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Poor miners and empty e-wallets: Latin American experiences with cryptocurrencies in crisis

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Abstract

This article examines how cryptocurrencies are increasingly entangled with crises in Latin American political discourse and everyday economic life. In an effort of interdisciplinary integration, combining human geography with political economy and cultural anthropology, we critically assess the linkages between cryptocurrency, economic crisis and forms of political and economic precarity and exploitation. Drawing on experiences in Latin America, mostly on the cases of El Salvador and Venezuela, we explore how cryptocurrencies have rapidly emerged and expanded during periods of economic and political crises. We ground this discussion on social theories of money and critical analysis of blockchain and cryptocurrencies that question the apolitical assumptions of these apparent "trustless" infrastructures. The article contends that cryptocurrencies have the capacity to create potential niches for makeshift economic survival, speculation and quick profit, while at the same time reproducing historical conditions of vulnerability, inequality and 'crypto-colonialism'. Though cryptocurrencies are surrounded by stories of freedom and decentralised community control, our ethnographic data on El Salvador and Venezuela suggest they often rely on free market fundamentalism and conditions of political corruption by authoritarian state-backed elites.

Keywords

cryptocurrency, bitcoin, Venezuela, El Salvador, crisis, crypto-colonialism

Mineros pobres y billeteras electrónicas vacías: experiencias latinoamericanas con criptomonedas en crisis

Resumen

Este artículo examina cómo las criptomonedas están cada vez más enredadas con las crisis en el discurso político latinoamericano y la vida económica cotidiana. En un esfuerzo de integración interdisciplinaria, combinando la geografía humana con la economía política y la antropología cultural, evaluamos críticamente los vínculos entre las criptomonedas, la crisis económica y las formas de precariedad y explotación política y económica. Basándonos en experiencias en América Latina, principalmente en los casos de El Salvador y Venezuela, exploramos cómo las criptomonedas han surgido y se han expandido rápidamente durante períodos de crisis económica y política. Basamos esta discusión en las teorías sociales del dinero y el análisis crítico de blockchain y las criptomonedas que cuestionan los supuestos apolíticos de estas aparentes infraestructuras "sin confianza". El artículo sostiene que las criptomonedas tienen la capacidad de crear nichos potenciales para la

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supervivencia económica improvisada, la especulación y las ganancias rápidas, al mismo tiempo que reproducen condiciones históricas de vulnerabilidad, desigualdad y "criptocolonialismo". Aunque las criptomonedas están rodeadas de historias de libertad y control comunitario descentralizado, nuestros datos etnográficos sobre El Salvador y Venezuela sugieren que a menudo se basan en el fundamentalismo del libre mercado y las condiciones de corrupción política de las élites autoritarias respaldadas por el estado.

Palabras clave
Criptomoneda, Bitcoin, Venezuela, El Salvador, Crypto-colonialism

Introduction

The linkages between crises and cryptocurrencies are clear. The collapse of well-known crypto exchanges such as FTX as well as a sharp fall in the price of popular cryptocurrencies, like bitcoin throughout 2022 and 2023 raises questions around the sustainability of an industry rooted in volatility and speculation. While interest in Bitcoin has flatlined among traditional buyers in the Global North, rates of adoption are increasing in the Global South, in a process that Howson (2023) refers to as the market's pivot to the poor. Countries like the Central African Republic and El Salvador have declared Bitcoin as legal tender. Others, like Honduras, are encouraging the development of crypto charter cities. Nigeria and Puerto Rico have sold themselves as Special Economic Zones (SEZs) to attract crypto-investors. In Venezuela, an overall economic meltdown opened the back door for cryptocurrency.

In October 2021, van Roekel arrived in Caracas for a short field trip. She met a friend at the airport, whom we will call Guillermo. On our way to the city centre, he almost spouted all the latest news: the foul-smelling fuel, supposedly coming from Iran, was screwing his engine, the *bolivar digital* had started circulating 5 days ago – another new national currency to get rid of yet another six digits due to the enduring hyperinflation. But no one really cared about the *bolivar* anymore, Guillermo said. He continued that all the new and fancy coffee bars that had recently opened were just for money laundry and the new *bodegones* (grocery stores) sold insanely expensive imported goods only for a very small segment of the Venezuelans. Guillermo shocked her with all his stories and latest happenings about the enduring economic crisis in Venezuela. He casually continued that he was considering jumping into the latest crypto boom now that bitcoin was legal tender in El Salvador. He was still in doubt if he would get in or not, although he had started some trading and was paying his employees at his software company stablecoins through e-wallets now. He used to pay them dollars in cash, he said. But he considered cash too vulgar – as if his employees were working clandestine, but they were officially on his payroll. Some of them did some crypto mining on the side to earn some extra money. They called themselves sometimes jokingly *los mineros pobres* (the poor miners), because they could not compete with these big bitcoin miners. At one point, Guillermo sighed that they were changing everything the whole time. It was just too hard to keep up, he said.

We were familiar with everyday life and academic debates on the practical workings and setbacks of economy and finance in the Global South (Bernards, 2022; Howson, 2020; Marcano, 2009). The extreme volatility of economic life in Venezuela was not what struck us. But it seemed at least surprising to see Guillermos' investment considerations in cryptocurrencies and latest financial adoptions towards e-finance despite his previous reluctance. In 2019, he had confided in van Roekel that he wanted to stay as far away as possible from cryptocurrencies. But all the rumours of trickery and bribery seemed less of a problem anymore to Guillermo. The economic and monetary crisis had pushed him too towards crypto finance. In Venezuela, the mining and trade of cryptocurrencies emerged in tandem with the collapse of the economy, high levels of inflation and the erosion of the legal tender as medium of exchange. Beside *de facto* dollarisation, a rapid turn to cryptocurrencies in policymaking and private investments by new elites has provided ways to navigate the crisis. Cryptocurrency also proved beneficial to circumvent economic sanctions implemented by the United States and EU to oust the increasingly authoritarian regime headed by Nicolás Maduro. The use of crumbling energy infrastructure, historically subsidised by a petro-state, served as a profitable mechanism for bitcoin mining and trading to rapidly expand in a nominally socialist country, subject of sanctions, dysfunctional economic policies, and widespread corruption. At a closer look, the story that Guillermo shared was somewhat common in a context of increasing volatility and crisis in many countries in Latin America.

In May 2022, Rosales arrived in El Salvador for a short field trip to research the recent bitcoin policy in the country. Upon arrival, the airport was filled with bitcoin ATMs, some of which were labelled Chivo, the Salvadoran company in charge of rolling out the country's bitcoin policy. After quick pleasantries, the taxi driver, Juan Carlos, began to share his knowledge of bitcoin and the government's policy initiative. Juan Carlos told the story of his celebrity-like encounter with the "official delegation" of Liberland, a self-proclaimed fantasy territory located on a mud flat between Serbia and Croatia where anarcho-capitalists and conspiracy theorists plan to create a bitcoin-fuelled autonomous republic. Juan Carlos was proud to explain how after the delegation's trip, El Salvador had become the first country to officially recognise Liberland's status as independent. The somewhat bizarre and unexpected connection between a small Central American country, foreign influencers, crypto-enthusiasts and an emerging political leader in Central America is part of a broader seismic movement in the nation's political system that is connected with rising high-risk investments in the form of volatile speculative assets such as bitcoin.

In El Salvador, for several years, a deep crisis in its political system has seen the rise of a new populist leader, President Nayib Bukele, with authoritarian tendencies who claims to be wiping out a corrupt elite that increasingly undermines an already fragile democratic system. Among his disruptive policies is the declaration of bitcoin as legal tender, a measure ostensibly aimed at 'banking the unbanked' and offering new channels for remittances. However, the policy appears part of a broader and deepening process of elite replacement and private embezzlement (Alvarado, 2021a, 2021b). This policy has been carried out with the support and advertisement of foreign crypto-investors and enthusiasts who have little interest in the wellbeing of the Salvadoran constituents, but have ultimately financed the president's crypto dream.

Recent scholarship has begun to explore how the intersection of crisis and cryptocurrencies are expressed in the lived experiences and socio-political configurations of the Global South (Atiles, 2022; Crandall, 2019; Howson, 2020; Jutel, 2021). This article contributes to the broader discussions of political economy and lived experiences in Latin America to expose the interconnections of crisis and cryptocurrencies. We elaborate on our fieldwork stemming from Venezuela and El Salvador to reflect upon broader developments and insights that connect crises and cryptocurrencies in Latin America. Our main argument centres on the capacity of cryptocurrency to simultaneously carve out new temporal niches for speculation and quick profit, usually for state-connected elites and wealthier groups in low-income societies, while at the same time reproducing historical conditions of vulnerability and inequality. In the long run, we see that mostly state-connected elites and wealthier groups are profiting from cryptocurrency in low-income societies.

The historical development and legacy of colonial power structures, economic exploitation and the extraction of resources from formerly colonised regions continues to reverberate in 'the state-finance nexus' (Harvey, 2019) of Latin America and other regions. National currencies have been key in the symbolic construction of fledgling nation-states (Helleiner, 2000; Mitchell, 2002) – in the same vein, the domination of the US dollar in many countries of the Global South is not to be understood as a form of economic prowess, but as emblematic of political and ideological sway. Moreover, in the complex of, as David Harvey (2019) calls them, deep relationships between states and capital, cryptocurrencies are not exempt. In fact, we reveal how they might be envisioned and put to use as 'a way out', towards personal autonomy and subsistence, whilst they are simultaneously part of state projects in gaining financial independence from global economic powers. Such complex dynamics are best understood by entwining interdisciplinary modes of analyses that account for the fine-grained details of everyday life and experience, such as ethnography, as well as political-economic theories able to situate broader global developments.

The term 'crypto-colonialism' was coined before blockchains. Michael Herzfeld used it in reference to clandestine strategies used by the British to ensure newly 'independent' countries remained strongly dependent on their colonial master, mainly through unfair trade agreements and debt. Today's crypto infrastructure – trading apps, software, mining and marketing – 'gifted' to poor countries is done with similar motives. Few job prospects are provided for the locals. No useful development projects are left behind. For most local people, all that's bequeathed is a headache. Recently, a vibrant scholarly discussion has emerged around issues of 'data colonialism' and 'imperialism' (Jutel, 2021; Mumford et al., 2022). These discussions are tied to long lasting epistemic debates surrounding the legacies of structures of coloniality, both in terms of knowledge creation and socio-economic development.

In this article, we examine how cryptocurrencies are becoming increasingly entangled with crises and deep-rooted economic exploitation in Latin American political discourse and everyday economic life. More specifically, we critically assess the linkages between cryptocurrency, economic crisis and new forms of political and economic dependency and exploitation. We draw on the cases of El Salvador and Venezuela. These cases are important for several reasons. While both countries have endorsed cryptocurrencies from the top down, with state policies supporting them, these governments differ ideologically. El Salvador's leadership promotes a mix of right-wing populist and technocratic policies and has been denounced as going down a path of increasing authoritarianism (Meléndez-Sánchez, 2021; Vázquez, 2022). Venezuela has long been a left-wing leader in the so-called socialism of the 21st century, but due to the crisis and international sanctions has recently endorsed more pragmatic market-driven policies (Bull and Rosales, 2020b; Rosales, 2021a). Moreover, in both countries mining and trading of cryptocurrency has mushroomed in recent years, while each country faced different economic epochs: Venezuela went through its severest economic crisis and El Salvador faced an apparent economic stability, while it has kept vast swaths of its population immersed in poverty and violence.

The article builds on recent primary research carried out both in Venezuela and El Salvador and on multidisciplinary research that combines political economy, cultural anthropology and geography. Our research is qualitative in nature with a collaborative and mixed-method approach that includes ethnographic methods and elite interviews. We draw on grounded theories of money and critical analysis of blockchain and cryptocurrencies that question the apolitical assumptions of these apparent 'trustless' infrastructures. We argue that cryptocurrencies have the capacity to create potential niches for economic survival, while at the same time reproducing conditions of vulnerability, inequality and neo-colonialism in the long run. Though cryptocurrencies are surrounded by discursive stories of freedom and decentralised community control, in practice they rely on free market fundamentalism, and can interestingly thrive by the hand of authoritarian state elites.

Embedding cryptocurrencies in social and political life

All cryptocurrencies use incentives and/or penalties, relying on 'trustless' systems of cryptography and a blockchain (Crandall, 2019). Using game theory logic, network stability is maintained through the self-interest of users rather than central planning. Following the global financial crisis of 2008, an online community known as the cypherpunks developed the first Proof of Work consensus mechanism, pulling together existing ideas around block time-stamping, and simplified hash equations. The community incorporated a group of anarcho-capitalists and high-tech Hayekian entrepreneurs who politically were on different pages, but they equally embraced principles of cryptography and libertarian capitalism, whilst rejecting government planning. Cryptoeconomics is an embryonic field at present (Brekke and Alsindi, 2021), but the field is often associated with the Austrian school of economics (Golumbia, 2016). The early developers of bitcoin were predominantly made up of anarcho-capitalists influenced by the philosophy of Austrian economist Friedrich Hayek (Howson, 2023). While rejecting state involvement in monetary policymaking, the Hayekians believed that peace and social stability could only be achieved when free market competition and pricing were left unconstrained to enable 'spontaneous order'. In *The Road to Serfdom*, Hayek (1944) argued that any government intervention in the autonomous functioning of free markets would be a slippery slope to totalitarian control and social disorder.

Despite crypto communities' rejection of centralised intermediaries, enabling interests to become (in principle) more digitally decentralised, spatially, as these interests rely on favourable local governance regimes, including light-touch financial and environmental regulation, they often become more geographically centralised, rather than more distributed (Howson, 2023). Histories of neo-colonialism, including impositions of neoliberal structural reforms, have placed many low-income countries at the frontier of cryptocurrency production (Crandall, 2019; Howson, 2020; Jutel, 2021). For example, Puerto Rico, a jurisdiction under direct colonial rule by the United States, has been subjected to policies of austerity imposed by unelected officials and institutions and pushed to relax its tax framework to attract investors from the cryptocurrency industry. Economic instability, inadequate tax policy and regulatory frameworks are also encouraging increased levels of adoption in countries with the least resilience towards economic shocks (Howson and de Vries, 2022).

Blockchain is always entangled with other technologies (e.g., internet protocols and physical infrastructures they rely on for energy and data transfers), politics (e.g. tax regulations in particular locations), and social and economic factors such as the existence of innovation hubs and fashionable investments. While blockchain proponents often tout an a-political distributed system, the pragmatic realities of such networks are characterised by a multiplicity of centralised, decentralised and distributed aspects that manifest in different degrees of prominence in different situations, applications and locations.

Crisis commonly forms a core part of the bitcoin miner's energy calculations. The industry thrives in vulnerable states (Bisenov and Tobin, 2022), geopolitical grey zones (Leterrier, 2021), and communities in conflict (Russell and Hasan, 2022). Bitcoin miners have proved a reliable geographical marker for fossil fuel-related hostilities for years. Similar to dental plaque disclosing tablets, bitcoin mining machines are gurgled around the global energy network, sticking in dark clumps to areas of industrial decline, endemic corruption, and social deprivation. Miners are attracted by state subsidised energy. But these subsidies are usually designed to reduce fuel poverty, rather than increase profitability for bitcoin miners.

Kitchin and Dodge (2011) argue the production of urban space is becoming increasingly dependent on code, while code is written to produce space. For them, this intertwining of software code and urban materiality creates complex manifestations of 'code/space' – where software creates new spatialities in everyday life. Where one's spatial encounters are mediated by blockchain applications, records of actions can be stored immutably. Compliance and accountability are ensured through data transparency, or as Faria (2018) refers to it, a 'distributed panopticon'. Therefore, within neoliberal economies with strong faith in markets as the purveyor of rational behaviour, where citizens are governed through market mechanisms, blockchain platforms enable a libertarian puritanism outsourced to code. The production of cryptospace leverages people's trust in digital technology. Many blockchain proponents hold the techno-solutionist sentiment that digital technology itself is our true destiny, and anyone asking for time to pause and reflect, regulate or influence the shaping of these developments are backwards-thinkers, impediments to progress. In cyberlibertarian writings "those able to rise to the challenge are the champions of the coming millennium. The rest are fated to languish in the dust" (Winner, 1997: 2). Speed is of the utmost importance – act quickly or get left behind. This is antithetical to the work of many feminist and grassroots organisations, whose local place-based knowledges are cultivated over generations.

Despite these attempts at accelerating the pace of an apparently predetermined apolitical future, cryptocurrencies are deeply rooted in contexts of political and economic friction. Therefore, any attempt at a theory of markets and of money is a theory of society, inevitably incorporating other spheres of social life such as politics, religion and technology. This is true for the ceremonial Kula system of exchange in Papua New Guinea of the early 20th century (Malinowski, 1922), the Tiv economy in northern Nigeria (Bohannan and Bohannan, 1968), household economics in the United States (Zelizer, 1994) and the encroachment of global financial markets in all spheres of social life (Ho, 2009; Zaloom, 2006). It is true, as well, for cryptocurrencies, as the latest iteration of money with global aspirations and scope. Yet cryptocurrency's universalising scale and apparent use of 'neutral' technology, side-lining central banks and state control – a depiction adopted by enthusiasts, criticasters and analysts alike – obfuscates situated analyses of these blockchain applications as they are woven into the fabric of political and social life, interacting with local histories, structures of value and projections of the future. To be sure, 'man's economy is submerged', Karl Polanyi (1968: 65) asserts, 'in his social relations'. As such, we aim to stress the importance of localising analyses of developments in cryptocurrency (see e.g. Lee, 2022). By directing our gaze to the particularities of the Latin American context, three key themes emerge.

The cases in our article highlight the complicated entanglement of cryptocurrency adoption, usage and imaginaries with state projects, business interests, and community needs – notably during times of political and economic crisis. In her ethnography of Occupy Wall Street, Hannah Appel (2014) refers to 'economic imaginations'. These are "the possibilities and alternatives, foreclosures and deferrals through which we have come, unevenly, to understand capitalism in the present moment" (Appel, 2014: 602–603). For cryptocurrencies, this means that understandings and practices are in no way uniform, but instead rife with paradoxes and ironies. What becomes evident in both El Salvador and Venezuela, albeit in quite different ways, is how the economic imaginary of crypto, specifically projections of autonomy and freedom from centralised control, is actively leveraged by national governments as a part of their political economic agenda. Such questions of authority in relation to crypto are worth pursuing, particularly because crypto is easily black-boxed, or veiled, behind the cloud of its technology – and consequently neutralised from any political interests and values (Seaver, 2017). Yet alternative currencies such as crypto do not operate in a political and regulatory void, and the actual management of money is key to understanding its effects (Kanters, 2022).

A situated analysis of cryptocurrencies also opens space to interrogate on-the-ground understandings of monetary pluralism: what values are being served with which type of currency, and might different types of currency circulate alongside each other to service different needs and values within society (Graeber, 2001; Guyer, 2004)? Designed to be a peer-to-peer electronic cash system, bitcoin's principal goal was to eliminate the need for government interference in the free-movement of value. Yet what emerges, paradoxically, in the financial landscapes of El Salvador and Venezuela are what James and Koch (2020) call 'economies of advice': brokers and consultancy firms in the private sector that work to inform citizens and guide them into crypto mining or trading practices. These sites can provide key insights into the incentives, purposes and ideals that differentiate bitcoin from other available currencies.

For communities and individuals, it is apparent how cryptocurrencies form a response to crisis. In times of economic stress or when formal institutions prove to be inadequate, the hegemony of a national economic space falters as alternative economic formations gain more prominence and visibility (Castells et al., 2014; Hann and Hart, 2011; North, 2007). The rise of alternatives to conventional money is historically counter-cyclical. As much as bitcoin is interwoven in the national economic space of El Salvador and Venezuela, it is simultaneously understood as a tool to overcome the crises integral to precisely this political and economic space. Capitalist critique tends to be implicit in discussions of cryptocurrencies; the lens of crisis and extractivism precisely brings this capitalist teleology of growth and imperialism into clear view. As such, it becomes possible to scrutinise its situated effects. Crisis – a structural condition under capitalism – is central too to the life of crypto. The same can be said for exploitation.

Chivo wallet: Financial inclusion as façade for appropriation of public funds

The president of El Salvador, Nayib Bukele, declared bitcoin a legal tender in June of 2021. Bukele used the super-majority that his Nuevas Ideas party holds in parliament to make a swift change to a cornerstone of the country's currency system. El Salvador has been a dollarized economy for over two decades, in what was suspected to be a policy that would further link El Salvador to the US economy and one that would benefit its financial and export-oriented elites. Bukele's announcement about bitcoin, however, was made in English, broadcast from a bitcoin convention in Miami in front of hundreds of bitcoin enthusiasts (Vázquez, 2022). He was accompanied by Jack Mallers, a crypto-entrepreneur who had been interested in El Salvador's "bitcoin beach" in El Zonte, a crypto-utopian project financed by a bitcoin angel investor in connection with local charity organisations. Mallers helped scale up the initiative in El Zonte, which later became a laboratory for Bukele's policy nationwide (Fieser, 2021).

Being a dollarized economy with reasonably stable inflation rates, politicians and citizens in El Salvador clearly had different incentives than those in Venezuela, as we shall see later, to embrace bitcoin. Discursively, Bukele's decision was justified as a policy that sought to promote financial inclusion, enhance development via new technological investments, and attract remittances from the diaspora. But declaring bitcoin legal tender includes broader aspirations and discursive overtones. State officials promote potential developmental objectives in tandem with encouraging an innovative and anti-imperialist leadership, capable of standing up to international institutions such as the International Monetary Fund and the United States, and the possibility of advancing technical solutions to people's quotidian problems. The ideas of technological innovation for development and financial inclusion refer to what Vázquez (2022) has labelled a 'technical fix' to social problems through a fixed set of mechanisms that are distanced from the population's needs and that are also fixed in the sense of granting benefits to a premeditated sector of society. Against the backdrop of a disruptive discourse and the apparent desire to expand financial networks to the nation's poorest, the bitcoin policies of El Salvador reveal broader authoritarian transformations in the country (Meléndez-Sánchez, 2021), and the use of public office to benefit private interests.

While dollarisation connects El Salvador with broader regional and global financial circuits, most Salvadorans remain absent from the banking sector. According to official statistics, <30% of people in El Salvador have a formal bank account, the percentage is lower in poorer sectors and among women (Presidencia de El Salvador, 2022). Structural conditions make it difficult to close the gap between the banked and the unbanked. Mario Gómez, an expert in El Salvador's fintech and a critic of the government's bitcoin policy, explained in an interview that the reason for the country's considerable portion of unbanked people resides in their 'lack of disposable income'. For Gómez, "the main problem is that people don't have money to deposit in a bank account; if they live on a day-to-day basis, a bank account doesn't make sense" (interview with an author). The other major social promise of the bitcoin law is that using bitcoin to capture remittance flows to El Salvador would cheapen and ease the procedure for migrants and their families. Government officials emphasise the importance of offering Salvadorans an alternative, inexpensive mechanism to send remittances to families at home. Migrant workers in the United States often pay hefty fees to send modest amounts to their relatives back in El Salvador. Thus far, the adoption of bitcoin for remittance has not been significant; the volume of remittances sent through the Chivo Wallet remains a small portion of the total flow, surrounding 3%t. The regulations imposed by the Securities and Exchange Commission in the United States for cryptocurrency transactions oblige the storage of legal ID to create a wallet, something that many irregular migrants would be hesitant to do. In this case, most continue to rely on expensive and predatory services offered by Western Union and similar exchanges.

The bulk of the bitcoin policy in El Salvador has been carried out by the Chivo wallet. The government initially requested a $200 million US credit to Parliament to finance the creation of a national wallet, through which a $30 US incentive would be given to every Salvadoran citizen who downloaded the app. A trust fund of $150 million US was created to allow automatic convertibility between bitcoin and dollars by those purchasing and exchanging funds between the two. Another portion of those funds went into setting up the technology and infrastructure for the measure, as well as funding public awareness and education about the technology. Some 200 Chivo ATMs have been placed throughout the country, as well as in Salvadoran consulates in the United States. Over $100 million US have been also invested in purchases of bitcoin by the president.

Even though the company Chivo was created by the government with state funds, it is considered and treated as a private company (Alvarado, 2021a). According to liberal member of parliaments Johnny Wright Sol, the governance structure of Chivo Wallet reminds Salvadorans of historical tendencies of corruption in the country. Wright Sol argues "the electric sector has been a focal point of corruption in the Salvadoran state". He explained that "after the 1990s and the neoliberal reforms and policies of privatization of public enterprises, the electric sector was partially privatized, but power generation remains under the state control" (by Comisión Ejecutiva Hidroeléctrica del Rio Lempa, CEL). In that sense, Wright Sol argues, "this sector continues to be the *cash cow* of the state, after every administration. There has always been theft of public funds that originate in power generation". Through Chivo Wallet, the government is able to use a public utility to create private wealth.

Chivo's board of directors has been appointed directly by the government and it has many close associates of the president. The enterprise has been operating as a financial institution, but it is not treated as such (under the scrutiny of banking oversight institutions). Instead, it is protected by state secrecy. The strategic ambiguity – conveniently private and yet funded by public funds and managed by associates of the government – connects with a history of state-sponsored theft that usually engages the power-generation state company, CEL. The main concerns that arise from this ambiguity relate to potential channelling of public funds for the benefit of a private clique, close to the president. Members of the company's board have been partners in business and political deals of Bukele's that date back to his time as Mayor of Nuevo Cuscatlán, outside of San Salvador (Alvarado, 2021b).

Some technical issues associated with the Chivo app raise concerns to independent observers and institutions in and outside El Salvador. Its release was reportedly rushed, and there have been countless breaches in its system. Different fraud schemes were initially set up to steal individuals' personal ID information, and thousands of accounts (containing mainly the $30 US incentive) were emptied that way. Other elaborate schemes spread, in which people gave their information to apparent financial operatives, often with the promise of a significant and fast return that was never fulfilled. By and large, however, Salvadorans downloaded the app and immediately used the $30 US incentive for daily consumption needs. As Marroquin explains, "the large retail companies benefited the most from this investment, as the majority of people used their bonus for groceries and other essentials". Government officials state frequently that the government is determined to investigate and solve these cases of fraud. There is, however, no reliable information about those cases and the extent of the theft perpetrated.

Based on informal conversations with regular people who trusted the Chivo wallet and attempted to make bitcoin investments, fraud was a recurrent theme, where working class Salvadorans had been lured by offers of great returns for their modest investments, to later find themselves robbed of their savings. In these interactions, similar notions of trust and distrust emerge: trust in traditional financial institutions is difficult to find, and the possibility of earning great returns through an unconventional and disruptive technology appear as both a temptation and hope. Similarly, while many people may be aware of the power-grabbing intentions of the president, they are also willing to bet on his disruptive image, due to their deep distrust in traditional political parties and institutions who have disappointed them in the past. Bukele and his associates, in turn, prey on these sentiments to find legitimacy in diverting public funds to a risky investment.

The question of convertibility contributes to a further set of political and technical problems. The company Athena, which had originally been a contractor for the government in the deployment of the bitcoin policy, explained some concerning features of the Chivo wallet in its prospectus to the SEC of the United States. In this document, Athena attests that Salvadorans who convert bitcoin back to dollars may not be fully guaranteed their funds, but some form of stable coin tokens, something that goes against Salvadoran law and can be a source of profound instability in a dollarized economy. The document states that "when Salvadorans convert their Bitcoin to dollars, they do not receive dollars in the digital wallet. Instead, they become holders of stable-dollar coins, which are only a claim to real dollars". The document continues: "At that point, Salvadorans hold an asset backed by the full faith and credit of Mr Bukele's government" (SEC, 2022: 59). This has raised concerns by critical observers who have claimed that Bukele may be trying to use Chivo to monetise the government's deficit and cast doubts about the sustainability of dollarisation (Rauda, 2022).

Economist Oscar Cabrera, former head of the Salvadoran Central Bank furthermore explained that "the government took advantage of a grey area of governance to create a company through CEL and derive government funds to a private enterprise which creates great risks for the country's financial system". The reason for this is that "Chivo wallet is not regulated by the Central Bank or the Superintendence of the Financial System". Furthermore, Chivo is "taking on responsibilities that the constitution only grants to the Central Bank such as disposing of the nation's reserves" (quotes from interview with an author). Granting convertibility is a function of the Chivo wallet that is crucial for the stability of the financial system in El Salvador, as the equivalent amount of bitcoin must appear in the stock equivalent of the central bank in US dollars. Cabrera remembers that in 2015, a telephone company was offering services like an e-wallet and was capturing deposits, which goes against the banking law in El Salvador: "the Central Bank decided to impose this company a legal banking reserve of 100 percent and this is what companies dealing with bitcoin currently must adhere to in order to avoid making inorganic money". Unfortunately, according to Cabrera, Chivo is being shielded by banking secret, without formally operating as a bank.

Government officials, however, deny any attempt to decouple El Salvador from the US dollar through bitcoin. At any rate, the possibility that a bitcoin enthusiast head of state may use bitcoin as a platform to issue national money questions the edifice upon which bitcoin has been discursively built and that is rooted on metallistic dogmatism and anti-inflationary monetary scarcity. Moreover, the use of Chivo wallet as a private enterprise created from state institutions and with public funds contributes to questions of legality and the power of elites to profit from the capture of state institutions. Deep in these seismic changes are regular Salvadorans whose trust in a disruptive political leader has been the collateral for a risky investment in a volatile asset, using state funds. President Bukele has been successful at diverting millions of dollars from state coffers to a quasi-private betting game due in large part to the crisis of a political system that had historically abandoned regular citizens and whose trust has been eroded.

Poor miners: The lures of crypto subsistence and blockchain 'egalitarianism'

For some time now, various crypto adoption indexes have ranked Venezuela third as the country that has reached one of the highest rates of cryptocurrency usage in the world (Goschenko, 2021). It is said that in 2021 Venezuela produced a total of 28.300 million dollars in cryptocurrency transactions and witnessed an increase of more than 50% in the adoption of cryptocurrencies in comparison with the previous year in the country (Maldonado, 2022). Beside a sheer monetary flight into dollars and a sharp increase of barter in recent years due to the protracted economic crisis, aside from recent policymaking to implement and regulate crypto mining, many ordinary Venezuelans are turning to cryptocurrencies to navigate the economic meltdown in their country with inflation rates of more than six digits. The crisis has pushed Venezuelans towards new uncertain financial transactions such as cryptocurrency.

Due to its very cheap energy and the government's enthusiasm to circumvent the economic sanctions implemented by the United States and EU, in recent years the Venezuelan government has proved quite adaptable to the mining and trading of cryptocurrencies. In 2019, the government issued a decree that established a new legal framework, the National Superintendence of Cryptocurrencies (SUNACRIP) to regulate the creation, issuance, organisation, operation and use of cryptocurrencies and related activities. An important incentive for crypto mining (both public and private) in Venezuela has its roots in a frail electric generation system providing energy almost for free. The energy system in the country – powered mostly by hydroelectric sources – has long been underinvested and poorly maintained, and many new infrastructural projects have been left idle due to mind boggling corruption schemes. Despite this fragility, the country maintains unsustainable subsidies in energy as part of a long 'petro-state' tradition to promote industrial development and satisfy local demands via the nation's energy wealth (Rosales, 2021b). Aside from 'traditional' cheap energy, for some Venezuelan citizens, cryptocurrencies have been a window of opportunity or need to evade multiple economic restrictions (Guerrero, 2022). Bitcoin mining and trading has spread in a context of economic collapse, where abandoned apartments due to the largest migration wave in the Western Hemisphere have become makeshift centres of operation for informal economic activity. A country whose GDP has shrunk over 80% in 7 years (Bull and Rosales, 2020a), Venezuela's abandoned industrial capacity due to state negligence, mismanagement and brain drain has allowed some space for power use in alternative activities, even when deteriorated public services make electricity generation and other utilities less reliable. It is thus of no surprise that the crypto hype was quite palpable in the streets, offices, and homes in Caracas in 2021. It is now estimated that around 3000 shops in Caracas accept crypto currencies as payment method (Listas, 2021) and around 100,000 Venezuelans are mining for cryptos (Swissinfo, 2017). These numbers are largely based on unreliable estimates as official data is absent since 2015 and existing statistics are largely based on guesswork. What is more of interest here is how Venezuelans themselves cognatize, employ, and give meaning to ad hoc crypto mining and trading during protracted economic and monetary crises.

In 2021, the first Bitcoin Café in Venezuela opened its doors. The manager, a Venezuelan woman in her mid-fifties, said that they combined coffee with educational services about crypto economies and digital technologies. She explained that their target group was mainly middle-aged Venezuelans that were looking to diversify their storage of value and new investment opportunities but were largely inexperienced with blockchain technology and e-finance. The manager stressed that she was only active in trading. She had heard of big bitcoin mining farms outside of Caracas, but profitable mining required more knowledge, she said. It was through this manager that van Roekel was able to participate in a '*Martes de Emprendimiento*' (Tuesday of Entrepreneurship) by the Venezuelan representative of a new cryptocurrency called Polkadot.

The Polkadot representative was a hipster in his late forties, a Venezuelan fine artist interested in blockchain. Although he claimed not to be evangelical about blockchain, he tried to lure everyone into a marvelous world of 'decentralisation' and 'autonomy'. He also seemed keen to declare Latin America *the* continent of blockchain and crypto finance, because they simply had no stable currencies such as dollars or euros, and cryptocurrencies were a viable way to survive the crisis. 'Necessity pushes crypto', he said. The listeners were middle-aged men with little to no knowledge of the blockchain, but with some money to invest, just as the café manager had confided earlier on. The representative's discourse of survival and ad hoc solution smoothly integrated with sparks of opportunism. "The blockchain is an opportunity, yet only 1% are taking advantage!"

In Venezuela it is hard to access big crypto mining farms due their close connections with political forces and influential non-state actors that are not pleased by the prying eyes of researchers and journalists. Yet, despite many rumours, some information about the installation of big mining farms have leaked (Guerrero, 2022). Some companies have successfully set up mining machines in abandoned industrial warehouses across the country, and also the government claims to have set up different farms, including in Fuerte Tiuna, the largest military base in Caracas. Being interested in how the crypto boom in Venezuela evolved in less 'spectacular' ways, van Roekel instead met 'ordinary' *mineros pobres,* whom we call Leonardo and Alejandro, at Guillermo's office. Both were young tech savvy software engineers and Ethereum enthusiasts. They had started mining out of a mixture of curiosity and necessity. The rewards were only *cucharillas* (little spoons), Alejandro said. They had clearly not hit the jackpot (yet).

Leonardo was the real chatterer of both. After a first tentative talk about the marvels of Ethereum, he invited us to his modest mine at his parents' house in the upper hills of Eastern Caracas, where many middle-class families live. Being an experienced software engineer, he was already quite handy with video cards, he said. To increase his modest salary in the speculative economy in Venezuela, in recent years he saw his chances and built four crypto mines and started a small consultancy for other Venezuelans interested in this growing digital extractive economy.

Mining requires knowledge after all. Cryptocurrency is also very much a knowledge-based economy whose consultancy activities are paid both in crypto or cash.

Leonardo explained that despite the notorious power cuts due to infrastructural failure, energy mismanagement and corruption, he considered the Venezuelan crisis – surprisingly – quite promising for crypto mining. Due to hyperinflation and price controls on public utilities, eventually, energy became almost free of charge – for many small crypto miners in other countries high-energy prices are often a practical problem to make mining profitable (Calvão, 2019). The empty houses of his siblings that had left the country over the years fleeing from the crises became unexpectedly resourceful mining sites without raising too many suspicions about sudden increased energy consumption in the neighbourhood. It was hard not to confront Leonardo with the practical contradiction of engaging in a high-energy consumption activity in times when the national energy grid was chronically failing and an increased global awareness about the need for energy consumption reduction. Sitting next to his fabricated mine in his parents' house, Leonardo reasoned that while being *under*employed at his current employer and without any access to reliable credits in a country where the public educational system and healthcare did not work, the only thing he could take advantage of was cheap energy. "I don't care how much energy it consumes or if it's sustainable or not…While I still live in a world that does not work, I will continue, without greed… It may sound like a justification, but it is not. [Crypto mining in Venezuela] is just part of the solution…"

Leonardo's candid answer seemed justifiable and unsettling at once. He clearly wanted to distance himself from the image of the greedy crypto-miner using mining farms. To what extent do these smaller crypto mining and crypto trading operations foster any solution to Latin Americans, in this case Venezuelans, who are facing chronic monetary volatility and innumerable economic challenges and financial restrictions due to national policies and international sanctions? These stories are more than just compelling individual case studies to colour up dramatic macroeconomic shifts arising from new technological developments in global financial landscapes. They reveal how people are ambiguously pushed towards new uncertain financial transactions with the hope for some extra income. They also reveal the dynamics of a long tradition of rentierism, where the state has traditionally assured energy as a right to its citizens, even if done through subsidies that come at high costs and *instead* of other necessary services.

But these local accounts do not tell the whole story of the recent crypto boom in Venezuela. Neo-evangelical ideals of decentralisation and financial autonomy are not so equally distributed as it may seem. A more elaborated report on a big crypto mining farm owned by the Coin Coin Group in Maracay nearby Caracas, for instance, shows how the Venezuelan state ventures into large private crypto mining businesses in Venezuela through clever association strategies between the government and businesspeople political connections: "All crypto businesses are equal, but some are more equal than others" (Guerrero, 2022). During a recent field trip to Caracas in 2023, Leonardo's Ethereum enthusiasm had largely evaporated though. He confided that he had stopped all of his crypto mining. His video cards had worn out and he had no spare money to invest in buying new ones to keep up with the competitive technological nature of mining for cryptocurrencies. The recent fall of bitcoin had also negatively affected the value of other cryptocurrencies, like Ethereum. At the same time, Leonardo was facing rising monthly energy rates as unexpectedly the subsidies from a cash-strapped government had rapidly declined in the first quarter of 2023 (Reuters, 2023). And on top of all these material and financial alterations, 'poor miner' Leonardo had also changed jobs. Unfortunately, his new employer had been involved in an unfolding large corruption scheme related to cryptocurrencies and oil in Venezuela. In early 2023, the Venezuelan government dismantled the SUNACRIP, after the government revealed a corruption scheme that involved the head of the superintendency, Joselit Ramírez, in collusion with the national oil company, PDVSA. According to the government, in this scheme, state officials had funnelled over 3 billion US dollars from oil sales done in cryptocurrency to bypass oil sanctions. The state embrace use of cryptocurrencies in Venezuela has been a tool not only to sidestep the obstacles of sanctions but a mechanism to funnel state funds for personal wealth (García Cano and Goodman, 2023).

Cryptocurrency expansion in Latin America: A regional laboratory

Both Venezuela and El Salvador are prominent examples of the expansion and use of cryptocurrencies situated in crisis. Yet, they are not the only spaces of cryptocurrency expansion and experimentation in Latin America. While crypto markets have crashed significantly in the Global North, economies in the Global South are growing in significance as spaces for tokenising natural resources (Howson, 2023), charitable giving experiments (Howson, 2021), and offers of opportunity to rebuild financial channels severed by sanctions and other infrastructural impediments (Campbell-Verduyn and Giumelli, 2022; Tankha, 2021). Questions of authority and monetary management – specifically the entanglement of public and private interests – are key in understanding developments in cryptocurrencies in the Global South. As we have explained, both Venezuela and El Salvador show the complex linkages of powerful elites, who may use emerging financial tools for economic and political goals, with social needs and economic opportunity. These linkages also include global financial investors who often remain obscured in these stories but play pivotal roles. Such is the case in El Salvador, where a so-called angel investor helped kick start the experiment of El Zonte 'bitcoin beach', as a presumably 'circular economy' powered by bitcoin. After this experiment was hailed by president Bukele as inspiration for his own bitcoin policy, similar projects have been launched in Central American towns linked to the tourism industry, such as the town of Panajachel in Guatemala's Lake Atitlán and the town of Dominical in Costa Rica (Gándara, 2022; Grudgings, 2022). The intention of replicating the model of El Zonte and spreading it to other marginalised areas of Latin America represents an important focus of analysis in the intersections of charity, tourism and potentially exploitative practices that ignore the needs of poor and racialized people (Robinson, 2020).

Throughout the Global South, assumptions and expectations of 'blockchain egalitarianism' continue to be exposed as an empty promise. Instead, what emerges are the stark contours of market-oriented dispossession. Critical scholars have successfully shown how dynamics of neo-colonialism have played out in Puerto Rico where unelected officials and institutions from the mainland United States have imposed austerity policies and incentivized changes in the archipelago's legal framework to carve out exceptions and opportunities for crypto-investors to safeguard their wealth (Atiles, 2022). These changes have contributed to processes of dispossession and gentrification, displacing local populations for the benefit of vulture capital. Exacerbating existing inequalities at multiple scales, crypto-expansion in Puerto Rico by foreign elites has not addressed the country's lacking infrastructure, including critical energy infrastructure after Hurricane María decimated the island (de Onís, 2018). In Venezuela, though the *mineros pobres* enthusiastically delve into ad hoc opportunities of this expanded monetary pluralism, they receive very little reward in the long run. Understood to circumvent the crises of the conventional monetary system, it effectively replicates them. Moreover, these crypto-opportunities often shift the linkages of exploitation of labour and nature from traditional practices of rentierism and resource extraction to financialized instruments such as bitcoin mining.

This article contributes to ongoing discussions on the role of cryptocurrencies in developing countries and their linkage with economic and political crises. It advances our understanding through an effort in interdisciplinary integration. By weaving together ethnographic data, anthropological grounded theories on money and theories in political economy, we want to show how geographers can provide paint more comprehensive pictures concerning the economic processes related to cryptocurrencies on-the-ground as part and parcel of social relations, cultural practices, and power dynamics. As such, the article underscores how cryptocurrencies emerge as makeshift opportunities for survival, as a tool for making quick profits for elites, and for enhancing financial connections severed by sanctions and other obstacles. At the same time, they are interwoven with processes of dispossession, fraud, and exploitation, often supported by state officials and authoritarian or unelected governments. These connections ultimately reveal the uncomfortable intimacy between cryptos and the state, in which tools of apparent decentralisation and transparency turn into speculative mechanisms of concentration of wealth and opacity with lack of accountability. Such processes have on-the-ground consequences and deeply affect how people make decisions, both in making a living and making a life during turbulent times.

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