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**Bitcoin in El Salvador:**

**The Ethics of Cryptocurrency in Emerging Economies**

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**Abstract**

El Salvador's passage of The Bitcoin Law, introduced for the purpose of improving remittance sending efficiency, reducing reliance on the U.S. dollar, and promoting a means for disadvantaged citizens to enter the modern economy, has raised questions about the ethical nature of implementing a cryptocurrency as legal tender. The implementation of the Law - through the Chivo electronic wallet and Chivo ATM system - is unethical due to its uneven distribution of infrastructure and lack of education, particularly among disadvantaged citizens. The Chivo use disparity between wealthy urban citizens and impoverished rural citizens is most effectively explored through El Salvador's history of institutional distrust, civil war, and guerrilla control.

This ethical analysis is achieved by comparing locations of formerly guerrilla-controlled territories with Chivo search term interest and Chivo ATM locations. Less than 5% of all Chivo ATMs are located within communities living in formerly guerrilla-controlled territories, harkening to a substantial lack of support by the Salvadoran government and a failure to achieve all three of The Bitcoin Law's goals. To rectify this, El Salvador will need to actively install Chivo ATMs in these rural communities and provide outreach and education programs detailing the potential benefits and risks of using cryptocurrency as a store of value.

## Introduction

In 2021, the government of El Salvador passed legislation to implement an avant-garde economic policy; bitcoin was adopted as legal tender within the country's borders. This highly speculative venture has the potential to grow into a model able to be adopted by other developing countries with faltering economies, or it could become a cautionary tale against using speculative currency to shore up national fiscal crises. The following research will explore the short-term and long-term results of El Salvador's Bitcoin Law on poverty and economic opportunity, its effectiveness involving underbanked populations, and whether this current model should be adapted to suit similar emerging economies.

Salvadoran President Nayib Bukele's primary hopes for the bitcoin project are three-fold: it would increase remittance efficiency, serve underbanked Salvadorans, and lessen reliance on the U.S. dollar, which has served as its currency since 2001. As mandated by the law, the bitcoin project utilizes the government-partnered e-wallet Chivo which completely removes transaction, conversion, and ATM fees, with the intention of promoting inclusion and lowering the entry barrier for poverty-stricken citizens to participate in the modern economy. On the other hand, many citizens have voiced skepticism over the viability of the formal use of cryptocurrency. This is particularly evident when reflecting on Chivo's lack of continued use both within El Salvador and internationally for the purpose of sending remittances. The move to bitcoin also poses a challenge for Salvadoran businesses and the country's global financial standing. Credit rating and lending companies have expressed concern about The Bitcoin Law's sustainability amid high fluctuations in bitcoin's value.

Despite being a recent phenomenon, it has already had international effects. Panama, for example, has proposed bills that may allow Panamanians to use cryptocurrency as a valid form of commercial payment. This only further amplifies the pressing importance of discussing the ethical implications of widespread cryptocurrency use on an international scale. Digital currency ethics research has the potential to change the lives of millions of stakeholders both in the short and long terms and could promote steps towards equality in emerging economies by reducing barriers to financial inclusion, the actual cost and benefit of which will be further analyzed.

## Cultural, Political, and Economic Context

### Country Background

El Salvador's history, culture, and demographics are shared with much of Central and South America, and deeply entwined with Spanish colonialism. The country has a population of just over 6.6 million<sup>1</sup> with a significant portion of the population concentrated in and around San Salvador, El Salvador's capital city. It is the smallest country in Central America with an area of 21 thousand square kilometers and has a population density of 315 inhabitants per square kilometer, the fifth highest population density of all Latin American and Caribbean countries (World Bank 2022). Additionally, at least 20% of the country's population lives outside of El Salvador, as citizens living abroad.

During 2021, El Salvador's GDP was 29.45 billion U.S. dollars ("dollars"), with GDP from services making up 60.04% of GDP resulting from major economic sectors. Industry and agriculture accounted for 24.22% and 4.86% respectively (World Bank 2023). According to data collected by The World Bank, personal remittance payments to individuals residing in El Salvador accounted for 25.4% of total GDP and has been steadily increasing since 1976. In 2021, El Salvador's GDP per capita was \$4,660 which is lower than the region's average of \$6,270<sup>2</sup> and significantly lower than the world average of \$12,470 (IMF). El Salvador's average monthly income varies drastically by location of residency, with 2022 monthly income in urban and rural areas averaging \$728.64 and \$462.85 respectively, representing a disparity of \$265.79. The share of the population living in extreme poverty skews towards rural areas, with 10.8% of individuals

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<sup>1</sup> This is an estimate from 2023 presented by the CIA World Factbook.

<sup>2</sup> The region whose data is being included in this comparison includes all of Central America. This includes Belize, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, and Panama.

located in rural areas and 7.3% of urban-residing individuals living in extreme poverty (Banco Central de Reserva de El Salvador).

El Salvador's public sector is relatively small compared to the average of Latin American and Caribbean ("LAC") countries. The country's 2018 public sector employment accounted for 7.7% of total employment, lower than the LAC's average of 11.9%. 2017 employee compensation as a percentage of total expenditures was approximately 40%, significantly higher than the LAC's average of 26%. They have the third lowest public sector gender equality among LAC countries, with 44.2% of public sector workers being women, as compared to the LAC's 51%. El Salvador's government investment was 2.1%, higher than the region's average at 1.6%.<sup>3</sup> The country's social benefit expenditures<sup>4</sup> as a percentage of total expenditures was 10.6% in 2017, significantly lower than the LAC average of 15.3% (*Government at a glance: Latin America and the Caribbean 2020* 51-68).

El Salvador has been making strides towards internet and mobile phone connectivity, a prerequisite to using Chivo. During 2022, the ITU reported 4.74 million active mobile-broadband subscriptions, representing 74.9% of the population. This is 12% lower than the world average, however rates have been steadily increasing over time, closely mirroring the world average growth rate. The country's 2023 mobile broadband upload and download speeds were recorded at 9.61 and 27.37 Mbps respectively, lower than the world average.<sup>5</sup> El Salvador was

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<sup>3</sup> This figure represents the amount of government investment as a percentage of GDP. Government investment as a percentage of total government expenditures is just over 8%, much higher than the LAC average of approximately 4%.

<sup>4</sup> Social benefit expenditures include expenses related to welfare. It is an example of a transfer for the purpose of redistributing income.

<sup>5</sup> This substantial difference is attributable to El Salvador's low 5G network adoption compared to the world, particularly compared to nations with developed internet technologies.

ranked 93 in the world for download and upload speeds during the beginning of 2024, and there is a substantial difference in speeds between providers (Speedtest Global Index).

Crime is a major issue in El Salvador, with the most common forms of crime being physical in nature. According to a survey conducted in 2022 by the *Instituto Universitario de Opinión Pública*, crime was voted by 20.6% of people as their greatest national issue, second to the economy. Despite this, the number of homicides has drastically decreased between 2016 and 2023, from 5,269 to 154, due to government reforms cracking down on gang violence (*Policía Nacional Civil*). Although the number of violent crimes has decreased, there are rising concerns about corruption and abuse of power, stemming from El Salvador's historically high levels of corruption.

### **Institutional Distrust**

Understanding El Salvador's historical context is crucial prior to exploring further into the country's current political and economic policy. The late 19th and early 20th centuries were plagued with periods of political unrest, during which power changed hands frequently. The economy was supported by coffee plantations, most of which were owned by small but wealthy groups of plantation owners. The many plantation workers who worked on these plantations lived and worked in deplorable conditions and were denied unionization. Disputes and legal uncertainty over the division of land among those living in El Salvador's various communities was a significant factor of rapidly increasing tension and economic inequality during this period. The 1931 Salvadoran coup d'état marked the beginning of 48 years of military rule, one with notable origins in economic hardship (Lauria-Santiago and Binford 28, 52). This military rule ended in 1979 with the beginning of the Salvadoran civil war.



Military rule only helped to deepen inequality between plantation workers and peasant farmers, known as *campesinos*, and plantation owners. Elite plantation owners worked with military-supported politicians to prevent workers from meaningfully participating in the political system. As stated by a *campesino* and activist in the National Federation of Agrarian Cooperatives, or FENACOA, “How did I become a militant of the popular movement? It was born out of social resentment...I worked for the rich, it was heavy labor. I felt rage, resentment. It was a hard life, sometimes I would cry with resentment when I couldn’t finish the assigned task” (Wood 201). Another common theme among *campesinos* reflecting on their life before the war was a lack of education about their rights. Those who made attempts at freedom suffered violence at the hands of authority figures, which had become increasingly normalized. By a second account, “The authorities were at the disposition of the rich – they had all the guarantees as the National Guard acted as their personal bodyguard” (Wood 202). This devolution of governmental trust by *campesinos* is a result of violence perpetrated against them and continues to be echoed through their lower-than-average utilization of public services (Bandiera et al. 33-34).

Attempts at reform arose when in 1972, José Napoleón Duarte ran for president and won, but was swiftly overturned by the military who brutally crushed subsequent protests. This resulted in the political assassinations of thousands of Salvadoran citizens (Bandiera et al. 11). At the beginning of the Salvadoran Civil War, the Revolutionary Government Junta came to power and established a new military dictatorship. During this time, guerrilla forces began to take hold around major cities, particularly San Salvador, which led to the assembly of the five most powerful guerrilla groups into the Farabundo Martí National Liberation Front, or FMLN.

In 1984 during the peak of the civil war, the FMLN had footholds in nearly a third of the country, and by 1989, the FMLN had launched its largest offensive to date. Neither the Salvadoran military nor the FMLN had enough power to overthrow one another, leading to a deadly, unceasing stalemate. In 1992, the United Nations oversaw peace accords between the FMLN and Salvadoran military, but by the time that the decade long civil war had ended, 75 thousand Salvadorans had lost their lives and nearly 1.5 million more had been displaced from their homes, by force or otherwise (Studemeister 7). Despite achieving relative stability, El Salvador's turbulent past has had long-lasting negative effects on its citizens.

### **History of Corruption**

Post-war El Salvador has been plagued with violence, normalized to the extent that a certain level of victim-blaming is to be expected when heinous acts are perpetrated against its citizens. In a taped interview conducted in 1998 speaking about crime in the area, the interviewee states, "And just last week a friend was 'imprudent' enough to go out with her wedding ring on her finger, to dare to wear gold in the street. They grabbed it, and everything else" (Binford 226). Crimes like these were so plentiful that they were often pushed to the backseats of citizens' minds and newspapers to make way for crimes of increasingly excessive violence. Many of these crimes involve an aspect of dishonesty by people in power, only furthering the population's general mistrust of institutions meant to protect them.

Following the conclusion of peace accords, a multitude of human rights violations perpetrated by both the prior Salvadoran military and FMLN became known, and the National Counsel for the Defense of Human Rights was established, appointing Carlos Molina Fonseca as the first member of the National Counsel for the Defense of Human Rights. Following Carlos

Molina Fonseca's term, Marina Velásquez de Avilés was appointed. During her term, she made promising strides towards the defense of human rights and investigated and reported on cases of rights violations that the police had not thoroughly investigated. Following Velásquez de Avilés' successful term, judge Eduardo Peñate Polanco was elected as her successor. During his time in office, concerns were raised about his conduct, questionable use of funds, and "excessive and unnecessary travel expenditures," (Wood 221) leading to accusations of corruption. Trained and experienced members of his staff who disagreed with him were forced out of office, damaging the office's reputation to an unrepairable extent (Popkin 15). It is no surprise that Salvadoran citizens have historically been distrustful of their government, another long-lasting consequence of their repeated betrayal by those placed in positions of power.

According to data calculated in Elisabeth Wood's book, *Insurgent Collective Action and Civil War in El Salvador*, those *campesinos* who occupy land in formerly conflicted areas, known as *tenedores*, feel a significantly higher level of institutional distrust than other portions of the Salvadoran population. While 10-20% of other affected groups feel that they almost never trust the army, 69% of *tenedores* feel the same way (Wood 221). This truly speaks to the disparity between negative consequences of the war seen by those individuals less fortunate and those more financially stable in Salvadoran society. Violence against those less fortunate was routinely carried out to a degree significantly higher than less vulnerable groups, although lasting distrust towards the government can be seen by most, if not all groups, to some lesser extent.

Based on data collected and aggregated in 2019 by Transparency International, 93% of Salvadorans believed that corruption in their government was a big problem, and 45% of Salvadorans believed that corruption levels had increased during the prior year. During the same year, 57% of Salvadoran citizens believed that most or all of the individuals involved in the

president's office were corrupt, a sharp increase from 43% the year prior. 64% of citizens believed that the government was doing a poor job at fighting corruption (Pring et al. 44). This institutional distrust is both continually enforced, and a remnant of historic injustices. Nayib Bukele was elected in 2019 and is currently serving as President. In addition to establishing other major legislative changes, Bukele's Bitcoin Law was enacted on June 9, 2021 and became effective on September 7, 2021.<sup>6</sup> It is through El Salvador's historical lens that one must view the actions and reactions of the government and its citizens in this case.

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<sup>6</sup> These dates were chosen because The Bitcoin Law was enacted following its publication on June 9, 2021, although it was passed the day prior on June 8, 2021. The Bitcoin Law took effect 90 days following its publication. Despite this, there are differing reports of the dates on which the law was enacted. This is most likely due to Bukele posting on social media stating that the law was sent to and approved by Congress on June 8, 2021.

## Implementation

### Cryptocurrency Background

A currency is an object used as a store of value and medium of exchange for goods and services. Cryptocurrencies, and bitcoin by extension, are currencies that are digitally traded on decentralized networks (Kiyotaki and Wright 18-19). While cryptocurrencies have historically been used as a store of value or speculative investment, they have not seen nearly as much use as a medium of exchange due to their high price volatility. This, however, differs between types of cryptocurrencies. Stablecoins are broadly classified as cryptoassets which contain a stability mechanism in their design. They are typically pegged to the dollar; however, they may be pegged to any other stable currency (Berentsen, Fabian 65-71). Cryptocurrencies that are not considered to be stablecoins, including bitcoin, do not contain a stabilizing mechanism and are therefore highly susceptible to price volatility.

Bitcoin is more often considered an investment rather than a currency due to its rapidly gaining and losing value. Bitcoin prices vary massively from year-to-year, with 10-day bitcoin prices fluctuating by over 100% for 22 days between January 1, 2021 and November 14, 2022. The average 10-day fluctuation during this period was 57.27% (Portfolioslab 2024). These extreme variations in price make it difficult, if not impossible, to implement bitcoin as legal tender without using an additional stable currency as a unit of account to set prices and reference from (Baur and Dimpfl 2677-2681). Notably, bitcoin prices did not react to El Salvador's decision to enact or effect The Bitcoin Law, and so it can be concluded that El Salvador is a price-taker. This means El Salvador does not have the resources to influence the price or volume of bitcoin being sold. This is evident because there were no significant, attributable changes to bitcoin's price or volume on or around June 9 or September 7, 2021 (Portfolioslab 2024).

Despite this, bitcoin was chosen as the cryptocurrency of focus in El Salvador's push towards implementing a digital currency system.

### **The Bitcoin Law**

The Bitcoin Law, Decree No. 57, ("Law") was passed with three primary goals: it would decrease the time and fees associated with sending international remittances, provide financial services to underbanked Salvadorans, and begin to reduce reliance on the dollar. The decree begins with a list of considerations, the most important of which are acknowledging the State's obligation to "increase national wealth for the benefit of the greatest number of citizens," (*Diario Oficial* 13)<sup>7</sup> the goal to facilitate financial inclusion to better guarantee its citizens' rights, and the fact that approximately 70% of Salvadorans are unbanked or underbanked.

The Law contains two chapters, the former detailing the general dispositions and the latter containing final and transitional provisions. Chapter one is comprised of ten articles, all of which regard the acceptable use of bitcoin. To officiate bitcoin as legal tender, the Law states:

Article 1: The purpose of this law is to regulate bitcoin as legal tender, unrestricted with release power, unlimited in any transaction and to any title that the person, natural or legal, public or private, needs to be carried out. (*Diario Oficial* 13)

The Law states in articles three, four, and five that as legal tender, bitcoin may be used in place of the dollar to express prices, pay taxes, and is not subject to capital gains taxes. Despite bitcoin

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<sup>7</sup> Although the original law is in Spanish, quotes used will be English translations based on a tweet published by Nayib Bukele. The tweet can be found here: <https://twitter.com/nayibbukele/status/1402446890466217985>. The original law can be found here: <https://cdn.inclusionfinanciera.gob.sv/wp-content/uploads/2021/06/Ley-Bitcoin.pdf>

being legal tender, the dollar will continue to be used for accounting purposes as the reference currency. The Law further states that:

Article 7: Every economic agent must accept bitcoin as a form of payment when it is offered to him by whoever acquires a good or service. (*Diario Oficial* 14)

To guarantee citizens' access to bitcoin and to allow for bitcoin transactions to take place, the Law further stipulates that the State is required to provide a platform through which citizens can use their bitcoin. The Law mandates:

Article 8: ... [T]he State will provide alternatives that allow the user to carry out transactions in bitcoin, as well as having automatic and instantaneous convertibility from bitcoin to dollar if desired. The State will promote the necessary training and mechanisms so that the citizens can access bitcoin transactions. (*Diario Oficial* 14)

Chapter two primarily reiterates the expectations laid out in chapter one, and states that additional measures will be taken to guarantee the conversion of bitcoin to dollar and vice versa. Importantly, Article 12 of the Law provides an exception to the law by excluding those economic agents who do not have access to technology allowing for transactions in bitcoin from being required to accept bitcoin as payment. In other words, businesses without the technological capability to receive payments in bitcoin are exempt from needing to accept bitcoin during a transaction.

### **The Chivo Wallet**

To comply with Article 8 of the Law, the Chivo Wallet ("Chivo") application was released by the Salvadoran government on September 7, 2021, the day of the Law's gaining

effectiveness. It is available for download on mobile devices with access to Google Play, the Apple App Store, or Huawei's AppGallery and requires an internet connection to both download and continue using. Within the app, users can view their balances in both dollars and bitcoin, view their transaction history, and send and receive either currency. Users are able to add money to their Chivo account using credit or debit cards through the official Chivo website, or by using cash at a Chivo ATM. There are no fees associated with any of the transactions that take place on the Chivo app, and Chivo ATMs do not charge any additional fees. To send money using the Chivo app, users are prompted to provide the recipient's phone number, bitcoin address, or by scanning the recipient's QR code corresponding to their account address and enter the amount of money they wish to send. To receive money, users are able to display their QR code or share their bitcoin address.

To be able to create a Chivo account, users are required to validate their identities by entering their personal information, providing photos of their identification cards, and consenting to a facial scan. Upon downloading and creating an account in Chivo, users automatically receive a \$30 adoption incentive from the Salvadoran government which they can send to other wallets, but unable to withdraw in cash directly. Initial incentives also included discounts on gas prices for those paying through Chivo for a brief period after the application's launch,<sup>8</sup> the ability to conduct contactless payments, and the lack of fees associated with transferring money through Chivo.

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<sup>8</sup> On September 29, 2021, Nayib Bukele announced a \$0.20 cent per gallon discount on gasoline when paying with Chivo at certain major gas stations. The offer would be valid through October 14, 2021. Bukele's original tweet can be found here: <https://twitter.com/nayibbukele/status/1443410462129983490>



### **Citizens' Reception and Chivo Adoption**

There appear to be multiple potential obstacles to wider-spread Chivo adoption and use. In a 2022 study titled, *Are Cryptocurrencies Currencies? Bitcoin as legal tender in El Salvador*, researchers found that 68% of the population able to use Chivo – individuals over the age of 18 – were aware of its existence. Approximately 45% of those who knew said they found out about Chivo through social media, 40% said they were made aware through TV or radio, and just over 25% found out through news sources. Of those aware of Chivo, 78.67% were able to download it, with a vast majority of the app's downloads taking place between its launch in September 2021 and December 2021 (Alvarez et al. Figure S11).

This presents a first bottleneck. A majority of the information about Chivo was made available through Nayib Bukele's social media accounts on various platforms. During 2021, there had only been an estimated 3.18 million social media users as compared to El Salvador's population of 6.31 million (Degenhard, *Statista*). This aligns with expectations, as approximately 50% of the population were social media users while 45% of Chivo users discovered the app through social media. When asked if they continued using Chivo after spending the \$30 adoption incentive, 60.66% stated that they did while 39.34% did not. Of those individuals who successfully downloaded the app and spent their \$30 adoption incentive, only 25% continued to load money into Chivo after spending their initial \$30 (Alvarez et al. Figure S11). Although a 78.37% adoption rate among those aware of Chivo might appear successful, that initial success did not translate into continued adoption and fully realized integration. Over a year after release, only 20% of the total eligible population had continued using Chivo after spending their \$30

adoption incentive.<sup>9</sup> If efforts had been made to promote Chivo more inclusively, it would likely have seen even higher initial adoption rates.

From that same 2022 study, significant disparities emerged between banked and unbanked groups of survey respondents. While over 80% of the banked population knew about Chivo, only 60% of unbanked respondents stated they knew about it. 60% of banked and 40% of unbanked respondents stated they were able to use Chivo, and approximately 40% of the banked population and 15% of the unbanked population continued using the app after spending their \$30 adoption incentive (Alvarez, Van Patten Figure S20). This calls into question Chivo's viability as a means of providing financial services to unbanked Salvadorans.

In addition to not being a reliable means of banking for unbanked Salvadorans, bitcoin has not seen major use as a means of transferring remittances from individuals living abroad back to El Salvador. Relatives living abroad using Chivo to send remittances to family in El Salvador have multiple options available to them. In collaboration with local legislation, Chivo ATMs have been installed in major cities across the United States, allowing for Salvadorans living abroad to deposit cash into their accounts to send to other Chivo wallets. They are also able to use a debit or credit card to deposit money into their account. Neither depositing nor transferring money incurs a cost while using Chivo, which is not the case for options through traditional banking services. Sending remittances through traditional means, by going to one's bank branch, speaking to a transfer agent, or by visiting a banking website on the internet typically incurs a transfer charge that increases as the timeliness of the transfer increases but

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<sup>9</sup> Percentages vary between sources, however "20%" was calculated based on survey data as part of the study *Are cryptocurrencies currencies?*. This 20% is the share of all individuals interviewed who reported using Chivo after spending the bonus. This number itself does not consider whether individuals knew about and were able to use Chivo, which the study acknowledges in the description of Figure 2A.

decreases as the amount being transferred increases. These fees, according to The World Bank, can be as high as 9% but average at 4.29% when transferring \$200 from the United States to El Salvador. This results in an additional fee of \$8.58 on average when going through traditional channels, which are otherwise avoided by using Chivo.<sup>10</sup>

El Salvador's *Banco Central De Reserva* reported 2023 remittances at a historical high, having increased by 4.6% since 2022. Despite 2023 remittances totaling \$8,181.8 million, only \$82.9 million were reported as having been a result of transactions from cryptocurrency wallets (Banco Central de Reserva de El Salvador 2024). This represents 1.013% of total 2023 remittances, lower than previous years' portions of remittances from cryptocurrency wallets. It peaked in late 2021 at just over 4% directly following the release of Chivo, but quickly dropped to under 2% for the duration of 2022 (Alvarez et al. Figure S2). This is substantially lower than originally anticipated, as a survey conducted in by *Universidad Francisco Gavidia; Disruptiva* found that among 337 survey respondents who receive remittances, 5.3% preferred to be paid in bitcoin, while 82.8% preferred dollars and 10.4% did not find the type of money to be important. When also asked if their family members living outside of El Salvador agree to using bitcoin for remittances, disregarding the portion of respondents who stated they do not receive remittances, 18.32% stated that their relatives would agree.<sup>11</sup> Although initial enthusiasm among Salvadorans

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<sup>10</sup> According to data collected from July 17, 2023 to September 4, 2023 by The World Bank. "Sending Money from United States to El Salvador - Remittance Prices Worldwide." *Remittance Prices Worldwide*, [remittanceprices.worldbank.org/corridor/United-States/El-Salvador](https://remittanceprices.worldbank.org/corridor/United-States/El-Salvador). Accessed 23 Mar. 2024.

<sup>11</sup> See Figures 11b and 12 of "*Los salvadoreños opinan sobre la Ley de Bitcoin: ¿Aceptan y reciben?*" by *Universidad Francisco Gavidia; Disruptiva* titled "En base a 337 que son receptores de remesas, ¿cómo prefiere que le envíen el dinero?" and "Si tiene algún familiar fuera del país (Estados Unidos u otros) que le envía remesas, ¿está su familiar de acuerdo en el uso del Bitcoin?". Although figure 12 in the survey includes individuals who do not receive remittances, "18.32%" reflects 5% of the 27.3% of responses who indicated they receive remittances, including 0.8% of individuals who declined to answer the question. This was done to allow for comparability between the other statistics which do not include respondents who do not receive remittances.

about using Chivo to send remittances appeared promising, there is a clear and substantial discrepancy between expected and actual use rates for this purpose.

### **International Reception**

Internationally, implementation of The Bitcoin Law was met with both excitement and concern. While groups advocating for the use of cryptocurrencies were celebrating, credit rating agencies deemed El Salvador to be a risky investment while the International Monetary Fund (“IMF”) has made statements advising against the adoption of cryptocurrencies as legal tender. These key issues, as outlined by the IMF’s 2021 Article IV press release about El Salvador, are centered around the substantial risks and lack of control related to the adoption of bitcoin.

Many of the risks associated with The Bitcoin Law are inherently intertwined with the price of bitcoin which, by its nature, is not stabilized by an outside force. The IMF argues that, “El Salvador’s economic challenges, including with respect to fiscal policy, governance, and reforms to support inclusive growth, or closing the gaps in the oversight of Bitcoin could undermine fiscal sustainability and financial stability” (IMF Country Report No. 2022/020 2). IMF staff report that, without the ability to stabilize bitcoin, extreme price fluctuations reduce its practicality as a medium of exchange in commercial transactions which could reduce market integrity. This is particularly concerning when considering the economic context of the law being passed.

El Salvador’s gross debt as a percentage of GDP has been steadily increasing since the mid-1990s at the conclusion of its civil war and was reported at 73% at the end of 2023. This figure is much higher than Central America’s 2023 average of 51.8%. This trend had been relatively uniform between 2015 and 2020, at which point debt as a percent of GDP skyrocketed

because of the COVID-19 pandemic.<sup>12</sup> As El Salvador's debt increases alongside its heightened levels of financial uncertainty, its cost of debt could rapidly increase while international investors flee to more financially stable investments, hindering efforts towards economic development.

The IMF further reports that short-term potential benefits do not outweigh costs and risks incurred during the implementation of bitcoin as legal tender, a finding supported by Chivo's lack of widespread adoption both domestically and internationally as a way to send remittances. Despite costs being estimated at approximately 1% of GDP between 2021 and 2022, GDP gains for that period, attributable to The Bitcoin Law, were projected at only 0.025% (IMF Country Report No. 2022/020 25-26). These gains, however, were likely even smaller due to lower-than-expected adoption rates, particularly among individuals sending and receiving remittances.

Credit rating services, including Fitch Ratings ("Fitch") and S&P Global Ratings ("S&P Global"), have similar concerns to the IMF. On February 9, 2022, Fitch downgraded El Salvador's long-term issuer default rating from B- to CCC.<sup>13</sup> Fitch attributes this downgrade to multiple factors including an escalation in financial and political risk resulting from a growing reliance on short-term debt and political unpredictability, with particular regard to the presidency, its push for The Bitcoin Law, and resulting uncertainty for El Salvador's micro and macroeconomy (Fitch 2022). Shortly following El Salvador's adoption of bitcoin, S&P Global produced a report with comparable cost-to-benefit conclusions. Their findings express their concerns about bitcoin's volatility negatively impacting its adoption as legal tender, and potential benefits being severely limited by Salvadorans' lack of trust in bitcoin. Furthermore, El

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<sup>12</sup> Both figures are from the IMF's World Economic Outlook dataset titled, "General government gross debt, percent of GDP"

<sup>13</sup> On May 5, 2023, Fitch upgraded El Salvador's long-term issuer default rating from CCC to CCC+.

Salvador's absence of policy curtailing the negative effects of bitcoin's anonymity jeopardizes financial integrity and opens the door for illicit activities, further diminishing trust (Oliveros-Rosen 2021).

## **The Individual, Nation, and World**

### **Local Opportunities and Individual Success**

Although the whole of El Salvador has not seen widespread bitcoin adoption, a small coastal town in La Libertad known as El Zonte, or by tourists as "Bitcoin Beach," has largely accepted bitcoin as a payment method. Bitcoin's success in El Zonte and similar regions is highly dependent on residents' technological and financial literacy, which has the potential to influence their level of trust in the use of cryptocurrency. To achieve this, residents need to not only be able to make mobile payments and manage their electronic wallets but be aware of both the benefits and risks of using bitcoin as a store of value and medium of exchange.

In El Zonte, Mike Peterson and his charity "Missionsake" have made great strides towards establishing the town as a bitcoin circular economy, meaning bitcoin is used as the primary currency for all transactions and value storage. In this economy, employees are paid in bitcoin which is then used to pay for goods and services, rather than being converted back to another currency. In an interview with Sharyn Alfonsi of CBS, Peterson explains the challenges he faced when educating the community about the use of bitcoin. He found that the primary issue was a lack of trust in the value of bitcoin, with residents questioning the tangibility of being paid in an electronic currency.

One resident named Mama Rosa, the owner of a popular pupusa stand in El Zonte, was the first to accept bitcoin after her son taught her how to use a cryptocurrency wallet. After

beginning to accept bitcoin, she was able to make major investments in her business. Other residents were able to use bitcoin profits to innovate. A 19-year-old student named Ismael Galdamez was a prime example. Galdamez, after noticing shave ice vendors needed to travel out of town to acquire ice for their businesses, decided to use his bitcoin profits to invest in a \$200 freezer to begin selling his own ice. He has found success and plans to buy his parents a house using his bitcoin earnings (Alfonsi 2022).

Although there are examples of residents who have found success with storing their earnings in bitcoin, others have shown concern with its extreme price fluctuations, expressing confusion when their electronic wallets suddenly decrease in value due to those fluctuations. For these small businesses, price fluctuations can manifest themselves at any time leading to massive losses. Rather than solely focusing on running and managing their businesses, there is an added level of complexity added by business owners needing to manage their business' electronic wallets to minimize the damage caused by drops in value. Many of the small businesses who accept bitcoin manage their wallets themselves, with the cost of professional managing services being cost prohibitive. Small business owners not only need to learn how to manage bitcoin transactions, but they also must invest in training for their customer-facing employees. The resources spent on monitoring electronic wallets, potentially incurring losses due to fluctuations, and training employees would otherwise be avoided by using a cash-based payment system.

### **Model Expansion and Adaption**

Both within El Salvador and internationally, efforts have been made to expand the bitcoin model in various capacities. After seeing some success implementing a bitcoin circular economy in El Zonte, the Bitcoin Beach initiative was established to provide resources and guidance for

communities who want to model their economy after El Zonte's. Their 2022 white paper titled, "Basis Underlying Bitcoin Beach-Like Efforts (BUBBLES)," encompasses the essence of what must be achieved to establish circular bitcoin economies in small communities, based on the experience of Bitcoin Beach leaders. It states that for bitcoin to be successful, it must provide for a core social need in that community, and that leaders in successful initiatives should have a background in benefiting their community in other ways prior to introducing bitcoin. To gain traction, the initiative should have a particular goal and provide education, tools, and assistance to those who wish to take part in that initiative. The paper further states that it is important for the burden of technological adaptation not to be placed upon consumers and business owners, which can be achieved through proper education and distribution of technological tools (Bitcoin Beach 2022).

In Panama, a Central American country south of El Salvador, efforts have been made to allow bitcoin, along with other cryptocurrencies, to be used to pay for goods and services. Although no particular cryptocurrency will be made legal tender, under Bill 697 presented on September 6, 2021 and passed on April 28, 2022, Panama's national assembly provided a framework for the use of cryptocurrency both by entities who wish to issue cryptocurrencies and for businesses who wish to use them as payment. After being passed by the national assembly twice, the bill was finally vetoed by the supreme court due to constitutional concerns about the circumstances under which the bill was passed. The contents of the bill, however, were not scrutinized by the supreme court. If a bill looking to legalize exchanging cryptocurrencies for



goods and services were to be implemented, it would probably contain substantially similar content.<sup>14</sup>

Title III, Article 8, of vetoed Bill 697 states individuals and legal entities in Panama are given the ability to freely agree on the use of cryptocurrencies as a means of payment as an expression of Panamanians' fundamental right to contractual freedom and the prohibition of compulsory currency within Panama. Article 9 goes on to state that entities of the Republic of Panama are able to receive payments for taxes, fees, and other obligations in cryptocurrency in coordination with the Authority of Governmental Innovation based on the principles of protection, order, and transparency, as well as best practices in cybersecurity to avoid financial losses (Republic of Panama, National Assembly). A similar bill, if passed, would open the door for further legislation. Because the bill would distinctly allow parties to be able to use and accept cryptocurrencies rather than requiring merchants to accept those currencies, cryptocurrencies would not be given legal tender status, in contrast to El Salvador's Bitcoin Law.

### **Ethical Considerations**

#### **The Common Good Lens**

Viewing national economic policy through an ethical lens is crucial to analyzing the effectiveness of those policies. It ensures those policies promote economic growth and efficiency while additionally contributing to long-term efforts towards social justice and integrity. Ethical national economic policies can provide both short-term benefits and long-term economic stability while bolstering public trust. This is necessary to improve compliance and governmental

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<sup>14</sup> Because bill 697 was vetoed not for its content but rather the circumstances around which it was revised and then passed, it is likely a similar bill will reemerge. For that reason, it is fair to analyze this vetoed bill preemptively in the event that a similar bill is passed once again. It is important to note that this is only speculative and future forms of the bill could drastically change or fail to reenter entirely.

engagement. It often involves higher transparency and allows the government to align its values with the expectations of its citizens. There are a variety of ethical concerns regarding the implementation and use of cryptocurrency on a national scale.

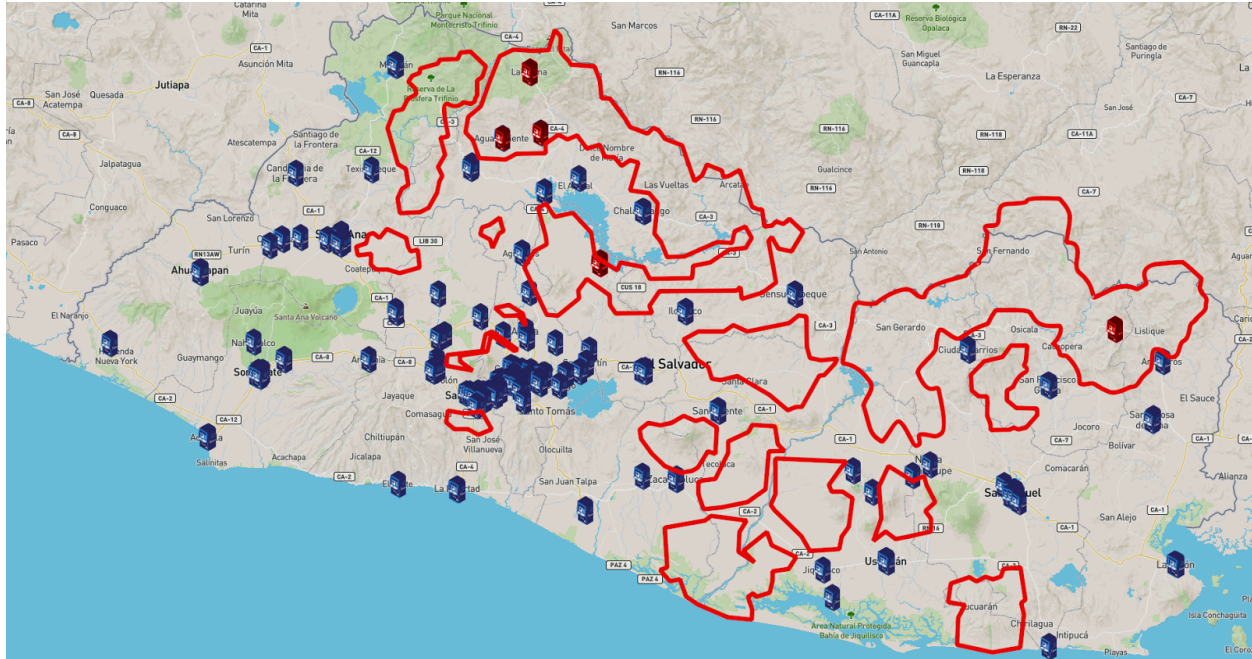
Under the common good lens, the collective needs of the community are emphasized. For a policy to be considered ethical using this lens, it must balance community needs with the needs and rights of the individual and prioritize the broader community. This lens emphasizes the interdependence of society with long-term stability and economic prosperity. Policies which follow the common good lens enhance societal resilience, communal respect, and responsibility. To test the ethics of The Bitcoin Law through the common good approach, one must consider the program's intended and real results, groups affected and stakeholders involved, and potential adjustments and adaptations.

There are multiple key stakeholders within El Salvador involved with and affected by The Bitcoin Law. President Nayib Bukele and the Salvadoran government have an interest in achieving improved financial inclusion, lower remittance costs, decreased reliance on the dollar, and economic growth. Salvadoran citizens, including the unbanked population, are also key stakeholders. They are directly impacted by the adoption of bitcoin as legal tender and are, in part, responsible for whether bitcoin succeeds as a currency in daily economic transactions. Additionally, the unbanked population is directly targeted as a beneficiary from the implementation of the law. Similarly, Salvadoran businesses, investors, and financial institutions are also affected. Salvadoran businesses are required to accept bitcoin unless they acquire an exception and must adjust to managing bitcoin earnings.

Individuals living in and around formerly guerrilla-controlled zones have the greatest potential to benefit from the introduction of Chivo. These individuals are less wealthy than those outside of those zones and become progressively less wealthy the further into those zones they live (Bandiera et al. 80). Additionally, areas formerly under guerrilla control had approximately 5.2% lower GDP than outside of those zones (Bandiera et al. 23). Communities in these areas continue to exhibit lower levels of institutional trust and are less likely to use public services or do business with individuals from outside their community. Because of these factors, special efforts by the Salvadoran government need to be made prior to the successful implementation of The Bitcoin Law in these communities.

The lack of adoption by these key communities of stakeholders presents issues inherent to the interaction between the Salvadoran government and these communities. Prior to attempting to implement the use of bitcoin, efforts need to be made to build institutional trust and improve infrastructure within these formerly guerrilla-controlled zones. The Salvadoran government's lack of additional support is particularly evident when considering the placement of Chivo ATMs. Despite these stakeholders frequently using cash, and therefore being unable to meaningfully benefit from Chivo without interacting with a Chivo ATM, only approximately 2% of Chivo ATMs are present within the borders of formerly guerrilla-controlled zones.

Figure 1. Chivo ATMs and Guerrilla-Controlled Areas

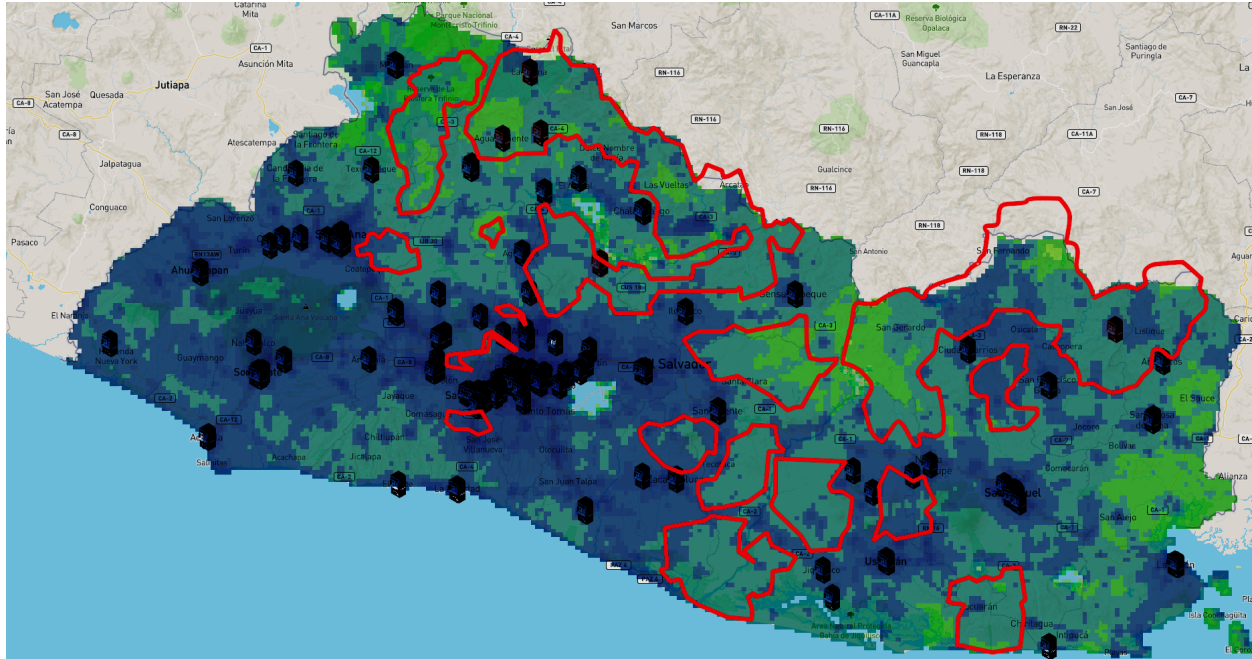


*Sources:* The ATM map is from [chivowallet.com](http://chivowallet.com), and the red outlines were drawn based on “Mapa 5. Mapa del cese del fuego” (Castañeda 215).

*Notes:* This map shows the locations of Chivo ATMs across El Salvador. Areas within the red outlines are formerly guerrilla-controlled territories. ATMs represented by blue boxes are located outside those territories, and ATMs represented by dark-red boxes are located within those territories. There are 5 red ATMs out of approximately 200 ATMs total in El Salvador.

The disproportionately sparse number of ATMs within formerly guerrilla-controlled territories reinforces the lack of interaction between the Salvadoran government and communities situated in these regions. Additionally, the sparsely installed ATMs only provide further barriers to entry for communities within formerly guerrilla-controlled territories, with individuals needing to travel long distances if they wish to deposit money into their accounts using cash. This suggests a disconnect between The Bitcoin Law’s goal of providing pseudo-banking resources to underbanked populations and its implementation.

Figure 2. Chivo ATMs, Guerrilla-Controlled Territories, and Population Density

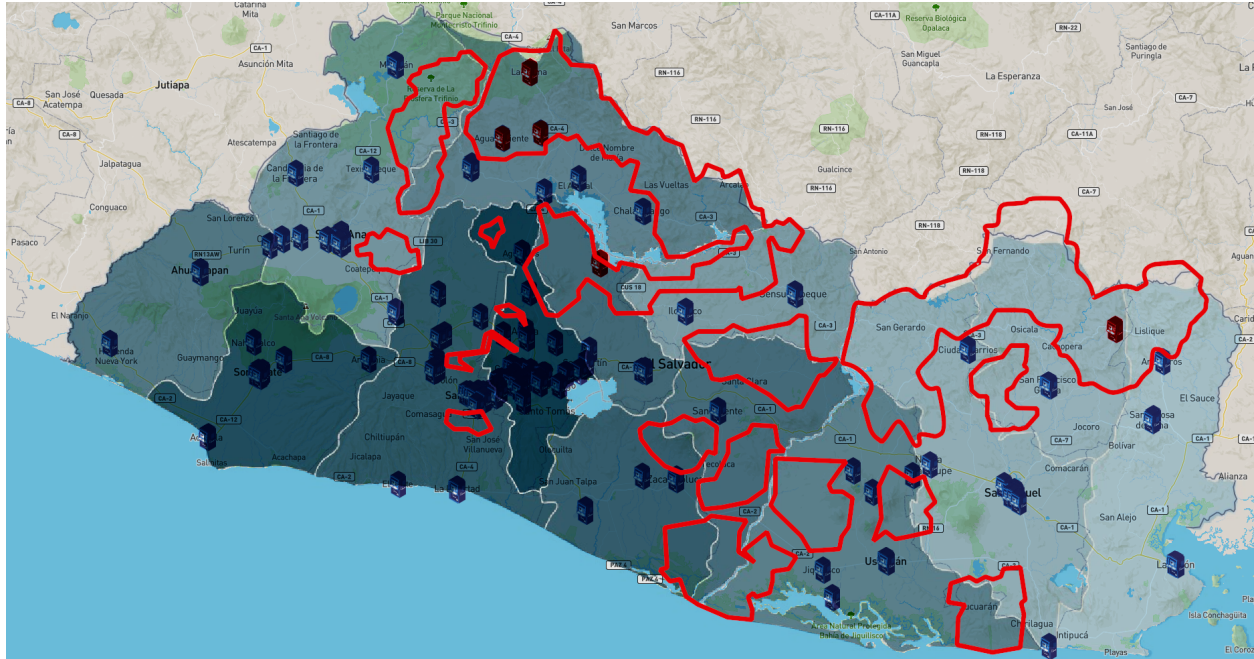


*Sources:* The ATM map is from [chivowallet.com](http://chivowallet.com), and the red outlines were drawn based on “Mapa 5. Mapa del cese del fuego” (Castañeda 215). The population density map is provided by WorldPop.

*Notes:* This map includes Chivo ATM locations, formerly guerrilla-controlled zones, and population density. Higher population density is shown in dark blue, while low population density is shown in light green.

In general, formerly guerrilla-controlled areas are less densely populated, however there are pockets of high population density. Despite this, many of those densely populated areas within those zones do not have convenient access to Chivo ATMs. This is not due to a lack of interest in The Bitcoin Law or Chivo Wallet, as expressed in Figure 3 below.

Figure 3. Chivo ATMs, Guerrilla-Controlled Territories, and Search Interest



*Sources:* The ATM map is from [chivowallet.com](http://chivowallet.com), and the red outlines were drawn based on “Mapa 5. Mapa del cese del fuego” (Castañeda 215). Search interest data is from Google Trends for the terms “Chivo” and “Chivo Wallet.”

*Notes:* Areas within the red outlines are formerly guerrilla-controlled territories. ATMs represented by blue boxes are located outside those territories, and ATMs represented by dark red boxes are located within those territories. Additionally, this map shows the average search interest for the terms “Chivo” and “Chivo Wallet” between 2019 and 2024. Data is sorted by Department, the equivalent of a province or state, and higher interest levels are represented by darker shading.

This disconnect is not attributable to these communities’ lack of interest in Chivo, with Google Trends search data showing substantial interest across Departments. The region with the highest search interest was San Salvador, the most densely populated region in El Salvador. Although search interest was much higher in densely populated regions, which aligns with expectations, regions which substantially overlap with former guerrilla control continue to have high average search interest. Although search interest is distributed relatively evenly, population density notwithstanding, not everyone is given opportunities to properly interface with Chivo.



Lack of access to Chivo ATMs disproportionately harms the underbanked, a significant portion of the population, and is therefore unethical and fails the common good test.

### **Discussion of Alternatives**

To rectify The Bitcoin Law's unethical implementation, substantial and tangible efforts need to be made to improve the interaction between the Salvadoran government and its citizens. These efforts need to be made with multiple questions in mind. For example, what is being done to ensure the most able-to-be benefited populations – underbanked, remittance-receiving citizens – are made aware of Chivo? Are citizens being educated about both the technological needs associated with managing a cryptocurrency wallet and the risks involved with investing in bitcoin? To address these issues, the Salvadoran government should consider a few of the following possible solutions.

The Salvadoran government should begin by establishing an outreach program, collaborating with local government officials. This outreach program should engage directly with rural communities and should be conducted with the purpose of boosting governmental trust, teaching citizens about Chivo, and addressing related questions and concerns. Outreach program events should be easy to access by rural Salvadorans and be located within or near these communities. If easily accessible by rural Salvadorans, this outreach program would help boost Chivo use among Salvadorans living in rural communities, taking steps towards improving the ethics of The Bitcoin Law's implementation.

The Salvadoran government should then begin implementing a long-term plan to improve infrastructure among rural communities. This would include installing additional Chivo ATMs in populated areas of formerly guerrilla-controlled areas. More broadly, improving other aspects of

infrastructure such as roads and utilities in the long-term would be a concrete way for the Salvadoran government to express interest in interacting with rural communities. Although costly, the Salvadoran government may want to consider using the unrealized gains on their stored Bitcoin to fund the installation of Chivo ATMs in the short-term.

In coordination with the previous two proposed changes, the Salvadoran government should also consider offering educational programs providing financial and technical education to citizens interested in adopting Chivo. These would be distinct from outreach events and would happen over the course of a longer period. It would provide citizens with general cryptocurrency knowledge, teach them how to successfully manage a cryptocurrency wallet through Chivo, and would explain the benefits and risks associated with using bitcoin as a store of value. Educational programs should take place across the country but focus primarily on rural communities with lower levels of formal education. As a result, it may bridge the gap in Chivo usage by banked and unbanked populations.

If these changes are implemented, The Bitcoin Law's primary goals of improving remittance sending and increasing financial inclusion would more closely align with its realized outcomes. Each of these changes should prioritize focusing on improving the experiences of citizens living in formerly guerrilla-controlled territories and should be easily accessible by rural community members. This will allow rural Salvadorans to interact with the modern economy while cultivating an improved sense of trust.

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