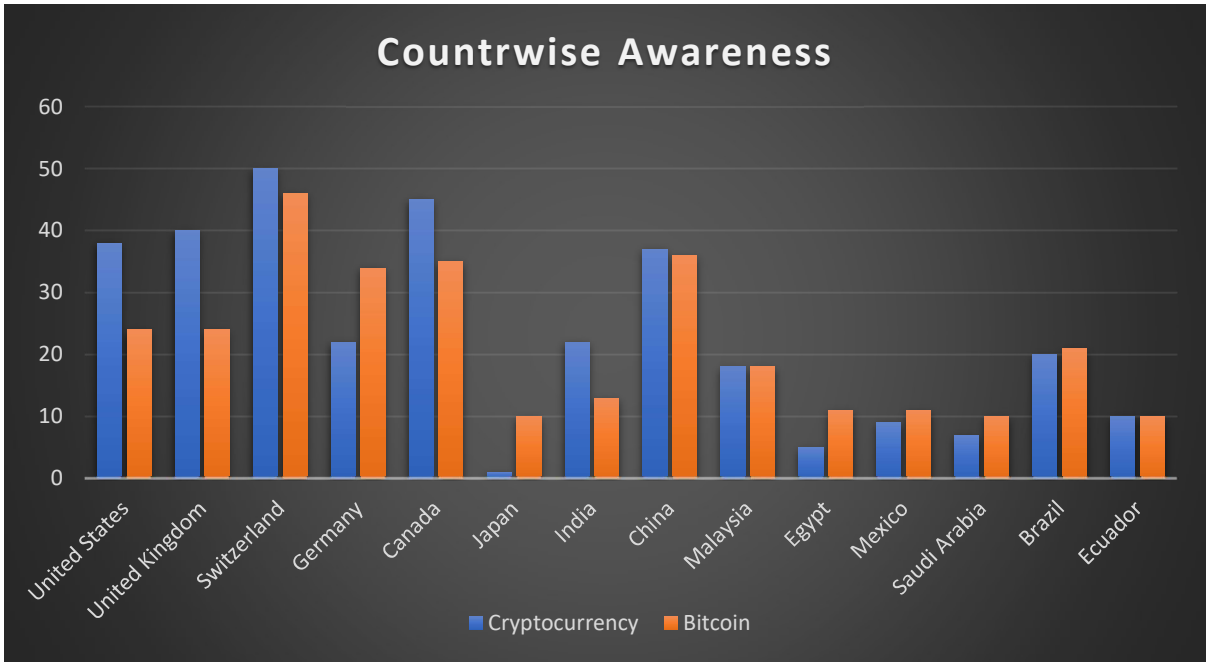
### *4.1 Awareness of Cryptocurrency*

Cryptocurrency has taken the world by storm and different counties have become more interested in this new form of currency as many see it as a way to bypass traditional financial systems and middlemen that are typically involved in financial transactions. With this boom in awareness and adoption countries have started accepting cryptocurrency in different ways for the purpose of taxation.

For example, in the United States and in the United Kingdom, cryptocurrency is taxed as a property or a digital asset and as such, is subject to long term or short-term capital gains tax. (source: How Is Crypto Taxed? Here's What You Need To Know (cnbc.com)). In India, cryptocurrency is not regulated but it is taxed in the form of taxable income. (source: Cryptocurrency Tax In India – Forbes Advisor INDIA). In China the use of cryptocurrency for the purpose of mining or trading is outwrite banned. However, in countries like Germany and Switzerland, crypto tax laws are quite lenient and therefore attract greater investment.

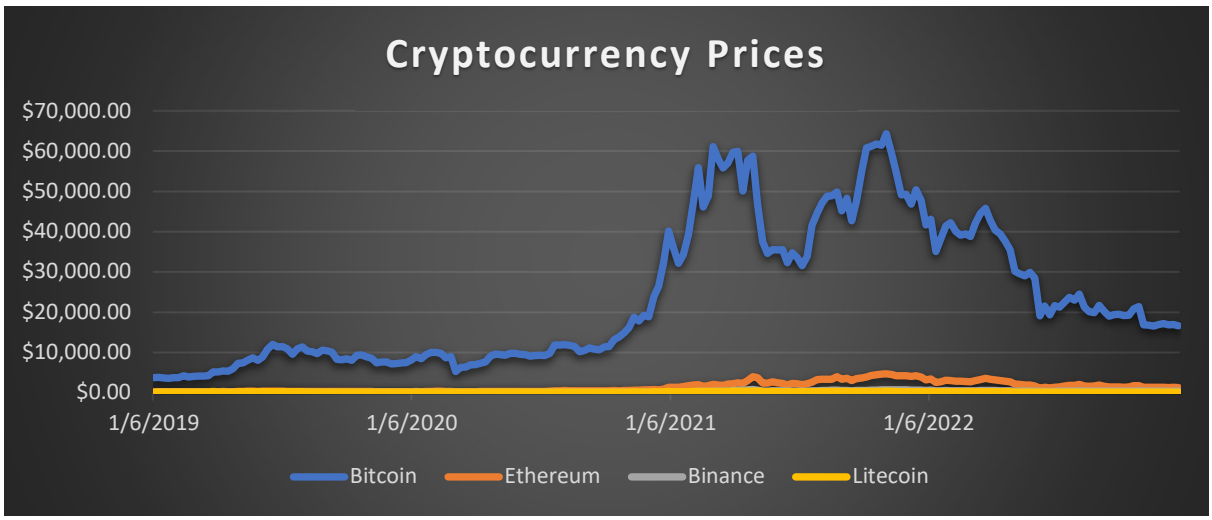
However, when talking about awareness many countries use the terms 'bitcoin' and 'cryptocurrency' interchangeably. This is because, Bitcoin is the most popular cryptocurrency compared to its peers like Ethereum, Dogecoin etc. In fact, when analyzing the search queries of different countries, it is noticed that 'Bitcoin' is a more popular term than 'cryptocurrency' as a whole. **(See Figure 1)**.

**Figure 1**: Country wise interest in Bitcoin and Cryptocurrency.



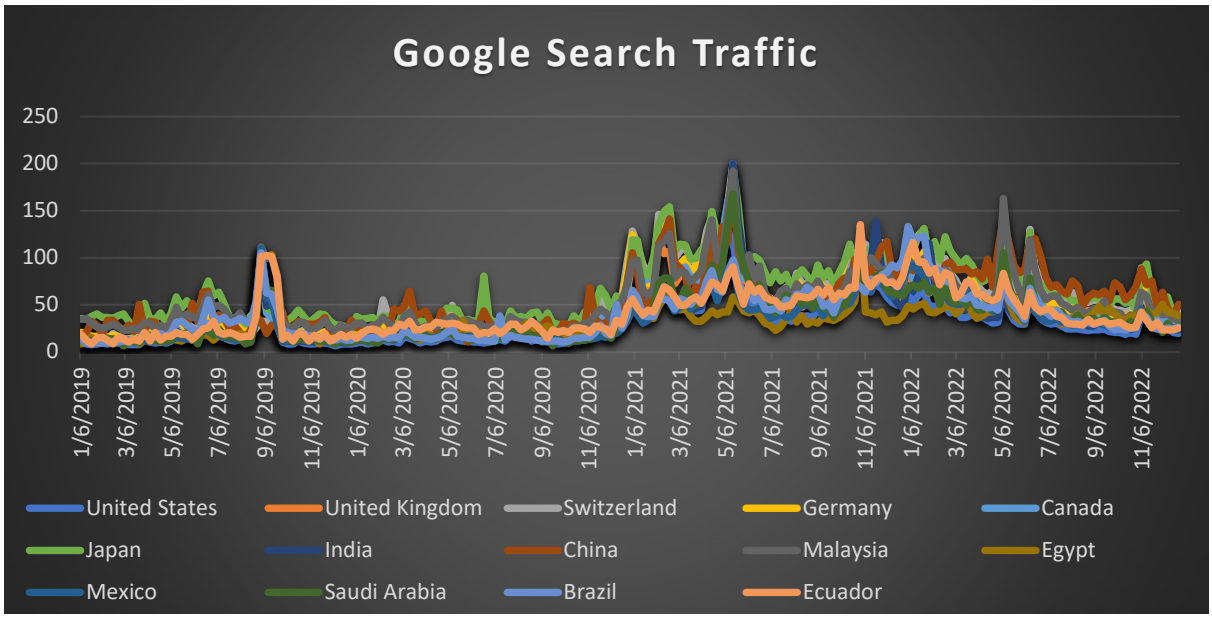

This very high awareness of bitcoin could be attributed to the fact that bitcoin is the flagship cryptocurrency and holds the highest weightage in terms of its price and market capitalization **(See Figure 2)** when compared to different types of cryptocurrencies and because when talking about cryptocurrency, most news outlets and reports use bitcoin as a form of reference.

**Figure 2**: Price movement of popular cryptocurrencies.




No tangible and standard metric to calculate awareness of cryptocurrency exists as of now but as stated by **(Darlington, 2014)** Google Trends data can be used to give an approximation of the relative interest a country has in a particular topic. This information was also corroborated by **(Sharma et al., 2021)** who talked about how the term 'bitcoin' has become more publicized than the term 'cryptocurrency' and therefore, in order to truly understand and study the awareness level of cryptocurrency one should look at search queries related to 'bitcoin' in addition to 'cryptocurrency'.

**Figure 3**: Google search traffic of Cryptocurrency and Bitcoin




(**Figure 3)** depicts the google search volume of both cryptocurrency and bitcoin on a country-wise basis. From this we can see that of the 6 developed countries namely, United States, United Kingdom, Switzerland, Germany, Canada, and Japan, only Japan seems to have a low awareness rate. Similarly, from the 10 developing countries chosen for the purpose of this study, it was observed that only 5 countries had a high awareness of cryptocurrency and bitcoin. These were, India, China, Ukraine, South Africa, and Malaysia. (**See Figure 1**). The remaining five countries had a lower level of awareness, the reasons for which will be discussed later.

*4.1.1 Developed countries having a high aware and high adoption rate of cryptocurrency.*

As mentioned earlier, countries like Switzerland and Germany generally attract investment in cryptocurrency due to the lower taxation charged by the countries. Switzerland does not charge any capital gains tax on cryptocurrency profits which is one of the reasons why there is a huge boom in the adoption of cryptocurrency. This could be why Switzerland is generally viewed as a hub for cryptocurrency innovation.

In Germany, cryptocurrency that is sold after being held for more than a year is exempt from any taxation. However, for cryptocurrency being sold within 12 months if the value of profit earned is greater than 600 Euros only, then will it be subject to some taxation. If it is less than the prescribed value no tax is being charged on the gain made by the investor. Countries like USA, UK and Canada are well developed countries and view cryptocurrency as the future and an investment opportunity or as a medium of exchange due to the benefits it brings such as the potential for high returns, decentralization, security and advancements in technology.

*4.1.2 Developing Countries having a high awareness and high adoption rate of cryptocurrency.*

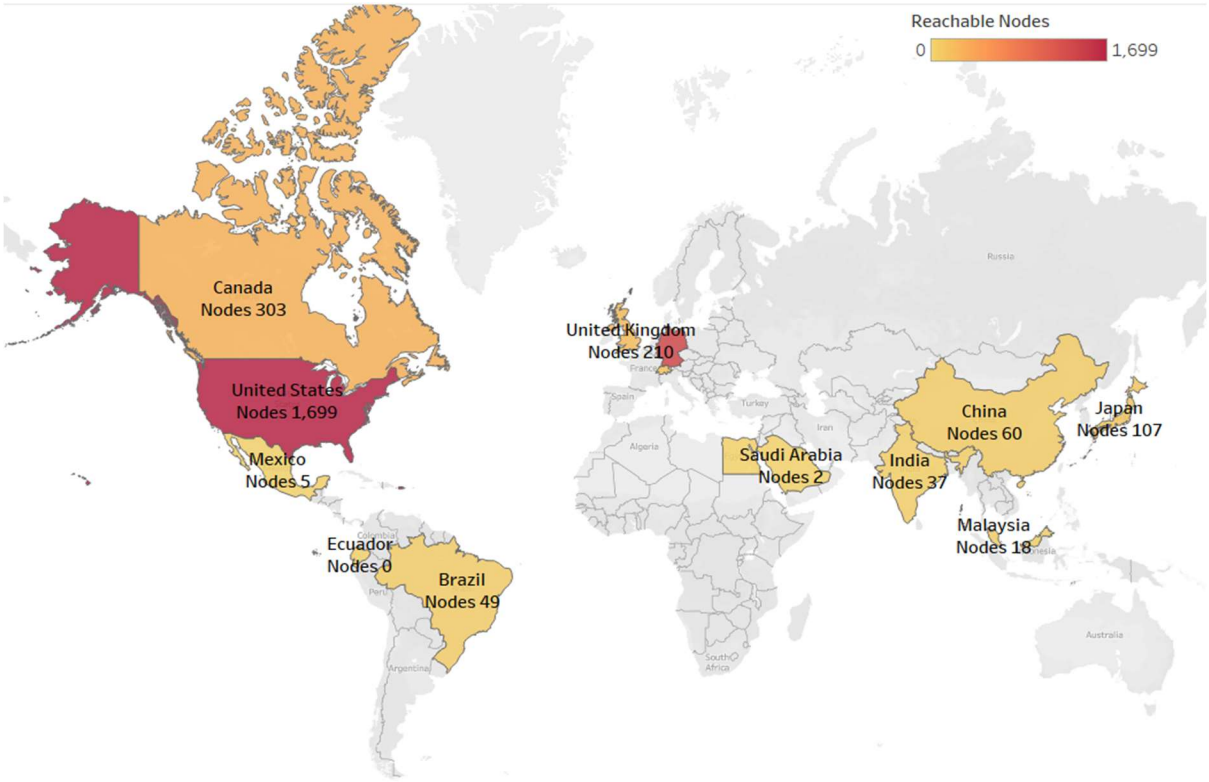
As per the data collected a developing country like Brazil has stood out as a country having a relatively high awareness of cryptocurrency **(See Figure 1 and Figure 3)** as well as a relatively high adoption rate of cryptocurrency **(See Figure 4)**. This could be attributed to the fact that unlike most

other governments, the Brazilian government seems to wholeheartedly accept the use of cryptocurrency for the purpose of investment and trading. In fact, the former president of Brazil Jair Bolsonaro signed the country's first framework for cryptocurrency which also included ground rules for brokerages that offer crypto as well as other assets on a day-to-day basis. (source: Brazil Gets Crypto-Trading Ground Rules as Bolsonaro Signs Law - Bloomberg) This goes a long way in making the general public more comfortable with the adoption of cryptocurrency and is one of the reasons why Brazil has a relatively high adoption rate of cryptocurrency when compared to other developing countries.

*4.2 Adoption of Cryptocurrency*

Google Trend searches can give us an estimation of the relative awareness of cryptocurrency of different countries around the world however, this data dosent necessarily tell us what the actual adoption rate of this cryptocurrency is. Fortunately, cryptocurrency being open source in nature gives us access to information which makes it easier to understand country wise adoption rate of cryptocurrency through Bitcoin nodes. Bitcoin Nodes are computers that connect to the bitcoin network that can be used to verify transactions and relay information about different transactions being done on the bitcoin network. As such accessing this Bitcoin node data will give us a fair estimation of the relative size of a bitcoin network in a particular country. **(See Figure 4)**

**Figure 4**: Map of reachable bitcoin nodes of concerned countries




*4.2.1 Developed countries having a high awareness but low adoption rate of Cryptocurrency.*

As we can see, most of the developed countries that had a high awareness rate like United States, United Kingdom, Germany, Switzerland, and Canada, also have a high adoption rate as

corroborated by the Bitcoin node data. However, Japan still has a lower adoption rate of cryptocurrency when compared to its peers. The reason behind this could be attributed to the fact that investment in cryptocurrency in Japan is generally linked to individuals below 30 years of age according to a study conducted by **(Fujiki, 2020)** and Japan has been at the forefront of a population shrinkage problem in the last decade owing to a declining birth rate. This may halt the progress of cryptocurrency adoption in Japan in the long run.

In the short term, there is still hope in the increased adoption of cryptocurrency, as on 28th April 2021 a major Tokyo based video game company called Nexon announced the purchase of 1,717 bitcoins worth approximately 100 million dollars. (source: Nexon Purchases $100 Million Worth of Bitcoin (irpocket.com)) Seeing a large company like Nexon invest in cryptocurrency might spur the population to increase its adoption of cryptocurrency.

However, on the flip side, an anticipation of more stringent regulations on the investment and trade of cryptocurrency are making it a less than desirable for people to adopt cryptocurrency in Japan. The effect of this can already be seen in VALU a blockchain based social media network that wound up its operation in Japan due to the stringent regulation of cryptocurrency being proposed in Japan.

*4.2.2 Developing Countries having a high awareness but low adoption rate of Cryptocurrency.*

When talking about developing countries, and by comparing the data from figure 1 and figure 4, we can see that some countries like India and Malaysia have a very high awareness rate of cryptocurrency, but actual adoption and use of crypto is not very high. This could be due to a multitude of factors like a lack of central authority, lack of adequate regulations and uncertainty about the legality of cryptocurrency that may cause security and privacy concerns among potential investors in cryptocurrency.

For instance, the major reasons why cryptocurrency adoption is low even though the people who would be the most viable for investment are quite aware of the mechanism behind cryptocurrency, is that, firstly, there is no governing authority on cryptocurrency which makes it a very risky investment for the common man. Secondly, even though most people are aware about how cryptocurrency works, practical knowledge and understanding of how to make use of the complex algorithms to mine bitcoin may not be something that most people are willing to do. Thirdly, cryptocurrency is seen to be far too volatile for most people to invest in, which is why people generally stay away from investing in cryptocurrency.

**(Yousuf Javed et al., 2020)** published a paper where he proposed various recommendations to help increase the adoption of cryptocurrency in India like, having a proper platform for the management of bitcoin and conducting secure transactions, having a government regulatory body like SEBI is for stock markets in order to increase the trust of people in cryptocurrency, and also having a cyber division that strictly caters to cryptocurrency cybercrimes which are in abundance nowadays.

Similarly, countries like Malaysia also have a very high awareness level of cryptocurrency but a low level of adoption. This is looked at in more detail by **(Chen et al., 2022)** who conducted a study on how factors like social influence, transparency, traceability, price value and attitude affected the awareness and adoption of cryptocurrency among the people.

In China, cryptocurrency awareness is high, but adoption is quite low due to the fact that in 2017, the Chinese government banned any Initial Coin Offerings (ICO's) and in 2019, has outwrite banned crypto exchanges and mining of cryptocurrency for the purpose of investment or trading. However, the Chinese government still hasn't imposed any official ban or any restrictions on the running of bitcoin node networks, which is why the data still shows active bitcoin nodes in China.

*4.2.3 Developing countries having a low awareness and a low adoption rate of Cryptocurrency.*

Developing countries like Mexico, Saudi Arabia, and Egypt as per the data collected suggests that they have a low awareness of cryptocurrency and also a low adoption rate compared to others. The reasons why could be as follows.

As per a paper published by **(Kalman & Reyes, 2016)** Mexico has a very low literacy rate and an even lower financial literacy rate owing to poverty, limited access to education and language barriers. As stated by **(Alomari & Abdullah, 2023)** and **(Kobayashi & Yamamoto, 2020)** there is a strong linkage between literacy rate of a country and cryptocurrency adoption. It could be due to this reason that the population of Mexico may not understand how cryptocurrency works or the potential benefits it may offer leading to a low awareness and adoption rate. Furthermore, as per **(Delva & Torres, 2022)** regulations are not very clear and laws are lacking making investment in cryptocurrency as risky business.

Countries like Saudi Arabia and Egypt have various cultural and religious factors associated with the investment and trading of cryptocurrency which could explain why the awareness and adoption rate of cryptocurrency in these countries is low. The primary Islamic advisory body of Egypt, Dar al-Ifta issued a religious decree in 2018 classifying all Bitcoin transactions as "haram," or something prohibited under Islamic law (source: Bitcoin ban: These are the countries where crypto is restricted or illegal | Euronews). Furthermore, in Egypt, economic instability has led to the devaluation of its currency, the Egyptian Pound which may have dissuaded people from investing in volatile cryptocurrencies.

The situation of cryptocurrency in Ecuador is an interesting one as the government of Ecuador had completely banned the use of cryptocurrency way back in 2014. The very next year, Ecuador became the first country to introduce its own digital cash (source: Ecuador becomes the first country to roll out its own digital durrency (cnbc.com) called Dinero Electronico, however official figures show over 70% of the amount remains unused. This uncertainty coupled with the fact that Ecuador has very limited access to infrastructure which would enable the buying and selling of cryptocurrency could be some of the reasons for the low awareness and adoption of cryptocurrency.

## 5. Conclusion

After conducting thorough research on the awareness and adoption of crypto currencyusing google search query data to understand the awareness of cryptocurrency and bitcoin node connections to understand the adoption rate of cryptocurrency it can be concluded that most countries fall under one of the three categories.

These categories are, countries that are aware of cryptocurrency and have a large adoption rate of cryptocurrency. This category generally includes developed countries like Switzerland, Germany, United States, United Kingdom, and Canada and also includes developing countries like Brazil as well.

The second category talks about countries that are aware of cryptocurrencies but have not yet adopted them completely due to various situations like instability, high volatility, lack of understanding etc. in countries like India, China, and Malaysia as well as developed countries like Japan. The third category talks about those countries that have a low awareness of cryptocurrency and at the same time have a low adoption rate. This includes developing countries like Egypt, Saudi Arabia, Ecuador, and Mexico.

This report generally talks about how there is a lack of understanding about cryptocurrency and the potential benefits it can provide with regards to some of the countries that have a lower awareness and adoption of cryptocurrency but also talks about how in the future this will likely not be the case anymore. (Sharma et al., 2021) talks about how developing countries are lagging behind their developed counterparts but that's not as true a case anymore as most developing countries are catching up to the developed countries as more people gain a better understanding of cryptocurrency and governments create more stable reforms to regulate this cryptocurrency.

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