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The Use of the Bitcoin System in Argentina to Address Market and Public Institutional Failures

Abstract

This paper focuses on the emergence of Bitcoin and Blockchain technology in Argentina. Cryptocurrencies' current perception in the developed world are centered around criminal activities, speculation, and digital revolution. However, I focus on how these technologies became popular in Argentina due to the country's failure to implement stable public and market institutions over time and how cryptocurrencies can address the many woes of failed economic policies. I also examine the future of Bitcoin in Argentina under a newer government regime that expands financial freedoms.

I. Bitcoin and Blockchain Technology

What is Bitcoin?

Bitcoin was born out of a white paper published in 2008 by pseudonymous Satoshi Nakamoto shortly following the collapse of Lehman Brothers. Nakamoto called for the creation of a "decentralized, convertible virtual currency" that would address several inherent flaws in the current global financial system (Moreno). This currency would not be backed by a government or a commodity and would instead be built on cryptography, therefore eliminating the need for an intermediate party (central banks and financial institutions) to facilitate transactions. Bitcoins are digital currencies that "can be moved between parties, has market value in terms of major national currencies, and is sporadically used in exchange for real world goods and services." (Scott) The total number of bitcoins that can ever be produced is capped at 21 million. So, because the supply of bitcoins will be fixed once it reaches 21 million and the supply growth rate decreases over time, most of bitcoin's price comes from market demand. Its decentralized nature and limited supply is similar to the use of gold and other precious metals.

How does Blockchain technology work?

Bitcoin functions using blockchain technology. Whenever there is a transaction, the payment is recorded on a public register known as the blockchain. This ensures transparency as everyone on the network can see and verify the transaction, but preserves anonymity as no one can see who is actually behind the transactions. Each legitimate transaction is broadcasted out through the peer-to-peer network and is then verified by a decentralized network of miners rather than a single institution. The process through which this happens is known as bitcoin mining. Miners listen for these broadcasted transactions on the network and then proceed to "perform tasks to process and confirm these transactions" using their computer's processing power and appropriate computer software (Bitcoin.org). Miners "earn transaction fees paid by users for faster transaction processing, and newly created bitcoins issued into existence" which means that incentives are designed into the way that transactions are verified (Bitcoin.org). To ensure that fraud and double spending do not occur, new transactions "need to be included in a block along with a mathematical proof of work" in order to be confirmed and this "proof of work is designed to depend on the

previous block to force a chronological order in the block chain." (Bitcoin.org) This makes it incredibly difficult to reverse previous transactions because that would require the fraudulent miner to recalculate the proofs of work on the blocks that come after it. Once these transactions are added onto the public database, they are assigned a code specific to that payment, so that it is impossible to ever fake a payment (Moreno). The precise technology and cryptologic techniques associated with blockchain become much more complicated but these are the basic concepts behind it.

What are the advantages associated with Bitcoin?

Bitcoin allows its users to conduct payments anywhere in the world at any time. Because of the elimination of a central intermediate party, there are little to no transaction fees for engaging in the use of bitcoins. This greatly facilitates not only large payments but also micropayments that were previously too expensive relative to the size of the payment to undertake; a very large and very small transaction will have similar transaction fees. This gives bitcoin a distinct advantage over other money transfer businesses, PayPal, and credit-card processing companies. There are also reduced risks in engaging in transactions because customers' and merchants' information is not used, rendering them practically anonymous. These payments are also thoroughly secured and verified through the use of the open network. Therefore, "merchants can [now] easily expand to new markets where either credit cards are not available or fraud rates are unacceptably high." (Bitcoin.org) Even though users of bitcoin cannot be identified, their transactions are still contained publicly on the blockchain, promoting transparency. One last important characteristic is "its resistance from being centrally manipulated" (Clegg). Because the system is decentralized, it can only be changed if 51% of the entire network agrees to do so. Thus, Bitcoin is almost impossible to be manipulated by a single person or group of people, whereas a fiat currency can be manipulated by an irresponsible government or central bank. And since the supply of Bitcoin is capped at 21 million, the value of bitcoins will never be subject to inflation and can be used by individuals living in countries with high rates of inflation to store their wealth.

What are the risks associated with Bitcoin?

There is much current debate on the intrinsic value of bitcoin and what actually drives its perceived value due to the fact that it is not backed by a central authority or a commodity. As a result, its price greatly fluctuates and demonstrates a high level of volatility in response to various events in the market (DeVries). This diminishes peoples' trust in bitcoin and prevents it from being held for long periods of time, thereby preventing it from becoming more stable. Additionally, because Bitcoin is still an emerging technology, "determinates of bitcoin price have not truly been meted out, which creates an uncertain trading environment" (DeVries). However, as Bitcoin and its technology matures, this volatility is expected to decrease (Bitcoin.org). Another important risk is that the system is vulnerable to security breaches. Although the network itself has not suffered substantial hacks, most of the dangers involving Bitcoin surround the use of "third-party services – like exchanges where you

can buy bitcoins in exchange for fiat currencies - … and hacks of private computers where people have Bitcoin 'wallets,' the software they use to interact with the system" (Scott). For example, a notable hack occurred in 2011 when Mt. Gox, "the world's primary bitcoin exchange at the time" went bankrupt after hackers robbed it of approximately 460 million dollars (DeVries). This theft was due to "security flaws and oversights" (DeVries). These security breaches are the main reason why the value of bitcoins and other cryptocurrencies may face a steep devaluation; people fear their bitcoins will be stolen and proceed to sell it off on the market. Similar to the previous point however, as the Bitcoin system matures, its security measures will improve. Finally, Bitcoin faces several regulatory questions in many countries as it has an unclear legal status. It has been defined as a commodity, digital asset, and a currency, each of which carries its own benefits and disadvantages in terms of regulatory measures, taxes, etc. Bitcoin has been declared illegal in some countries, but for the most part has not been conferred with a clear legal status from most countries.

In what manner is Bitcoin currently being used/portrayed in the eyes of the general public?

One of the most common perceptions of Bitcoin in today's media is its connection to crime. "Many governments associate bitcoin with illegal markets, including drug trading, human trafficking, weapons dealing, and money laundering" (Carlson). Bitcoin is associated with facilitating criminal activities due to its anonymous nature. A substantial point of evidence for this connection came from the 'Silk Road,' an online marketplace in which, before it was shut down, consumers and merchants would use bitcoins to buy illegal goods such as fake IDs, narcotics, and guns. There have also been incidents of criminals that demanded ransom in the form of bitcoins rather than traditional fiat currencies. Additionally, in developed countries, "Bitcoin's image has become associated with speculators, profit-driven entrepreneurs, market-fundamentalist libertarians and technology fetishists" (Scott). These perceptions are quite different from the potential uses of bitcoin and other cryptocurrencies in the developing world, where its technology can be used to target problems in mismanaged economies.

II. Bitcoin in Latin America, Specifically in Argentina

I chose to focus on Bitcoin's emergence in Latin America in order to assess its relation to distrust of central banks, governments, and related financial institutions caused by a history of economic mismanagement and how cryptocurrencies and their technologies can provide solutions to these institutional failures. Distrust in economic policy in Latin America stems mainly from incidents of hyperinflation, capital controls, excessive taxation, corruption and general closing off of the economy to foreign investment. I chose to further narrow my focus on bitcoin in Argentina as these economic issues have been very pronounced in the country particularly in recent decades. Also, Argentina has been known to be a leader of bitcoin in the region for some time and was named the top country on the Bitcoin Market Potential Index (Hileman).

Argentina – Recent Political/Economic History

Argentina is no stranger to mismanagement of economic policy as the country has suffered from several economic meltdowns and crises in the past decades despite an abundance of natural resources and other favorable aspects of the country. There were several bouts of hyperinflation in the latter half of the 20th century but more recently, in 2001, a severe economic crisis affected the country as unemployment rose to 20% and the economy shrunk by a fifth of its size before the crisis. Argentina also "stopped payment on more than $100 billion in debt, [making it] the world's biggest-ever sovereign default" (Marsh). The causes of this crisis are attributed to the unsustainable currency peg to the USD at the time as well as general ineffective economic policies in place. After the default, Argentina was effectively cut off from international capital markets and the Kirchner administration took control of the country and imposed populist interventionist measures that led to and were marked by high inflation rates, high corporate tax rates, high levels of corruption, unsustainable government spending, limited foreign investment, and unpopular capital controls, among other things. President Mauricio Macri took office in 2015 and has since then implemented several reforms that have liberalized the Argentinian economy but it was in the context of the Kirchner administration that Bitcoin and other cryptocurrencies entered the country and gained popularity.

What are the common reasons attributed to the rise of Bitcoin in the Argentine market?

Bitcoin and other related cryptocurrencies step into the Argentine market as a mechanism to circumvent harmful economic policies and address institutional failures. One of bitcoin's main uses is as a currency. However, cryptocurrencies have been too volatile and vulnerable to price risk for it to be used by regular individuals. This is important in understanding why bitcoin could take hold in Argentina. Because of the high inflation in the Argentine peso and the government's subsequent ineffectiveness in curbing the increasing price levels, Argentines began to look for alternative currencies. In the past, whenever there were periods of hyperinflation, Argentines would store their wealth in dollars, Euros, property, etc. but now in the recent decade, individuals could also use bitcoins for the first time to accomplish the same goal. Additionally, as capital controls were put in place, it became increasingly more difficult for Argentines to acquire these traditional forms of alternative currencies which led to a higher usage of bitcoin. Inflation and capital controls are usually the two factors most associated with the entrance and rise of bitcoin in Argentina (Carlson).

How is bitcoin used to address market and institutional failures in Argentina?

The two factors mentioned previously have been overestimated in terms of their effects on the emergence of cryptocurrencies in the country. It is worth noting that inflation on its own does not spur immediate interest in cryptocurrencies; because of Argentina's history of low transparency and ineffectiveness in fiscal and economic policy, this leads average citizens to distrust the country's financial institutions. For example, Argentina's national statistics were repeatedly manipulated throughout the Kirchner administrations and the independence of the central bank was also called into question. In terms of market

trustworthiness and confidence, Argentina is currently ranked 126 out of 140 countries (Schwab). Therefore, it is the distrust in the country's institutions coupled with high inflation rates that makes the population more conducive to the use of bitcoin (Carlson). As a result, individuals seek to protect their wealth not just from inflation but also from the "kleptocratic tendencies of the government" (Lee). "Less than half of the Argentine population uses credit cards and banks … even wealthy Argentines fear keeping their money in the country's banks" (Popper). Furthermore, although capital controls severely limited Argentines' ability to trade and conduct transactions with people outside the country, bitcoin's popularity is geared more towards addressing the flaws in a government that has spent several decades impeding economic growth by isolating the country from the rest of the world. So, the issues of inflation and capital controls are symptoms of a much bigger problem of Argentina's history of financial suppression and it is these issues that have allowed interest in bitcoin to grow. Because bitcoin is a decentralized network that functions across the globe, it is "free from any exchange manipulation" and therefore free from the abuses and "arbitrary rules" of the Argentine government (Lee). Other notable factors that have created a more favorable environment for bitcoin in Argentina include: high tax levels and therefore high tax evasion as well as distrust in the government's high levels of corruption. Argentina currently ranks as 96 out of 176 on Transparency International's Corruption Perception Index (Transparency International); Bitcoin addresses corruption through its use of the public ledger that promotes transparency.

How is Bitcoin used in Argentina and how is that different from the way it is used in developed economies?

Although the usage of bitcoin in Argentina has gained renown, "the number of Bitcoin users in Argentina is relatively small; it barely registers on most charts of global Bitcoin usage" (Popper). The reason for the spotlight on Argentina and its relation to Bitcoin is that it is the first and only country in which cryptocurrencies are used by regular people for everyday transactions. Although several large multinational corporations from developed regions have begun accepting bitcoin as payments, it is not popular to do so because the financial systems there already run smoothly and thus, there is no reason for regular individuals to experiment with a risky technology to complete the transaction when they can just use their credit card. On the contrary, "use of bitcoin [in Argentina] doubled between mid-2014 and mid-2015, primarily among small businesses" - even though there were no significant changes to the policy regarding capital controls during this time - and it is estimated that in the beginning of 2016, approximately $70,000 to $80,000 in bitcoin was being traded every day (Jeffreys). Wences Cesares, the founder of Xapo - a company that facilitates transactions in bitcoin - and a fervent supporter of bitcoin, stated that bitcoin is used by regular individuals who "do not know technology [and] are not financially savvy. They are using bitcoin not because they think it is cool or glamorous but because it solves a problem" which further highlights the difference in bitcoin usage in developed vs developing regions (Moreno). Additionally, Buenos Aires is home to a vibrant Bitcoin and cryptocurrency ecosystem with many startups operating out of the "Bitcoin Embassy" in the city; BitPagos, "the best-known Bitcoin startup in

Argentina … is helping more than 200 hotels, both cheap and boutique, take credit card payments from foreign tourists" (Popper). At the beginning of 2016, Buenos Aires boasted 145 different places that accepted bitcoin, whereas New York only had 87 (Jeffreys). Taringa!, the largest social network in the country, also allows users to exchange payments in bitcoin. Another example of bitcoin being used in a regular transaction in Argentina, is a recent initiative that allows Buenos Aires's community of organic farmers to engage on an online marketplace to sell their goods. Although selling online was the most effective way to reach a larger pool of customers, small farmers were previously hindered by the exorbitant fees that occurred when using credit cards and PayPal to process payments. In these transactions, Bitcoin reduces costs, eliminates bureaucracy, increases financial inclusion for farmers that do not have access to banking credit, and allows farmers to reach more customers and produce a higher profit (Caraluzzo).

Why can it be difficult for bitcoin to be implemented in developing countries? Why is bitcoin able to grow in Argentina?

Bitcoin requires access to the Internet and large computational power which may not be present in the technologically underdeveloped countries that need bitcoin the most (Clegg). "The primary and easiest way to access Bitcoin is by computer" (Darlington). Therefore, any further frictions created in the usage of bitcoin is bound to deter individuals from using it. Even though Bitcoin is most easily used on a computer, it can also be used on a smartphone. And although Argentina's financial system is underdeveloped with reportedly less than 50% of the population having a bank account, "40% of the population already has smartphone - and that's set to grow to 70% by 2020" (Porzecanski). Bitcoin can grow in the country due to the expansion of mobile connections. Also, fear of unknown technologies prevents people in the developing world from partaking in Bitcoin as "reticence to adopt [it] is more likely in poor and struggling countries, since technological education is often limited in these environments" (Darlington). In order to address this issue, Buenos Aires has hosted a Bitcoin Forum and there are organizations that strive to educate the public as well as regulatory bodies on the uses of Bitcoin and other cryptocurrencies. Therefore, Argentina is financially underdeveloped but has the existing complementary institutions that would allow Bitcoin to thrive in the country - namely, an entrepreneurial ecosystem that is willing to teach the public about Bitcoin, and increasing mobile and internet connections.

Does Bitcoin encourage the population to escape from their economic problems rather than address the issues that the country faces?

There is an argument present that technologies like Bitcoin will just encourage a country's population to escape their current situation and rely on cryptocurrencies to solve their short-term problems rather than work for reforms to solve long-term institutional problems. However, Bitcoin became popular during the economically repressive regime of the Kirchners and the country has since witnessed a completely new shift of power when Mauricio Macri became president. In December 2015, the

era of the Kirchner administration came to an end as the conservative mayor of Buenos Aires won the presidency on a campaign promising the liberalization of the economy and an end to economic mismanagement. Therefore, the implied connection between cryptocurrencies and continued failure of governments does not hold in Argentina. Macri's government ran on reforming the economy and implementing measures to attract investment and spur growth in the private sector, overturning many of his predecessor's policies in the process.

How will Macri's presidency affect Bitcoin?

As Mauricio Macri became president, he swiftly lifted capital controls which allowed Argentines the possibility of accessing dollars without needing to go through the black market to do so but also led to a steep devaluation of the peso of 30% (Moreno). "Capital control regimes very rarely change" which means that the emergence of this new government presented a chance to "conduct a natural experiment examining the impacts of the policy change on the use of bitcoin" (Carlson). Many had attributed Bitcoin's popularity in the country to the strict policies regarding capital controls so when Macri became president, the future growth of Bitcoin in Argentina was immediately questioned. However, the exact opposite occurred and Bitcoin continues to thrive in Argentina; "the three largest bitcoin exchanges in the country all reported stable or growing volumes since the handover of power" (Carlson). The stability in Bitcoin stems from that fact that Macri appears to be much friendlier toward cryptocurrencies and their technologies than the previous administration. For example, during Kirchner's presidency, the central bank issued a public statement warning the public against the use of bitcoins (Paul). During Macri's term as mayor of Buenos Aires, he hosted the first Bitcoin Forum in the city and now as president, he has also publicly met with Richard Branson and detailed his interest in Branson's involvement in Bitcoin (Singh). Macri and his party "campaigned on promises of supporting innovation and technology" and is therefore not expected to implement any regulations on cryptocurrencies (Moreno). So why is it that Bitcoin continues to be popular even after the country seems to be headed in the right direction, and there are significant efforts to increase transparency, increase investment and protect Argentine businesses from the mishaps of the government? One explanation could be that the devaluation of the peso means that high inflation rates are still an issue in Argentina and this will continue to fuel Bitcoin usage. However, this explanation is not likely as inflation is reasonably expected to substantially decrease within the coming years thanks to the government's economic policies. Additionally, now that capital controls are lifted, Argentines can merely store their wealth in dollars or other alternative currencies; they do not need to resort to using cryptocurrencies. Therefore, it can be reasonably deduced that the influence of capital controls on Bitcoin's popularity in Argentina was overestimated and is most likely not the central cause of Bitcoin usage in the country (Carlson). Another explanation could be that people will still continue to distrust the Argentine government even if significant reforms are put into place. Two years of stable economic policies is most likely not enough to convince generations

of Argentines that suffered from several bouts of hyperinflation and severe economic meltdowns that the country is finally on the right track; this would fall in line with the overall thesis presented in this paper. However, a more optimistic take on the continued rise of Bitcoin despite more economic freedoms is that Bitcoin and other cryptocurrencies are now able to take on new roles and solve problems in the financial system without the threat of the government shutting it down. A significant portion of the Argentine population remains unbanked and without access to financial institutions and thanks to this, related startups can now evolve, promote financial inclusion and solve the issues that the government is still not able to. Other uses of the cryptocurrency and its blockchain technology can now be explored. The rising popularity of Bitcoin in Argentina is further evidenced as the country plans to roll out two-hundred two-way Bitcoin ATMs where people can "buy Bitcoin with cash, [and] also accept Bitcoin payments and return cash to customers" (Buntinx).

Conclusion

In conclusion, Bitcoin and its disruptive technology become popular as a response to the consistent mismanagement of economic policies and unstable governments that continually repress financial freedoms. Bitcoin can accordingly address these issues by increasing transparency and efficiency while reducing costs. Further studies in this field can be applied to Venezuela which is currently seeing a rise in the usage of Bitcoin. Further studies of cryptocurrencies in Argentina can be applied to the evolution of Bitcoin under a new political regime and new uses for the technology such as: increasing financial inclusion to parts of the population not currently in the financial system.

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Appendix

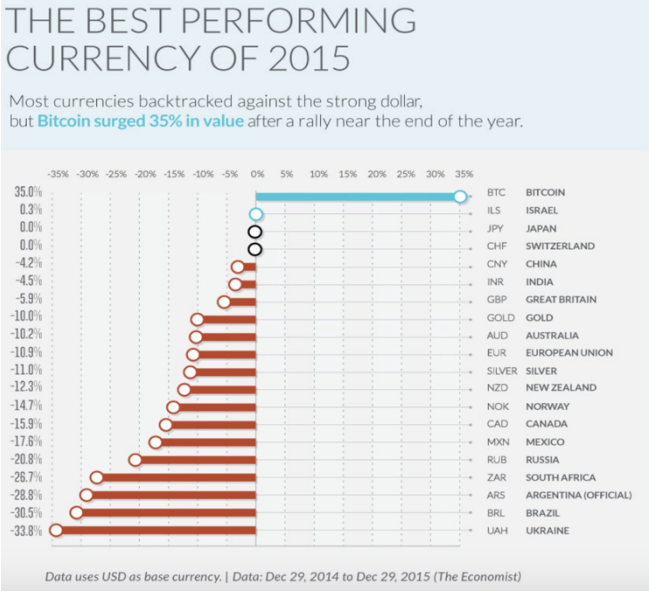
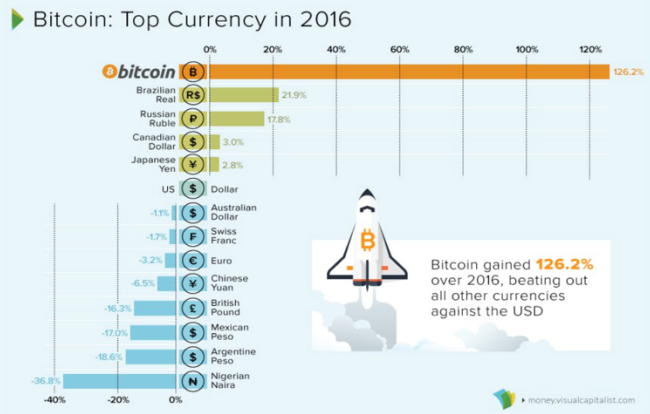
Image 1: Bitcoin Best Performing Currency of 2015; Source: VisualCapitalist, The Economist	Image 2: Bitcoin Best Performing Currency of 2016; Source: VisualCapitalist, The Economist
	

Image: Bitcoin Price in USD Over Time (YTD); Source: Bitcoin Volatility Index

Image: 30-Day BTC/USD Volatility Over Time (YTD); Source: Bitcoin Volatility Index

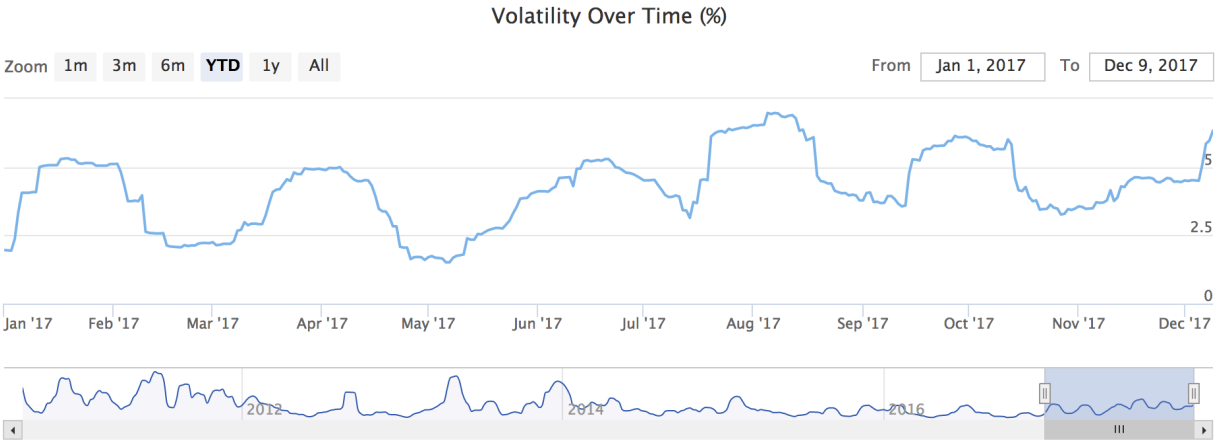


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Image: Confirmed Bitcoin Transactions Per Day (since Inception); Source: blockchain.info

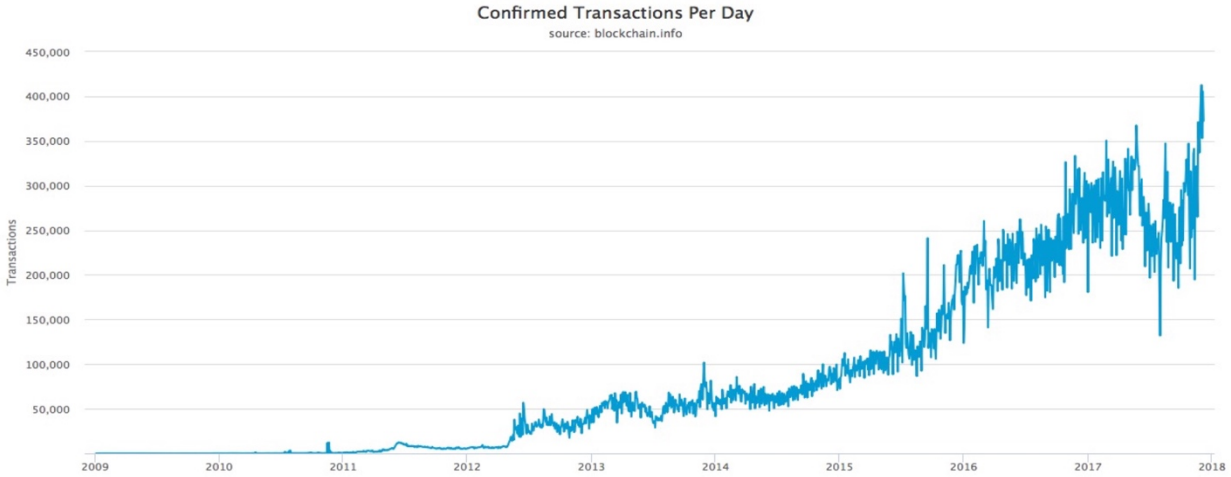


Image: Bitcoin Supply and Growth Rate; Source: Ammous (in Works Cited)

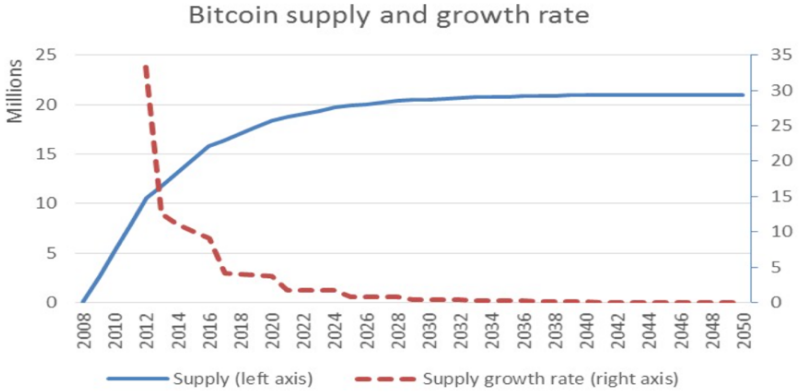
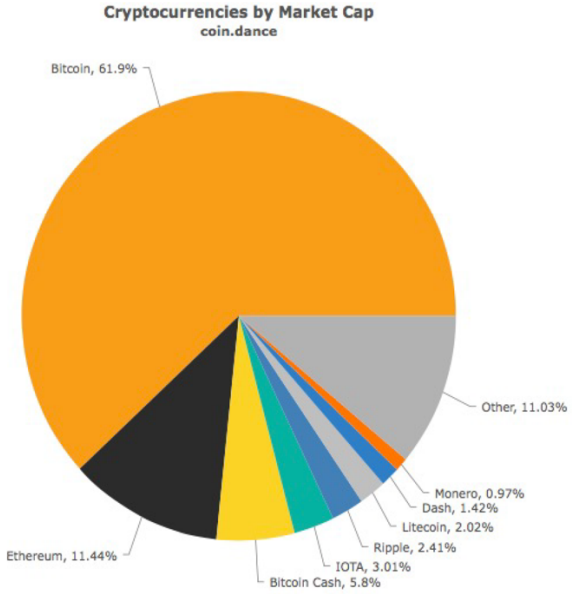
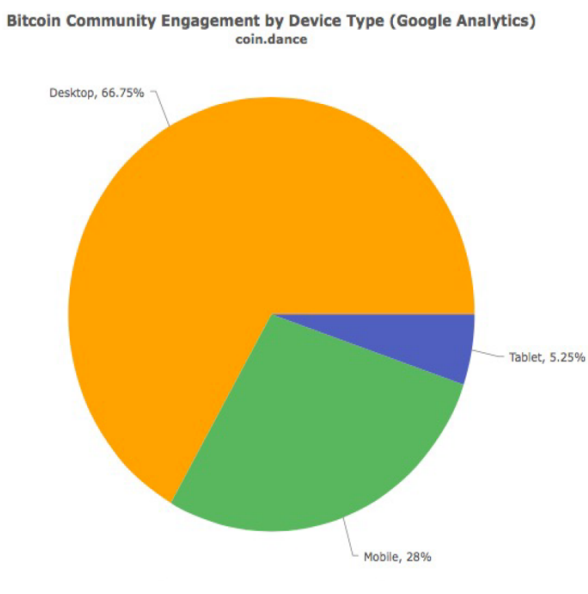


Image: Cryptocurrencies by Market Capitalization; Source: coin.dance	Image: Bitcoin Community Engagement by Device Type; Source: coin.dance
	

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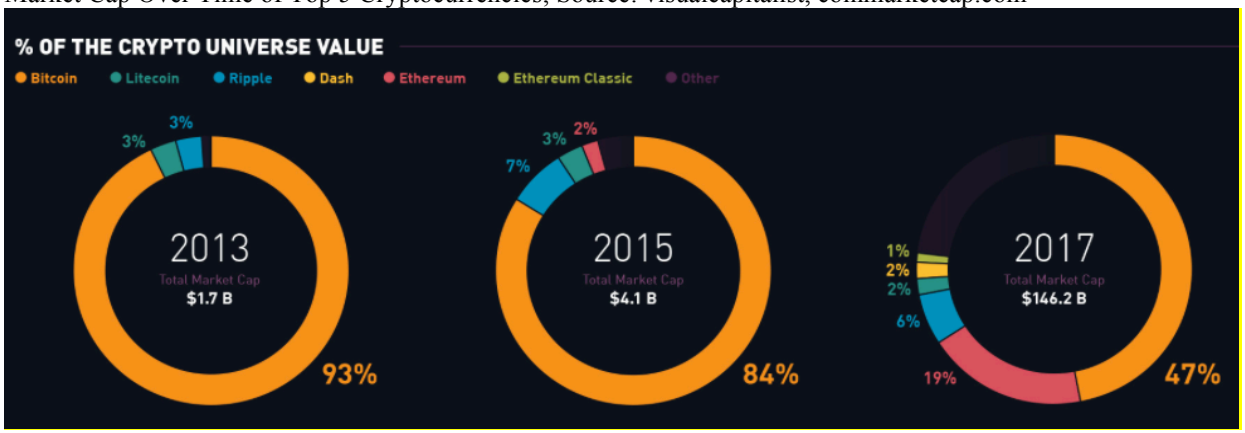
Market Cap Over Time of Top 5 Cryptocurrencies; Source: visualcapitalist, coinmarketcap.com



Market Cap, Daily Volume, and Daily Transactions of Top 5 Cryptocurrencies; Source: bitinfocharts.com, visualcapitalist

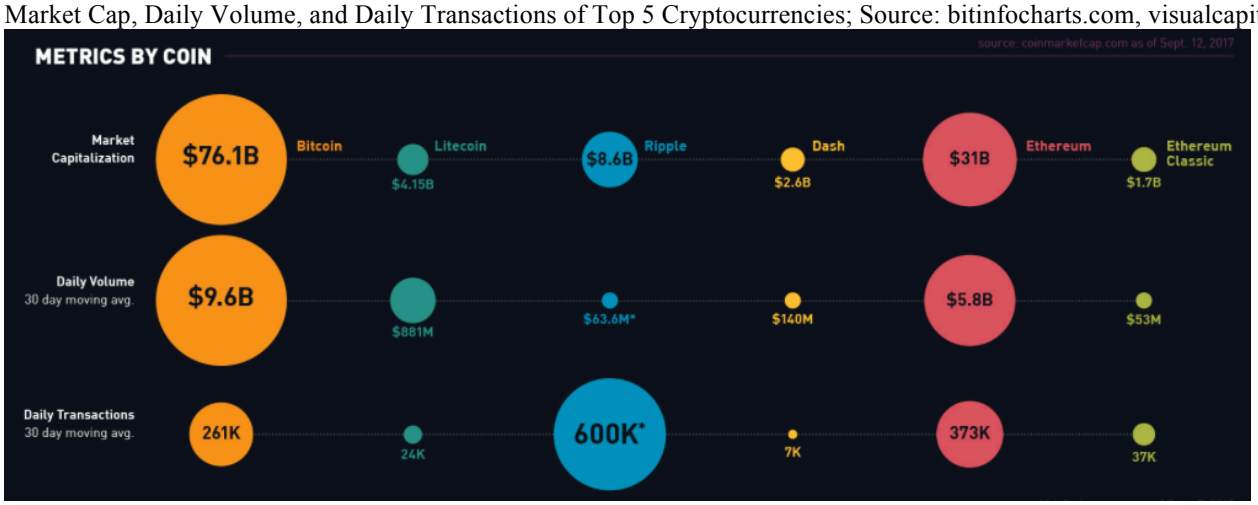


Image: Bitcoin/Venezuelan Bolivar Exchange Rate; Source: xe	Image: Bitcoin/Argentinian Peso Exchange Rate; Source: xe
	

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Image: Weekly LocalBitcoins Volume (Argentine Peso); Source: coin.dance

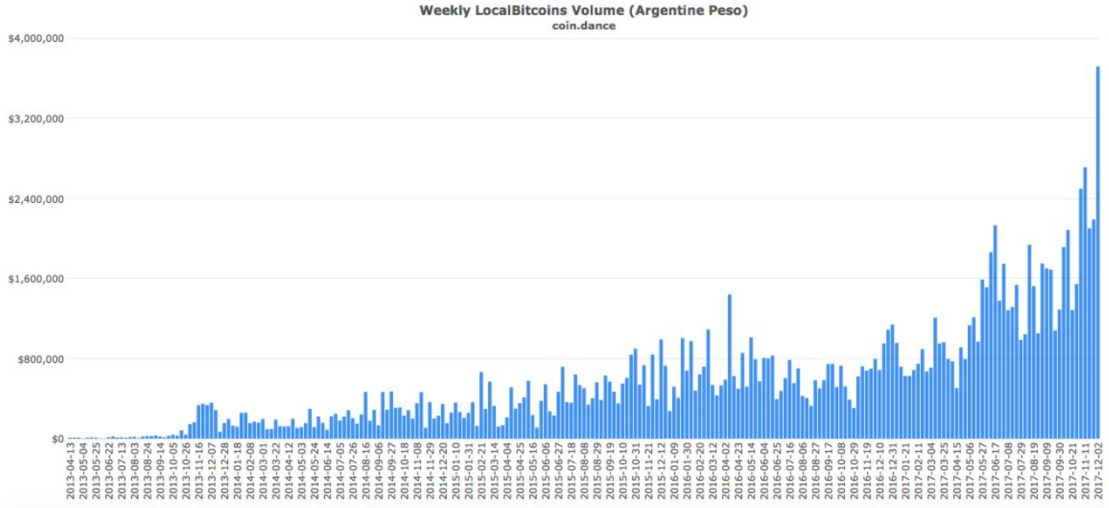

Image: Weekly LocalBitcoins Volume (Venezuelan Bolivar); Source: coin.dance

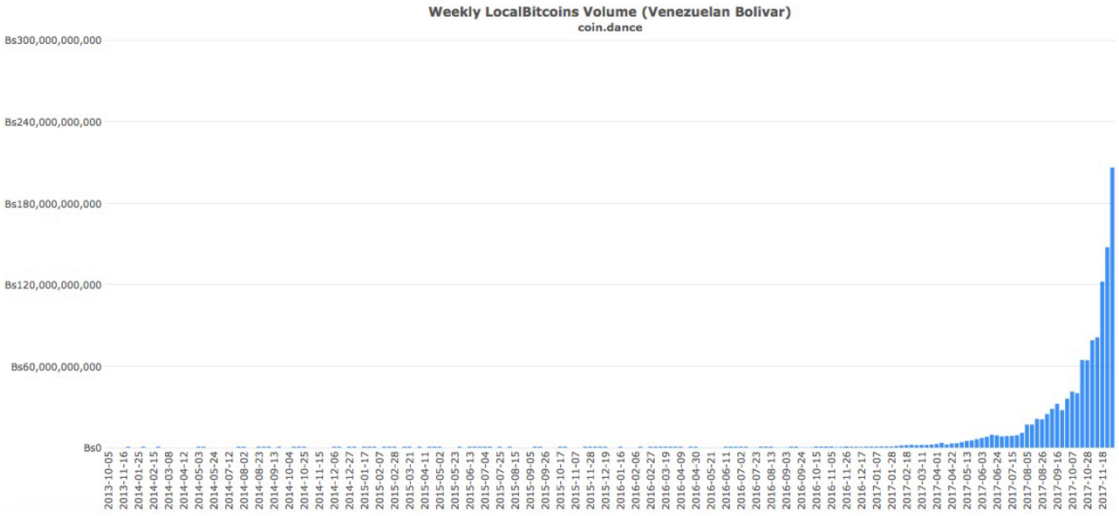

Image: Historical and Projected Inflation Rates in Argentina, Source: IMF (Information missing from 2014-2016 because the national statistics on inflation figures could not be trusted)

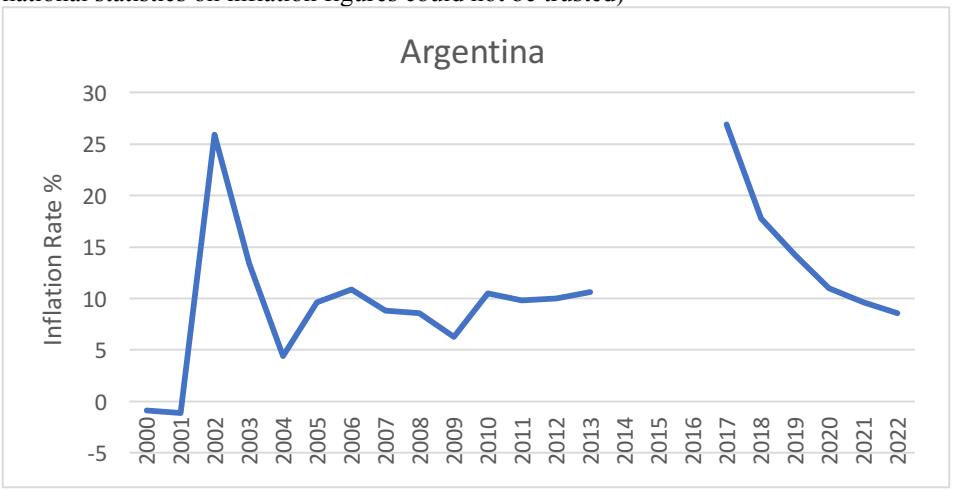

Image: Historical and Projected Inflation Rates in Venezuela, Source: IMF

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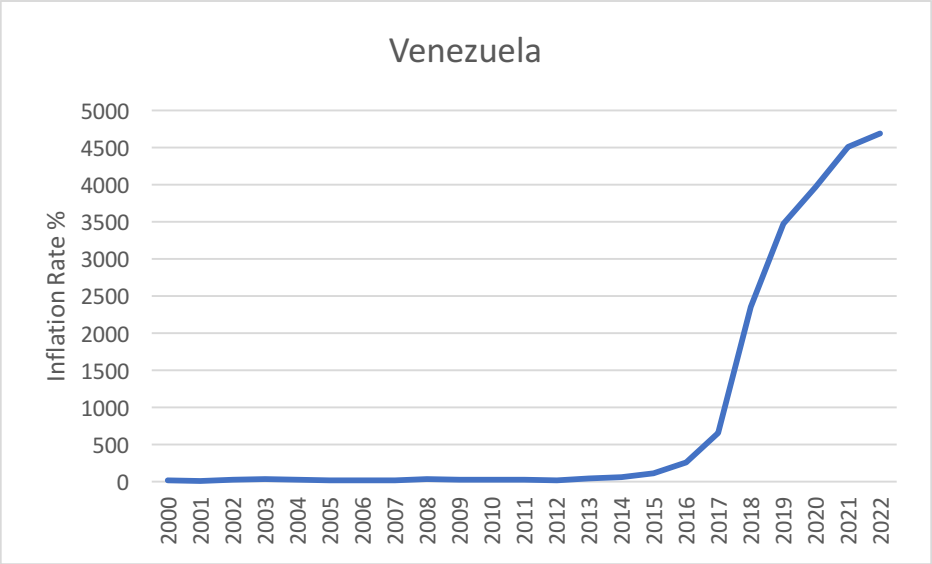

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