Crime is the Driving Factor of Cryptocurrency Adoption

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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Introduction

Cryptocurrency was initially created as a protest against government control of money in the wake of the 2008 financial crisis. Satoshi Nakamoto, a pseudonym for an anonymous cryptographer, designed Bitcoin in the wake of what he perceived as irresponsible money creation by the British Chancellor of the Exchequer. This is evidenced by the quote he chose to enter the genesis block of the Bitcoin blockchain, which all successive Bitcoins are built upon: *"The Times 03/Jan/2009 Chancellor on brink of second bailout for banks."* (Murray, 2021, para. 1). Murray (2021) argues that the consensus among many cryptocurrency experts for the past decade was that cryptocurrency adoption is still fundamentally a form of direct economic protest against government control of the money supply.

In recent years this consensus has become challenged by other researchers, such as Desmond et al. (2019) and Kusumastuty et al. (2019), who explored money laundering and inflation as additional reasons for adopting cryptocurrency. Cryptocurrencies work via decentralized networks of nodes, checking that the blockchain computed by miners satisfies specific cryptographic rules (Nakamoto, 2008). While transactions are public, the identity of those involved is private, making it nearly impossible for governments to track the parties involved in an exchange (Nakamoto, 2008). This makes cryptocurrency a valuable tool for criminals seeking to avoid law enforcement (Desmond et al., 2019). Additionally, as Kusumastuty et al. illustrated in their 2019 paper, inflation is a significant reason for adopting cryptocurrency.

This paper seeks to understand and illuminate which factors in adopting cryptocurrency are most important. As the work of Desmond et al. (2019) and Kusumastuty et al. (2019) showcases, the old consensus understanding of cryptocurrency adoption exclusively as a form of

protest against government power needs to be reevaluated. This paper utilizes a cross-national analysis to find the relative importance of each factor for adopting cryptocurrency.

By understanding which factors are more critical in driving cryptocurrency adoption, we will better understand cryptocurrency and the broader relationship between government and currency in society. Additionally, this greater understanding would allow policymakers to learn from cultural and organizational differences in attitudes toward money and craft policies to promote or impede cryptocurrency adoption. To help policymakers with this goal, this paper will focus on the adoption of cryptocurrency as a medium of exchange. It will therefore exclude people who only use cryptocurrency as a speculative asset.

This paper focuses on four nations, Nigeria, Norway, Vietnam, and the United States, that represent a broad spectrum of inflation and trust in government institutions to reduce the scope to a manageable size. Using those nations, Bijker's "Differences in Risk Conception and Differences in Technological Culture" paper is used to analyze the differences and similarities between the role and adoption of cryptocurrencies between nations.

Part I: Reasons for Adopting Cryptocurrencies

Part I employs extensive background research to explain how inflation, criminality, and levels of trust in a government drive the adoption of cryptocurrency as a medium of exchange. This background is necessary for the analysis performed in Part III and provides greater context to the findings of which factors are most important in driving cryptocurrency adoption.

Inflation drives cryptocurrency adoption

Before the work of Kusumastuty et al. (2019), it was empirically unclear whether inflation drives cryptocurrency adoption. Cryptocurrency prices were volatile globally, making them a relatively risky store of value and casting their utility as a medium of exchange into doubt

(Berentsen & Schär, 2019). However, suppose a nation is experiencing hyperinflation in its local fiat currency (paper money that has value because the government says it does, by fiat), such as Venezuela in 2018. In that case, this volatility is worth cryptocurrency's relative store of value (Wulf, 2018). However, most nations do not experience hyperinflation, and certainly not to the degree the Venezuelan economy endured in 2018, which reached an annual inflation rate of two million percent in that year. Although cryptocurrency can be a hedge against one of the most extreme cases of hyperinflation in economic history, that does not strictly prove that it has sufficient hedging properties against more mundane inflation.

Kusumastuty et al. (2019) proved that even less extreme inflation drives cryptocurrency adoption. For them to establish more generally that inflation affects cryptocurrency adoption, there must have been a period of relative stability in cryptocurrency prices while an economy faces higher-than-average inflation. If cryptocurrency prices were stable globally, but adoption increased within one nation experiencing high inflation, it would prove that high inflation makes cryptocurrency a relatively more desirable store of value. Kusumastuty et al. (2019), using a variance decomposition technique to achieve those conditions, showed that in Indonesia in 2018, higher inflation levels had a statistically significant impact on Bitcoin adoption. Admittedly, Bitcoin was designed such that when it reaches 21 million Bitcoins, no more can be created (Nakamoto, 2008), making it more resistant to inflation than cryptocurrencies not designed with a final number of units in mind. Nonetheless, this showcases that inflation in fiat currency drives cryptocurrency adoption. This means that at least some of the disparity in cryptocurrency adoption between nations is due to variances in national inflation rates.

Criminality drives cryptocurrency adoption

Avoiding government oversight is another critical reason for using cryptocurrency. Cryptocurrency is an attractive currency for criminals due to the privacy afforded by blockchain cryptography. Although the transactions are publicly available on the blockchain after mining, who sends and receives cryptocurrency is intentionally anonymous. If cryptocurrency users never reveal their private key to an outside party, it will be virtually impossible for anyone to prove that they were involved in any given transaction (Nakamoto, 2008). This provides criminals with an excellent tool for laundering illegally earned money; all they need to do is pay dubiously sourced cash to a cryptocurrency wallet in exchange for cryptocurrency and then sell that cryptocurrency on a public exchange for clean money (Desmond et al., 2019).

In addition to cryptocurrency having a clear utility for money laundering, it also serves as a means of avoiding taxes. Remittance is the practice of workers, typically from underdeveloped nations, who have moved to another nation for a work opportunity, sending income to their family in their home country. Immigrants from nations with high taxes on remittance, such as are common in Sub-Saharan Africa, can utilize cryptocurrencies to avoid those fees (Reeves, 2017). The discrepancy in remittance rates across the developing world is illustrated in Table 1 (Reeves, 2017). In any case, the privacy afforded by the blockchain allows users to circumvent government taxes and regulations on money. This is a significant factor in the disparity in cryptocurrency adoption between nations. Higher crime rates and high taxation are more likely to result in the adoption of cryptocurrency to facilitate money laundering for those crimes and avoid paying taxes. The cross-national variance in crime and taxation is a significant component of the Bijker-inspired analysis performed in this paper. This factor is fascinating because it has the potential to affect relatively stable nations with high tax rates. In contrast, according to Tomić et al. (2020), other factors like inflation are more likely to apply to less developed nations.

Table 1. Remittance Rates in the Developing World

Region	Total Remittance (million USD)	Average Remittance Fees (%) 2005-2006
Total	60,581	10.91
South Asia	13,593	7.58
East Asia and the Pacific	11,071	8.4
Latin America & Caribbean	17,064	10.07
Eastern Europe & Central Asia	8437	11.66
Middle East and North Africa	8467	11.67
Sub-Saharan Africa	1948	13.02

Table 1 illustrates the discrepancies in remittance rates across the developing world.

Distrust in government fiat currency

Another primary reason for cryptocurrency adoption is a general distrust in the government. During the Venezuelan hyperinflation crisis, Tomić et al. (2020) describe how the Venezuelan central bank created the Petro, a centrally controlled digital currency that would be tied one to one to the value of a barrel of oil. By pegging the value of the Petro to a commodity, it could serve as a hedge against inflation while maintaining central bank control of currency. Admittedly, Petro adoption has been limited by foreign nations pressuring crypto brokers outside Venezuela not to accept Petro. However, adoption was limited even before Petro was banned on international crypto exchanges. The Petro is technically not a cryptocurrency as it violates a traditional tenet of cryptocurrency: being decentralized and out of government control (as the Venezuelan government can change the supply and price of a barrel of oil).

Cryptocurrency proponents are motivated by more than just inflation and avoiding government oversight on specific transactions. Indeed, the consensus for over a decade was that they were primarily motivated by ideologically driven distrust of the government beyond

wanting to avoid taxation for personal financial gain (Murray, 2021). Satoshi Nakamoto was motivated by inflationary actions undertaken by the Bank of England to create Bitcoin. However, inflation itself was not the cause for the creation of Bitcoin and other cryptocurrencies, as other hedges against inflation, such as gold or e-gold, already existed. The difference between the gold bugs of the past and cryptocurrency users is the decentralized nature of cryptocurrency. Nakamoto, and other cryptocurrency designers that followed, distrusted the centralized nature of control over the money supply and felt that this centralization could be, and actively was, abused by the government (Murray, 2021). In the view of

Tomić et al. (2020), this could explain why Petro did not see widespread domestic adoption in Venezuela while Bitcoin adoption increased, as citizens distrusted the government during the hyperinflation episode and turned to a decentralized currency system.

Fiat currency functions due to the trust citizens have in their government, so rejection of fiat currency inherently indicates an underlying distrust in government (Pieters, 2016). This could be a reason for the disparity in cryptocurrency adoption rates between nations, as different countries have varying levels of reported trust in their governments. Using polling data to quantify this trust, the Bijker-inspired analysis in this paper is strengthened with another set of criteria to analyze the disparity in cryptocurrency adoption rates between nations.

Summarizing the literature

In summary, the current literature on reasons for cryptocurrency adoption within a particular nation suggests that inflation, avoiding government oversight, and general distrust in government constitute three significant reasons for adopting cryptocurrency. Using these reasons as a framework, the gap in the research on the relative importance of each factor can be addressed. By addressing this gap, legislators and citizens alike will be more informed of the role

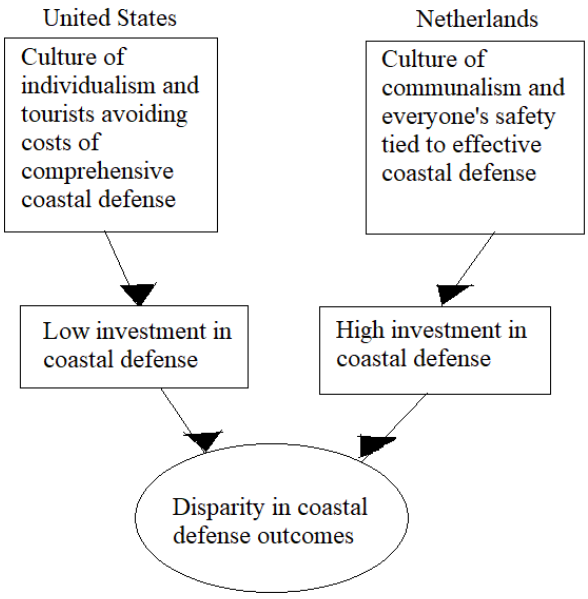
of cryptocurrency and more equipped to interact with it moving forward. Understanding why disparities exist between nations will clarify which of the reasons the current literature suggests for the adoption of cryptocurrency is most important.

Part II: Bijker Cross National Analysis

Applying Bijker's method

Bijker's *American and Dutch Coastal Engineering: Differences in Risk Conception and Differences in Technological Culture* is the foundation for the STS research conducted in this study. In it, Bijker investigates the disparity in American and Dutch coastal engineering outcomes. He argues that this disparity is not due to the inferiority of American engineers but stems from a difference in American and Dutch technical cultures. While American coastal engineering was shaped by individualism and the unwillingness of tourists to pay tax revenues to support the water infrastructure of local coast inhabitants, Dutch society in its entirety was greatly threatened by severe weather and dam failure due to the entire nation being coastal and at, or below, sea level. Image 1 (Created by Author) illustrates how these sociopolitical differences in attitudes shaped how much resources engineers devoted to water infrastructure and, therefore, in Bijker's perspective, shaped the disparate outcomes between both nations. The Bijker analysis of sociopolitical attitudes across countries is ideal for this study due to the cross-national nature of the research and the importance of exogenous sociopolitical factors in shaping disparate cryptocurrency adoption rates.

Image 1. Visualizing Bijker's Analysis



This visualization of Bijker's analysis shows how a disparate outcome between nations is waterfalled from sociopolitical effects

The Bijker-inspired analysis performed in this paper utilizes the following steps to determine the relative importance of each of the reasons for adopting cryptocurrency.

1. Choose nations that showcase a broad spectrum of reasons for adopting cryptocurrencies. In this paper: Nigeria, Norway, Vietnam, United States.
2. Construct a national profile for each nation that characterizes how it ranked on the spectrums of inflation, criminality and avoiding government oversight, and distrust in government.
3. Compare and contrast national profiles to understand what factors are more important in causing disparate cryptocurrency adoption rates between nations.

Step one: Choose nations

Four nations were chosen to represent a broad spectrum of reasons for adopting cryptocurrencies. While Bijker decided to use two papers as the basis for his study, this study builds profiles for each nation utilizing many sources that seek to characterize the inflation, crime level, and general distrust in government. While using only two countries could amount to more in-depth analysis, part of the goal of this paper is to analyze which factors are most important in the disparate cryptocurrency adoption rates. The nations selected are as follows: Nigeria, Norway, Vietnam, and the United States. Norway and the United States are developed countries that serve as effective points of comparison with the developing nations of Nigeria and Vietnam. As the national profiles illustrate in Part III, these nations are diverse in their placings on the various spectrums of inflation, crime, and trust in government.

Step two: Construct national profiles

Polling data on the level of trust in government, perceived levels of criminality, self-reported cryptocurrency adoption rates, and World Bank inflation reports was used to construct national profiles. Crime rates vary widely between nations due to differences in actual crime, enforcement, and reporting of crime, especially in developing countries. Therefore, polling data is used to gauge each nation's perceived crime levels. While there can be a disparity in perceived crime and true crime, such as in the case of the United States, the previously discussed issues with comparing cross-national crime rates make perceived crime the best measure for this paper. Inflation is the most straightforward measure as it simply measures the year-to-year increase in the price of goods, making the inflation data for each nation gathered from World Bank sufficient for this paper. Cryptocurrency adoption rates are not straightforward to record due to the anonymous nature of cryptocurrency wallets. The current literature relies on polling data asking citizens if they have ever owned cryptocurrencies. These self-reported rates also likely

overstate the use of cryptocurrencies as a medium of exchange since many people invest in cryptocurrencies as speculative assets (Berentsen & Schär, 2019). Additionally, self-reported cryptocurrency adoption rates could underrepresent those who use cryptocurrency and wish to remain genuinely anonymous and worry that researchers might somehow be collecting data on respondents.

Step three: Comparison

The national profiles were compared to determine which factors were most important in driving the disparities in cryptocurrency adoption rates between the chosen nations. The benefit of constructing the national profiles from polling data and World Bank inflation data is that they clearly illustrate the sociopolitical disparities affecting the disparate cryptocurrency adoption rate outcomes. The analysis focused on determining which of the reasons for the adoption of cryptocurrency discussed in the literature review in part I of this paper had the most significant effect on raising adoption rates. After these factors were compared, their relative importance was ranked from inferences made from the national profiles. Finally, the significance for national policymakers in addressing cryptocurrency adoption was explained, and policy recommendations for affecting the underlying reasons for the adoption of cryptocurrencies were developed.

Part III: Building National Profiles and Performing Bijker Analysis

Part III is organized into three distinct subsections. The first subsection will construct national profiles in line with step two of the Bijker-inspired analysis. The following section compares these profiles to determine the relative importance of the factors in adopting cryptocurrency as per the final step of the Bijker-inspired analysis. The last section concludes the

report and gives policymakers recommendations on supporting or impeding cryptocurrency adoption based on the analysis results.

National Profiles

Nigeria has very low trust in government, high inflation, high perceived levels of crime, and the world's highest self-reported adoption rate of cryptocurrency. Nigeria has very low confidence in its government, with 93% of Nigerians perceiving their government as corrupt (Tamir, 2020, p. 13). From 2011 to 2021, Nigeria had an inflation rate that oscillated between 8.1% and 17%, which is both high in absolute terms and an extensive range, making inflation less predictable for Nigerian consumers and eroding confidence in the management of the money supply (World Bank, 2021, p. 67). Nigeria experiences high levels of perceived crime, with a Pew poll reporting that 88% of Nigerians felt that crime was "a very big problem" in their country (Pew Research Center, 2020, para. 5). Nigeria has the world's highest self-reported cryptocurrency ownership, with 32% of respondents saying they have ever used or owned cryptocurrencies (Buchholz & Richter, 2021, para. 2).

The United States of America has low trust in government, low inflation, high perceived levels of crime, and a high adoption rate of cryptocurrency. The United States has low trust in government, with 67% of Americans perceiving their government as corrupt and only 20% saying they trust the government to do what is right most of the time (Wike et al., 2022, para. 5). From 2009 to 2019, the United States had an inflation rate that oscillated between 0.1% and 4.7%, which is very low in absolute terms and a small range, making inflation very predictable for American consumers and promoting business and investor confidence in the management of the money supply (World Bank, 2021. p. 2). Despite historically low crime levels, the United States also suffers from high perceived crime levels. A Pew poll reported that 67% of Americans

felt that crime was “a very big problem” in their country (Pew Research Center, 2020, para. 7). The United States has a significant rate of self-reported cryptocurrency ownership, with 16% of respondents saying they have ever used or owned cryptocurrencies (Buchholz & Richter, 2021, para. 3).

Vietnam is a nation with extremely high trust in government, low inflation, high perceived levels of crime, and a high adoption rate of cryptocurrency Vietnam has a very high trust in government, with 50.5% of Vietnamese reporting very high trust in government and 37.1% reporting a high level of trust (Vu, 2021, p. 16). In 2011-2013, Vietnam had a brief spike in inflation to 18%. However, since 2014, it has experienced low inflation that oscillated between 0.6% and 4.1%, which is low in absolute terms and a small range, making inflation relatively predictable for Vietnamese consumers and increasing long-term confidence in the central bank’s management of the money supply, especially since 2014 (World Bank, 2021, p. 103). Vietnam also suffers from high perceived crime levels, with a Pew poll reporting that 68% of Vietnamese felt that crime was “a very big problem” in their country (Pew Research Center, 2020, para 7). Vietnam has high self-reported cryptocurrency ownership, with 21% of respondents saying they have ever used or owned cryptocurrencies (Buchholz & Richter, 2021, para. 3).

Norway has extremely high trust in government, low inflation, low perceived levels of crime, and a low adoption rate of cryptocurrency. Norway has very high trust in government, with 77% of Norwegians reporting high trust in government (OECD, 2022, p. 22). From 2011 to 2021, Norway had an inflation rate that oscillated between 0.7% and 3.6%, which is extremely low, making inflation very predictable for Norwegian consumers and dramatically increasing confidence in the management of the money supply (World Bank, 2021, p. 70). Norway has one

of the lowest perceived levels of crime in the world, with a Pew poll reporting that only 18% of Norwegians felt that crime was "a very big problem" in their country (Pew Research Center, 2020, para. 9). Norway has low self-reported cryptocurrency ownership, with only 7% of respondents saying they have ever used or owned cryptocurrencies (Andenaes et al., 2022, p. 17).

The national profiles are summarized below in Table 2 (Created by Author).

Table 2. National Profiles Summarization

	Nigeria	United States	Vietnam	Norway
Inflation Environment	High and unstable	Low and stable	Low and stabilizing	Low and stable
Perceived Crime Levels	Very high	High	High	Low
Trust in Government	Extremely low	Low	Extremely high	Extremely high
Cryptocurrency Adoption Rate	32%	16%	21%	7%

Table 2 summarizes the four national profiles by showcasing Nigeria, the United States, Vietnam, and Norway's inflation, crime levels, trust in government, and cryptocurrency adoption rates.

Comparison of National Profiles

Nigeria most clearly illustrates the effect of high levels of perceived criminality, unpredictably high inflation, and trust in government on cryptocurrency adoption rates. Nigeria

also has high remittance fees, suggesting that the desire to avoid those fees is a significant reason for adopting cryptocurrencies as a medium of exchange. With large oscillations in inflation rate between high points, cryptocurrencies in Nigeria also serves as a store of value in a hostile environment to saving in fiat currency. Finally, abysmal trust in the government likely drives Nigeria's cryptocurrency adoption rates further up as Nigerians lose faith in government backing of fiat currency.

The national profile of the United States varies with Nigeria in one key area: inflation. While the United States, and indeed most of the planet, has experienced elevated inflation during 2022, the United States remains in a low long-term inflation environment with high investor confidence in the central bank. This likely explains the difference in the adoption rate of 16% for the United States to 32% for Nigeria. This suggests that inflation is a key driver for cryptocurrency adoption because high inflation makes cryptocurrency a relatively more attractive asset to store value. Otherwise, the United States still has a relatively high adoption rate, likely due to the low trust in the government that initially drove the creation of cryptocurrencies in the late 2000s and high levels of perceived crime.

Vietnam enjoys a higher level of trust in government relative to the United States and Nigeria and has had a relatively stable low inflation rate since 2014. While the inflation rate has been low since that point, it takes a long period of stable low inflation to build consumer and investor confidence in a central bank. Regardless, Vietnam still experiences a high level of cryptocurrency adoption, suggesting that trust in the government is not a major factor in the disparity between cryptocurrency adoption rates. This suggests that cryptocurrency still has minimal utility as a medium of exchange, which makes sense considering that many

cryptocurrencies, such as Bitcoin, have long transaction times and most have high price volatility (Desmond et al., 2019).

Of the four national profiles constructed, only Norway had a low rate of cryptocurrency adoption. It was also the only nation with a low perceived level of crime, suggesting that high rates of criminality are strongly correlated with cryptocurrency adoption. Norwegians enjoy a high level of trust in government and the central bank after decades of low inflation, suggesting that Norwegians have bought into their national political system and do not seek to branch out into cryptocurrencies. Interestingly, Norway has some of the highest tax rates in the world, so there is a clear incentive to utilize cryptocurrency to avoid paying those taxes. Despite this incentive, it experiences low cryptocurrency adoption. Although Norway has one of the lowest adoption rates in the world, the adoption rate was still reported at 7%. This suggests that even with low crime, low inflation, and high trust in government, cryptocurrency still has some degree of utility as a speculative asset.

This analysis suggests that high levels of criminality are the primary reason for the adoption of cryptocurrency, presumably as a medium of exchange to launder money and avoid government oversight for personal financial gain. Additionally, high and unpredictable inflation is the second most important factor in the adoption of cryptocurrency, likely as a relative store of value in the face of eroding the value of fiat currency. Trust in government has a limited impact on the disparity of adoption rates. However, it is possible that self-reported trust in government is not strictly representative of citizens' faith in their nation's fiat currency. This is showcased by Americans saying they have low faith in government but generally continuing to trust in the dollar despite their polling responses.

Conclusion

The old consensus view that the adoption of cryptocurrency as a medium of exchange is a protest of government control over the money supply is outdated. The cross-national analysis in this paper suggests that the primary factor driving cryptocurrency adoption rates is avoiding government oversight for personal financial gain, as nations with higher levels of perceived crime have greater adoption rates. Additionally, high and unpredictable inflation is essential in driving cryptocurrency adoption because it makes cryptocurrency a more attractive store of value. Finally, ideological opposition to government control over fiat currencies likely only has a limited effect on driving adoption rates relative to the previous two factors.

The potential limitations of this study are the reliance on polling data to compare levels of criminality, as potentially showcased by the difference between high perceived crime levels and the actual crime rate in the United States. Additionally, adding more nations to the analysis could allow more trends to be revealed that are otherwise hidden with only four nations.

The significance of these findings for policymakers is that they showcase which factors are most important in driving higher cryptocurrency adoption rates. If the goal is to drive adoption rates down, national policymakers should seek to cultivate a communalist sociopolitical environment and relatively low levels of perceived crime. Additionally, they should seek a stable, low-inflation environment to promote consumer and investment confidence in central banks.

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