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THE CRYPTO STATE

A RESPONSE TO THE FAILURE OF GOVERNANCE IN OUR CONTEMPORARY ERA.

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To Quasem and Sadia,

for your unconditional love, guidance, and sacrifice.
We live in turbulent times. The rapid spread of the internet has facilitated unprecedented levels of inter-connectivity between states in a global economy, while rapid advances in machine learning and robotics are on the precipice of making human labor—both physical and intellectual—obsolete. New technologies have created incredible opportunities for us to progress as a civilization, but if not managed properly, these innovations could instead cause tremendous harm. Alarmingly, the institution responsible for regulating transformations like globalization or automation has been inept. The Nation-State has either failed or been unacceptably slow to respond to the various issues of our century.

In The Cryptostate we analyze the various ways that our changing world has limited the ability of the Nation-State to perform its essential duties. We see how these limitations are not merely caused by bureaucratic mediocrity, but also by structural deficiencies shared by all States. These limitations have disenfranchised large portions of the global population and invited harm and suffering—i.e., ethnocentrism, poverty, and environmental disaster—to all peoples. The Cryptostate is a governance structure that addresses said structural limitations. It is an amalgamation of primordial democratic theory and recent technological advancements. It redefines the philosophical bedrock of a State and disregards notions such as territoriality and ethnocentrism, replacing them with adherence to democratic principles such as representation and transparency. Never before in human history has it been technologically feasible to create such an entity but in this thesis, we demonstrate that not only can such a state exist, but that in the face of our ongoing technological and global revolution, it must.
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Preface

This project began as an attempt to answer one question: What would a Nation-State look like if it adopted a blockchain based currency? I had been an avid follower of the development of various cryptocurrency technologies and, at the behest of a friend, began to research the intricacies of cryptocurrency design. I quickly realized that the challenges facing creators of cryptocurrency were drawn from the realm of economics and political philosophy. Technical questions aside, the founder of a cryptocurrency would have to decide how wealth would be generated, what the total currency supply would be, who would have a say in making changes to the system, would people’s identities remain anonymous, etc. Questions of privacy, suffrage, punishment, and fairness, were at the heart of the cryptocurrency creation process and shared a striking similarity to the political institution creation process. This link became even more apparent when I realized that the creation of currency was integral to the characteristics of any economic system. The realization led me down a rabbit hole in search of how the nature of
modern fiat currency—as well as historical manifestations of currency—shaped our economic systems.

I found that modern currency has substantially shaped our present economic institutions, but that these significant changes are either downplayed or disregarded in mainstream discourse. I discovered that, in particular, modern economies, taxation does not fund government spending, and that ‘monetarily sovereign’ States can exert enormous influence on the economy to ensure the well-being of its citizenry. However, due to intimate global economic ties, very few nations are monetarily sovereign. Developing countries, such as my native Bangladesh, sacrifice their monetary sovereignty by taking loans from foreign powers, and maintaining trade deficits based on importing high-value products and exporting cheap products—the most notable of which is labor. This cycle of economic co-dependence is an essential characteristic of neoliberal globalization, and the consequences of this can be seen all around us. One result in particular that I found myself drawn to was the impact of neoliberal globalization on the power of the Nation-State. In our present society, no individual State has the authority to police transnational activities, and this lack of accountability has been exploited by certain actors to circumvent the need to respect human rights or adhere to ethical production practices. It was at this point that the relationship between neoliberal globalization, currency in the economy, the Nation-State, and the international realm, came together to become Part I.

After emerging from my curious stupor, I amended my original question to: how can blockchain technology help fix the structural deficiencies of our economic and political institutions? This question was the focus of Part II. The Cryptostate provides a guideline for modern governance based on high local autonomy, direct democracy, and the enfranchising all affected interests principle. Theoretically, any Nation-State today could decide to adopt the
structural prescriptions suggested in this text, and my inspiration for writing this thesis was to provide a feasible solution to problems such as political disenfranchisement, economic inequality, and a lack of accountability for actors in the international system.

Writing this thesis would have been impossible without the continuous and diligent support of my thesis advisors, Regina Gramer, and Daniel Viehoff. There were several points in the writing process when I felt disorganized and lost, but professor Gramer pulled me out of my rut every time without fail. There were times when I struggled to incorporate all the moving parts into a coherent structure, but my advisors always managed to set me on the right path. This thesis would not have been feasible without the help of Natalie Plotkin, and Samarth Tiwari.

Natalie is one of the most talented writers I know and without her help editing my work it is doubtful whether any of it would be intelligible. Samarth was responsible for introducing me to the world of blockchain technology, for helping me parse through the technical jargon, and for helping develop my conceptualization of The Cryptostate. Finally, I would like to thank my parents, Quasem Azam, and Sadia Faizunnesa. I would never have had the opportunity to complete this thesis if it weren’t for their unconditional support.
Introduction

We live in turbulent times. The rapid spread of the internet has facilitated unprecedented levels of inter-connectivity between states in a global economy, while rapid advances in machine learning and robotics are on the precipice of making human labor—both physical and intellectual—obsolete.¹ New technologies have created incredible opportunities for us to progress as a civilization, but if not managed properly, these innovations could instead cause tremendous harm. Alarmingly, the institution responsible for regulating transformations like globalization or automation has been inept. The Nation-State has either failed or been unacceptably slow to respond to the various issues of our century.²

¹ The question of automation is relevant but tangential. If interested in a detailed discussion see: Appendix B.

² Calls to modernize the technological and socio-economic aspects of governance frameworks have plagued governments in recent times, and reactionary populism aimed at undermining increasing global integration has gripped nations indiscriminate of cultural and economic distinctions. These demonstrations have been labeled anti-globalist, but a closer look reveals that the protests are directed at political and economic disenfranchisement caused by a specific brand of globalization: neoliberalism. There is a vast wealth of literature on the impact of neoliberal globalization on laypeople, but for a general introduction see: Burgmann, Verity. 2016. Globalization And Labour In The 21St Century. London, U.K., and New York, U.S.A.: Routledge.
Certain shortcomings of governments around the world can be attributed to the incompetence or corruption of politicians or the systemic greed of the neoliberal order; however, there is also a structural cause for these inadequacies. Nation-States have not adapted their philosophical underpinnings since the Enlightenment era principles of the 1800s. Outside of certain despotic strongholds, the mandate of the modern nation-state is to provide security and liberty for its citizens. In contrast to the arcane Divine Right or Mandate of Heaven, we have accepted that legitimacy comes directly from the people. However, this philosophical shift spurred a series of related problems which only raised more difficult questions. One of these questions is how to define “the people.” Initially, citizenship was restricted to an incredibly small section of the population, and the right to become a part of the people was extremely exclusionary.

While suffrage has increased over time, it is still far from universal. Almost every corner of the world falls under the jurisdiction of one government or another, but critically, the authorities of governments never overlap. This notion—naively referred to as sovereignty—is held as a sacred tenet in the realm of International Relations yet, the term is not, and has never been, normative. It would be plain ignorant to claim that today the government of an economically developed state does not have an impact on the citizens of their developing neighbors. The citizens of both countries feel the harmful effects of this relationship. For example, abysmal working conditions allow for cheap labor, cheap labor attracts investment from abroad, people abroad lose employment opportunities, and people in the developing country are

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3 A wave of constitutionalization gripped European polities following the French Revolution. The United States was slightly ahead of the curve, establishing its constitution in 1787, but the French followed suit in 1791. Following the Napoleonic Wars, even conservative States such as Prussia and Japan adopted constitutions, in 1848 and 1867 respectively. Constitutions have been written and re-written many times since, but core values and institutions have not shifted since those established during this period. For a more in-depth look at the similarities in institutions and mechanisms of European constitutions see: Tuori, Kaarlo. 2016 “The Many Constitutions of Europe.” Oxford Handbooks Online. 8 Apr. 2019. http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780199933532.001.0001/oxfordhb-9780199933532-e-23.
deprived of humane work environments. The benefactors of globalization are those that have the resources to leverage the international sphere. Currently, these benefactors are economically developed States and private actors from advanced States. This lack of enfranchisement on the global level is directly linked to the recent rise in populism around the world. Sanders, Trump, Brexit, Le Penn, et al. are not just reactions to globalization; they are reactions to exacerbating wealth inequality and a feeling of estrangement from the global community.

Another landmark of politics in our modern era is the fear of a robot revolution. Self-driving cars are poised to make human labor in trucking and taxi industries obsolete while machine learning algorithms are on the cusp of replacing monotonous intellectual labor. We are witnessing a break in the previously intimate relationship between production and labor. If appropriately managed, this development could liberate large portions of the population; however, as of right now many societies believe that a person's welfare is predicated on their ability to labor. Globalization and automation have fostered resentment in people all over the world, whether it be due to rising domestic unemployment or the enabling of exploitative practices by foreign corporations.

Governments need to take responsibility for every person they genuinely impact, both inside and outside present national borders because only then can humanity begin to think of themselves as a united species and genuinely benefit from the boons of globalization and automation. Instead of restricting the responsibility of a state to its citizenry, a revised perspective requires that we expand the mandate of a state to enfranchise all affected by its actions. There are numerous challenges to creating, or even conceptualizing, such a state; however, the development of blockchain technology addresses many of these technical difficulties

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4 See Appendix B.
and provides an opportunity to update the capabilities and characteristics of the modern
government to adhere to this expanded mandate.

In The Cryptostate we will analyze the various ways that our changing world has limited
the ability of the Nation-State to perform its duties. We will see how these limitations are
structural deficiencies shared by all, and how these limitations have invited harm and suffering to
all peoples. The Cryptostate is a governance structure that addresses these fundamental
limitations. It is an amalgamation of primordial democratic theory and recent technological
advancements. By combining democratic principles with blockchain technology, we can create a
decentralized, transparent, governance framework in which various groups—societies, ethnicities,
or nations—can communicate, coordinate, and enfranchise all affected members. Never before in
human history has it been technologically feasible to create such an entity but in this thesis, we
will demonstrate that not only can such a state exist, but that in the face of our ongoing
technological and global revolution, it must.
Part I

Shortcomings

‘The Cryptostate’ is the essence of my thesis in two words. The phrase consists of two distinct elements, ‘crypto’ in reference to the cryptographic basis of the economy, and ‘state’ in reference to the legal sovereign status of the government. The Cryptostate represents a framework for governance that uses technological advancements to resolve some longstanding technical problems with democratic governance. In more practical terms, the Cryptostate is a decentralized governance structure that uses cryptographic elements to ensure integrity and transparency in the State’s political and economic structures. Many of the features included in the Cryptostate are a direct response to the shortcomings of various governments in reacting to modern changes. We will go over the specific structures and mechanisms of the Cryptostate in Part II, but before that, we need to identify fundamental government failures in contemporary society. In order to identify any such failure, we need to establish what a functional government
resembles. There is a large degree of disagreement amongst individuals over what the
government ought to do, so any attempt to codify its functions will inevitably alienate some;
however, we will try to make the rationale behind any assumptions explicit, so that at the very
least it is possible to understand the traditions from which we are drawing.

A natural beginning to our inquiry would be Enlightenment era social contract theory.
Modern democracy, and even some modern dictatorships, have come to accept the idea that
citizenship in society forms an implicit contract between the individual and the government.\(^5\)
The individual cedes autonomy to the state, and in return, the state provides several services for
the individual. While other theories of state legitimacy certainly exist—with Divine-Right theory
being the next most popular—they have all largely fallen out of favor. Thus, we can say that
democratic theory is at the foundation of contemporary political conversation, as it establishes
that governments do have an obligation to their citizens, although not necessarily what those
obligations are or how they ought to be implemented. Figuring out the specifics is, for better or
worse, delegated to the various consensus mechanisms employed by democratic States.

Another essential role of government is its responsibility to hold citizens accountable for
their actions. In the words of Irish Statesmen Edmond Burke, “the restraints on men, as well as
their liberties, are to be reckoned among their rights.”\(^6\) The State’s monopoly on violence is used
continuously to maintain order and pursue its interests both against its citizens—by rewarding or
punishing behavior—and against outsiders—through diplomacy and warfare. Once again this

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\(^5\) The conceptualization of the Social Contract—in its current manifestation—is typically attributed to either Locke
or Rousseau. If interested in developing a familiarity with the topic see: Rousseau, Jean-Jacques. Rousseau: The
Social Contract and other later political writings. Cambridge University Press, 2018. Alternatively see Shapiro, Ian,
ed. Two Treatises of Government and A Letter Concerning Toleration. Rethinking the Western Tradition. Yale

www.gutenberg.org/files/15679/15679-h/15679-h.htm.
premise is not saying anything about what behavior should be promoted or punished; instead, it merely establishes—hopefully uncontroversially—that providing accountability is among the responsibilities of any government. Thus, we can draw on these two insights to develop a basic definition of the role of government: to promote the welfare of those under its jurisdiction while holding those individuals accountable for their actions. This definition is far from a comprehensive account of the role of government, but the benefit of a vague definition is that it provides a common ground on which to develop more complex, and admittedly unorthodox ideas. Throughout Part I, we will elaborate on the components of our definition and address questions such as: what does it mean to promote welfare, what does it mean to hold individuals accountable, or for specifically who is the State responsible. Running concurrently throughout our discussion will be an analysis of how the modern world has fundamentally altered the nature of these questions.

Much has changed in the twenty-first century. In addition to disruptive technological advances, our contemporary era has spurred a transformative period of globalization; there are more universally recognized nations than at any time in the past and international organizations have fostered an unprecedented degree of cooperation between these nations. The advent of the internet has strengthened transnational markets, facilitated a rapid exchange of information, and introduced a level of interconnectivity never before seen in history. In the face of this globalization there remain archaic yet prevalent ideologies and institutions that have the potential to undermine these developments. Chief among these is the Nation-State, and especially the ethnocentric ideology at the foundation of the Nation-State.
Chapter I

*Revisiting the Nation-State*

There is much debate regarding the origins of the Nation-State. Some claim it was present as early as the fourteenth century in France and England, while others claim it did not exist until a rising tide of nationalism and revolutionary fervor gripped Europe in the mid-nineteenth century. For our purposes, the ambiguous ‘when’ Nation-States developed does not matter nearly as much as ‘what’ they represented. The Nation-State is centered around the premise of a nation: an ethnic group with, among other things, a shared language and history. Any distinct cultural identity can be classified as a nation, and any sovereign government can be considered a state. Thus, a nation can exist without a state, such as in the case of the Assyrian, Tibetan, or Kurdish people, and a state can exist without a nation, as was the case throughout most of human history. Today, every sovereign state is classified as a Nation, so the two terms
have become synonymous; however, in the grand scheme of history, this merger is an incredibly recent—and significant—development.

As notions of universal rights, self-determination, and sovereignty became mainstream in European discourse, the theory behind state legitimacy shifted from a firm belief in despotic Divine-Right theory to a belief in self-determination along ethnic lines. In other words, the most legitimate states were those that derived their mandate from the people: the Germans ruling Germany, the Italians ruling Italy, and the French ruling France. Of course, the political reality was more complicated, as the European powers of the nineteenth and twentieth centuries did not readily extend these national rights to their colonial dominions, client states, minorities in their homeland, or even all adult men in their cultural heartland. At the same time, instances of ethnicity-motivated conflict became much more frequent. Minorities have always been discriminated against; however, before the rise of Nation-States minorities never posed an ideological threat to the integrity of a nation. Previously a sovereign—whether a monarch or an elected official—did not have to worry that the ethnocultural composition of their peoples would determine the legitimacy of their government. This dynamic became more prevalent as the world modernized until, by the twentieth century, a State with a significant minority population found itself vulnerable to delegitimization both at home and abroad. The results of this development can be seen in the collapse of the last vestiges of the French and British Empires after World War II, and more recently in the 2014 Russian annexation of Crimea under pretenses of protecting the peninsula’s Russian minority.

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7 One example of this is the French constitutions of 1791. This was the first democratic constitution drafted during the French Revolution, and its framers were conscious of giving the people too much influence in governing the Nation. Ultimately they settled on a document that restricted the right to vote to ‘active’ citizens, those “who paid a minimal sum in taxes; about two-thirds of adult men had the right to vote for electors and to choose certain local officials directly.” See: Britannica, The Editors of Encyclopaedia. "Constitution of 1791." Encyclopædia Britannica. May 13, 2016. Accessed April 11, 2019. https://www.britannica.com/topic/Constitution-of-1791-French-history.
While the idea that a government derived its right to rule from its ethnic population was powerful and progressive for its time, it also laid a foundation of ethnocentrism that continues to scar our history and politics. A lot of the ethnic conflict seen in the past hundred years, such as the Armenian Genocide, Rwandan Genocide, and the ongoing Rohingya Genocide, can be viewed—but not justified—as a Nation-State’s response to claims to self-determination by minority groups. Thus, it can be argued that the philosophical basis of the Nation-State naturally trends toward ethnic conflict, as it is a symptom of a larger drive towards the homogeneity required for a Nation-State to maintain its integrity.

Jurisdiction and Responsibility

Outside of occasional genocidal tendencies, the Nation-State—in its current manifestation—has another structural limitation: a restrictive notion of jurisdiction and responsibility. This limitation often goes hand-in-hand with ethnocentrism and is partially responsible for our inability to fight transnational issues such as climate change. As things stand, a Nation-State is only responsible for maintaining the well-being of a very limited demographic, often at the expense of the voices and needs of the rest of humanity. The mandate of a Nation-State only pertains to its citizens, and in the grand scheme of things, this citizenship is very restrictive. This means that the government of a nation is only incentivized to protect the interests of its citizens, corporations, or geographical territory, which inadvertently discourages long term thinking and trans-national cooperation.

For many, the current degree of jurisdiction and responsibility for a given State might seem perfectly natural, but a historical analysis of the evolution of citizenship suggests otherwise. The classification of a citizen varied tremendously throughout history, and one defining feature
was the distinction between active and passive citizenship. Initially, the classification of a citizen was restricted to the landowning male elite of a geographical area. However, over time, economic, gender, religious, and ethnic barriers were transcended. With each expansion of this mandate came a redefinition of what the Nation-State was. In most nations, the most recent expansion came with universal suffrage which, ironically was far from universal. Currently, the most important limitation of citizenship continues to be a birthright and territorial confinement. Outside ancestry, one can only become a citizen of a nation-state if they are born in or otherwise reside within the nation's territorial borders. Even multi-ethnic nations such as the United States require prospective immigrants to demonstrate patriotic zeal and knowledge of its cultural heritage in order to be granted citizenship—once again demonstrating the importance of cultural assimilation in maintaining a Nation-State’s integrity.

The justification for this geographic requirement harkens back to the archaic origins of the Nation-State. In early modern Europe, the degree to which one could interact with the greater world was severely limited. Most people would spend their entire lives in a constrained geographic area, with travel to foreign lands being virtually non-existent. This began to change with industrialization, at which point the geographical range that people could, and in many cases would have to, traverse increased to encompass larger swaths of land; however, linguistic and cultural barriers largely restricted the range of individual nations. Today, the forces of industrialization and the advent of the internet have eroded national boundaries. Most people still reside within their immediate geographic proximity, but they interact with people all around the world almost daily. The economies of entire nations are specializing into consumer, manufacture, or agriculture economies, and there are more multinational corporations than countries. Relative to the physical world, there are very few borders on the internet, and as more
of society transitions onto the world-wide-web, the concept of a geographically-bound Nation-State begins to sound archaic and obsolete.

To clarify, we are not suggesting that Nation-States are nothing but a source of conflict and sorrow; to the contrary, we believe that Nation-States have played an integral role in the development of liberal ideals. We are suggesting that in the face of an increasingly interconnected world, Nation-States need reform, especially with regard to their restrictive definitions of citizenship. Another way to frame this question is by addressing a major point of contention in Democratic theory: the problem of constituting the demos.

Constituting the Demos

Constituting the demos is a fancy way of asking how any democratic body should create its electorate. Specifically, the question asks whether a democratic government can democratically create its electorate. As we previously mentioned, the way a Nation-State creates its citizenry has been universally undemocratic. The people that chose the geographic constraints of France and the prerequisites necessary to vote did so by decree. The Estates-General may have been more representative than the Monarchy, but it still left a majority of the population out of the decision making process. Once a government selects its electorate, democratic processes can take over, but the outcomes of these democratic decisions are permanently altered by the initial decision to choose who gets a voice. If a Nation-State decides to pass legislation concerning the right to own slaves but only allows wealthy people, many of whom earned their income through slavery, to vote, then the possibility of an outcome that promotes slavery is much more likely. The main concern raised by the demos question is that the initial creation of an electorate in a

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democracy is instrumental in determining its decisions and thus warrants scrutiny. Now we face a philosophical conundrum. If a government’s legitimacy comes from those it governs, but the creation of that demos is typically achieved in an undemocratic manner, then is it possible to have a genuinely democratic Nation-State?

One response to this predicament is the “All Affected Interests Principle [AAIP],”9 which asserts that the only legitimate way to constitute a demos is by giving all individuals with a stake in a decision the right to vote in a decision. At face value, the theory appears simple but effective, yet much like with utilitarianism, the devil lies in the details—or lack thereof. AAIP leaves essential issues such as what a stake is, whether different stakes warrant different voting rights, and how do we quantify someone’s stake, open to interpretation. If we lived in a society free of all constraints then according to the AAIP the only legitimate democracy would be one that gave everyone, anywhere, anytime, the choice to vote on any matter. In other words, we would need an omnipresent electoral apparatus, and our demos would be all-inclusive.10

Whether for better or worse, we do not live in a world free of all constraints and as such we must find a more nuanced solution to the problem of the demos. Since we can not redraw political boundaries, at least until we reach Part II, we can start by asking whether the current formulation of the demos is sufficient for accurately enfranchising all affected interests. Today, Nation-States constitute demos in various ways, but we will see that even the most liberal of these methods are too exclusive. Most Nation-States today have universal enfranchisement, which means that being a citizen gives one a voice in government, or at least it is supposed to. Voter suppression and other methods of disenfranchisement are prevalent to various degrees in all

9 Ibid.,

10 Alternatively, as democratic theorist Robert Goodin put it, we would need a “maximally extensive franchise, virtually (perhaps literally) ignoring boundaries both of space and of time, would be the only legitimate way of constituting the demos to this more defensible version of the ‘all possibly affected interests’ principle.” Goodin. 55.
Nation-States, and these methods directly undermine the rights of certain citizens—usually those of a minority identity—from having adequate representation in government. Another salient form of disenfranchisement is incarceration. In many democracies around the world citizens in prison are stripped of their right to participate in decision making. The United States provides many blatant examples of how incarceration is used to target a minority population unfairly. Nixon's infamous war on drugs was orchestrated explicitly to target the African American community in order to disenfranchise them. In 2018, the total incarcerated population in the US numbered roughly 2.2 Million, making it the fifth largest city in the US. Of these individuals, 33% are African Americans even though only 12% of the US population is African American. In addition to being politically disenfranchised, many inmates fall prey to recidivism. Fortunately, much attention has been paid to the issue of mass incarceration and institutional racial prejudices in recent years. As a result, the number of non-violent drug offenses and the skewed race ratio are both decreasing; however, the U.S is just one example of a grievous oversight in the

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12 “In Maine and Vermont, felons never lose their right to vote, even while they are incarcerated. In 14 states and the District of Columbia, felons lose their voting rights only while incarcerated, and receive automatic restoration upon release. In 22 states, felons lose their voting rights during incarceration, and for some time after, typically while on parole or probation. Voting rights are automatically restored after this period. Former felons may also have to pay any outstanding fines, fees or restitution before their rights are restored as well. In 12 states felons lose their voting rights indefinitely for some crimes, or require a governor’s pardon in order for voting rights to be restored, or face an additional waiting period after completion of sentence (including parole and probation) before voting rights can be restored.” See: Felon Voting Rights - ncsl.org. http://www.ncsl.org/research/elections-and-campaigns/felon-voting-rights.aspx

13 The racial prejudice present in the U.S War on Drugs is a topic outside the scope of this thesis, but if interested see: Provine, Doris Marie. Unequal under law: Race in the war on drugs. University of Chicago Press, 2008.

implementation of the enfranchising affected interests principles, especially considering that some prison's force inmates to work for private corporations in exchange for little to no pay. Many have equated this to modern day slavery, and if we return to our earlier example of the problem of not allowing enslaved people a vote on issues regarding slavery the parallels are immediately apparent. Yes, one could argue that a murderer should not be allowed to vote. One could argue that they have forfeited that right as a consequence of breaking the social contract; however, it would seem harsh and undemocratic to extend this line of thinking to include political dissidents, draft-dodgers, or shoplifters. These minor offenders have also broken the social contract; however, they have done so for non-violent reasons. If a fear of giving these citizens a right to vote is that they will make murder legal, then consider that, in practicality, the number of murderers is infinitesimally small and unlikely to have any meaningful impact on such votes. However, the number of people incarcerated for more benign transgressions are far more significant. Not giving incarcerated populations a voice in government creates a perverse incentive model where governments can mistreat or ignore legitimate citizens with no consequence. This perverse principle can be extended to include all people not represented in a government that affects them, one example of which are undocumented migrants.

In recent history, undocumented migrants have been at the forefront of the global news cycle since the outbreak of the Syrian civil war in 2011. Mass migration has, and continues to be one of the defining characteristics of our age. The causes and magnitude of these major demographic shifts have varied tremendously, and so has the reaction of various governments. With a few notable exceptions, mass migration has been met with xenophobic attitudes. It would be convenient to attribute these adverse reactions to the xenophobia cultivated in specific

demographics, but to do so would ignore the importance of the Nation-State as a philosophical entity in fostering xenophobia.\textsuperscript{16}

Voter suppression, mass incarceration, and undocumented migrants are some of the most visible forms of disenfranchisement; however, in the context of our economically integrated global economy, it becomes clear that, for certain powerful nations such as the U.S, the phenomenon extends much further. The decisions made by policymakers in D.C impact people all around the world. For example, a decision by Congress to place tariffs on imports from non-American corporations operating in Mexico would at the very least affect four groups: American consumers, American corporations, Mexican workers, and Mexican employers. American consumers would be marginally affected by the decision, facing price increases for certain goods and reviewing an indirect nudge towards purchasing products from American corporations in Mexico instead of Mexican ones. American corporations would receive a substantive competitive advantage over their Mexican counterparts, and American corporations not in Mexico would receive an indirect incentive to move their operations there in order to save on labor costs. Mexican corporations would witness the inverse, provided they were directly competing with American corporations. Finally, Mexican workers at American corporations could receive a small pay increase or increased employment opportunities due to the increased profits of American corporations in Mexico, while Mexican workers in Mexican corporations may be more

\textsuperscript{16} In the case of Nations such as Germany (reacting to the Syrian crisis) and Bangladesh (reacting to the Rohingya crisis), we can see how a State’s reaction is not necessarily anti-migrant; however, there has been a substantial rise in xenophobic political movements as a result of the crises. See: Maurice, Eric. "Chemnitz Neo-Nazis Pose Questions for Germany." EUobserver. August 30, 2018. Accessed April 11, 2019. https://euobserver.com/beyond-brussels/142694. Alternatively, for a more broad overview see: Laub, Zachary. "Hate Speech on Social Media: Global Comparisons." Council on Foreign Relations. April 11, 2019. Accessed April 11, 2019. https://www.cfr.org/backgrounder/hate-speech-social-media-global-comparisons.
susceptible to layoffs. It would not be unreasonable to say that Congress’ decision has had an impact on citizens under the jurisdiction of a different government.

Now consider the following: due to diplomatic pressure from the U.S, the Mexican government is very lax on enforcing labor regulations in factories used by U.S corporations and as a result, these factories have become notorious for hazardous conditions and worker abuse. In this scenario, the U.S government is directly impacting the agency of the Mexican government and indirectly impacting the lives of Mexican citizens. Thus it would not be farfetched to argue that, if the United States tariff causes even a single person to be hired by American corporations to work in Mexican factories, then the decision in Washington is having a substantial impact on that person and so that person deserves a say in whether the tariff should be passed. A response would be to claim that the worker already gets a say by having the option to quit, but if the choice is between destitution and abuse, then it is hardly a choice at all.¹⁷

So, why should the U.S government do more than protect the interest of Americans? Because, in our example, the U.S government affects both citizens of Mexico as well as, and sometimes more than, American citizens with their decisions, yet the U.S government has to take no accountability for any Mexicans affected by their policies. Well then, why doesn’t Mexico join the United States? On top of a plethora of political factors, it is because of the aforementioned ethnocentric character of Nation-States. Does this give the U.S government the right to exploit Mexican workers? Only if you believe citizenship changes the value of life, in which case we need only to look to the history of state formation to see just how arbitrary the determination of

¹⁷ One prominent example of the difficulty of distinguishing between coercion and choice is when looking at heavily stigmatized communities such as Sex Work. Individuals in harsh environments without accessible support systems often make choices that they would not have made if not under these unjust pressures. For example see: Sandy, Larissa. "Just choices: Representations of choice and coercion in sex work in Cambodia." The Australian Journal of Anthropology 18, no. 2 (2007): 194-206.
citizenship can be (or ask if it is justifiable to discriminate against individuals for the circumstances of their birth which they have no agency over).

For those with more conservative inclinations, we are not suggesting that borders are arbitrary or need to be erased, we are arguing that the same principles that led to the birth of modern democracy can—and should—be extended to all people affected by a government regardless of their place of residence. But what about national sovereignty? Well, it can be argued that, in a globalized society, national sovereignty is more fable than fact. Even during its heyday in the nineteenth century, the principle of national sovereignty was applied selectively and arbitrarily by the statesmen of various great powers. In today’s interdependent world sovereignty is even more of a myth.

Another insidious impact of restricting citizenry to a territorial confine is the negative way it influences public perception towards ‘outsiders’ or ‘foreigners.’ Public perception of government actions towards non-citizens is viewed using a completely different standard than actions towards citizens, and we must question whether such double standards are justified or not. In our globalized economy, a textile tariff enacted by the United States would have enormous repercussions on the citizens of Bangladesh. The people in Bangladesh would suffer, but the political value of that suffering would be diminished because those people fall outside the U.S

18 The foundation of the United States independence movement came from issues over taxation without representation, which can more broadly be defined as being a part of the British Empire without having a voice in the British Empire. Today in many parts of the world there are still citizens of a certain community that are not represented in the power structures that make decisions that affect their community.

19 For an in-depth analysis of the fiction behind the notion of Westphalian sovereignty see Appendix A.

20 Textiles are the most popular exported commodity in Bangladesh. “Bangladesh became the 2nd largest apparel exporting country in the meantime. During the fiscal year, 2010-2011 garment exports totaled US$ 20 billion, a 43% increase over the previous year. In the global trade system, a garment could be designed in New York, fabric woven in China, spread and cut, and sewn in Bangladesh, and marketed in Australia. This is the chain of global trade, and Bangladesh is enjoying its positive outcomes at every stage of transactions with modern and developed countries. However, here, the gruesome face of neo-liberal free trade is all too apparent as the corporate hunt for ever cheaper labor drives low wages.”. Ullah, Anam. "Garment Industry in Bangladesh: An Era of Globalization and Neo-Liberalization." Middle East Journal of Business 55, no. 2031 (2015): 1-13.
government mandate. A more extreme example would be the development of a dam along the Meghalaya river in India, which would disrupt freshwater access for a majority of Bangladeshis. In an ideal world the governments of Bangladesh and India would collaborate on such a project; however, it is entirely possible that India constructs the dam without giving Bangladeshi citizens a say in the project. Thus, we see how the actions of a particular state can have an enormous impact on the citizens of a separate State. Selfish behavior by influential Nation-States has the possibility of harming millions, even billions of people while being viewed as just, so long as it benefits the citizens of the perpetrating state. Imperialism is a more extreme example of such behavior, and a more recent example is the Trump administration’s trade war with China.

The Economy as the State

In The Wealth of Nations, Adam Smith denounces mercantilist practices in favor of free trade. Mercantilism is an economic theory asserting that trade generates wealth by transferring value from one nation to another, and governments can stimulate this process through tariffs, interventions, and other protectionist practices. In other words, under mercantilist philosophy it

21 Access to fresh water is a critical resource for any nation, but control of a fresh water supply is not always feasible. A recent example of the consequences of irresponsible damming projects is the rapid loss of the Aral Sea due to Soviet irrigation projects. The Brahmaputra river is one of two major rivers flowing into the Bay of Bengal and provides a significant portion of Bangladesh’s fresh water. The origin of the river is in the Tibetan plateau, and damming projects by either China or India could have disastrous consequences. See: PTI. "Bangladesh 'very Concerned' over China Building Dams on the Brahmaputra." Times of India. May 31, 2018. Accessed October 09, 2018. https://timesofindia.indiatimes.com/india/bangladesh-very-concerned-over-china-building-dams-on-brahmaputra/articleshow/64405521.cms.


was considered acceptable to plunder another nation to enrich your own. At the heart of mercantilist theory was the idea that nations, not individuals, were what mattered. Individuals were only considered insofar as they benefited their government. Similarly, a restrictive definition of citizenship can be viewed as a tool through which nation-states can justify plundering other peoples in order to benefit their own.\textsuperscript{24, 25} Smith suggested that mercantilism was actually detrimental to economic development and that if the barriers preventing trade were removed, then nations could specialize in certain goods, have access to cheaper materials, and maintain healthy trade relationships that would benefit all parties.\textsuperscript{26} Smith disagreed with the notion that one party must suffer for another party to benefit. Today, the global economy claims to adhere to the principle of free trade espoused by Smith; however, the polities conducting and regulating this trade are not always faithful to this idea.\textsuperscript{27} As a result, mercantilist policies are still regularly

\textsuperscript{24} “Plundering in modern times takes many forms, the most common of which is the Neo-colonial enterprise: “a procedure whereby formal rule was transferred from the colonial power to its colony, but without necessarily—usually not—transferring economic power. This meant that part of the imperial relationship—arguably its essence—remained. The word often used to describe this was neocolonialism”: Porter, Bernard. The Absent-Minded Imperialists: Empire, Society, and Culture in Britain. Oxford University Press on Demand, 2006. 9

\textsuperscript{25} Another form of plundering can be viewed from the perspective of citizens of nations as opposed to the governments. The free-trade economy has created a situation where western markets create a demand for goods that are made in developing markets, where the workers are treated terribly and do not have access to protections offered to a western worker. Thus, the governments of these Western nations are indirectly benefiting from the exploitation of individuals in these developing markets while maintaining ethical conditions for their citizens. By engaging with these markets, the western government is merely outsourcing exploitation. This scenario is conventionally regarded as justified in our predominantly Capitalist society, due to both, the various degrees of separation from a Chinese factory to a U.S mall, and the fact that the foreign worker is legally not under the jurisdiction of a western government.

\textsuperscript{26} “By means of glasses, hotbeds, and hotwalls, very good grapes can be raised in Scotland, and very good wine too can be made of them at about thirty times the expense for which at least equally good can be brought from foreign countries. Would it be a reasonable law to prohibit the importation of all foreign wines, merely to encourage the making of claret and burgundy in Scotland?” Smith, Adam, and Andrew S. Skinner. The Wealth of Nations Books IV-V. 4th ed. London: Penguin Books, 2001, Book IV, Chapter II.

\textsuperscript{27} Another significant portion of Smith’s philosophy can be found in his Theory of Moral Sentiments. In TMS he articulates the moral values of his society and asserts that everyone ought to abide by the moral systems within the free market. Smith’s emphasizes empathy as a motivator as well as the importance of punishments and rewards in coordinating social functions. Many of these concepts translate intuitively into his Wealth of Nations; however, one important message that has not translated into our interpretation of Smith is the role of virtues, which he describes as the defining character of a truly virtuous person. “The Theory of Moral Sentiments.” Adam Smith Institute. Accessed April 12, 2019. https://www.adamsmith.org/the-theory-of-moral-sentiments.
employed by economic superpowers, and insidious practices such as dollar diplomacy have been, and are still being used to undermine the sovereignty of developing nations.  

The complex interdependence fostered by global capitalism has created an environment in which no Nation-State can exist in isolation, so the actual influence of a Nation-State—defined as the people influenced by its government—cannot be visualized through traditional lenses such as citizenship or territoriality. Instead, to find the correct jurisdiction of a government we need to look at its economic ties, as the use of a currency is both, evidence of an actor's active relationship with the government, and an implicit acknowledgment of the legitimacy of its issuer. In our present global economy this would mean the responsibilities of governments such as the United States would extend to include other governments such as China, while simultaneously the jurisdiction of the Chinese government would include governments such as Myanmar. Doing so would shine a light on the elaborate network of sovereign and non-sovereign lenders and borrowers while holding powerful nations such as the United States and China accountable for their real impact.

If, and only if, we view the global economy in its naked form, as an elaborate web of power structures, can we develop a thorough response to the question of how to enfranchise all affected interests. To adapt to our modern world, we must begin to view the State as a relationship of economic activity rather than an organic ethnicity, religion, or territorial border. If a government should have jurisdiction and responsibilities over those it impacts, then we must

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28 Dollar diplomacy was a U.S foreign policy during the presidency of Howard Taft that aimed to spread U.S influence in South America and Asia through financial investment while also protecting U.S interests. It was a very transparent form of Neo-colonialism. “Under the name of Dollar Diplomacy, the Taft administration engineered such a policy in Nicaragua. It supported the overthrow of José Santos Zelaya and set up Adolfo Diaz in his place; it established a collector of customs; and it guaranteed loans to the Nicaraguan government. The resentment of the Nicaraguan people, however, eventually resulted in U.S. military intervention as well.” See: "Dollar Diplomacy." Encyclopædia Britannica. April 06, 2018. Accessed October 09, 2018. https://www.britannica.com/event/Dollar-Diplomacy.
acknowledge the reality of our globalizing society. The individual's participating within the economy of a particular government, whether through active use of its currency or passive investments stored in the currency, are submitting themselves—or at least their assets—to the whims of the host government. They are, for all intents and purposes, under the State's jurisdiction. While the Economy as the State model may not be perfect, it is far more comprehensive than the status-quo for the purposes of enfranchising all affected interests.

Now, if we accept the Economy as the State model of societal organization far, we still have many questions to address before we can begin to consider leaving the theoretical realm. How do we determine who belongs to a given State’s economy? How do we determine which government an individual is beholden to if they participate in many economies? How do we differentiate between various forms of economic participation? Moreover, what does it mean for a State to be responsible for those in its economy? For the sake of simplicity, we will categorize the above into questions of classification and implementation. First, concerning classification, we can determine the economic identity(ies) of an individual by the currency(ies) they use. So, if John Doe uses the US Dollar, he would be a US citizen. If John also holds Yuan and Euros, then he would also be citizens of China and the E.U. There is no inherent reason the mandate of two governments cannot overlap to include one individual—provided the stipulations attached to participating in the economies of these governments were not mutually exclusive. Of course, doing so strips the territoriality from the State, but this can be compensated for by other institutions and mechanisms.29

If we model the Cryptostate on the same liberal principles of existing Nation-States, then the nature of their participation in the economy would not matter as all participants would

29 For more information see Institutions and Mechanisms in the Cryptostate and Blockchain Technology in the Cryptostate.
receive a single vote regardless. The mechanism through which this abstract idea can be realized is Distributed Ledger Technology (to be elaborated on in Part II) but suffice to say there already exists working models of such systems in various cryptocurrencies.\(^{30}\) Many countries are already the sole issuers of their currency and as such are already vesting the power of their government into their specie.\(^{31}\) The U.S dollar is the reserve currency of the world, and as such would be responsible for everyone who holds or uses U.S dollars. The technical implementation of such a concept is much easier to explain with a digital currency, and is a core property of the Cryptostate; however, we will not cross that bridge until Part II. For now, we merely consider it a hypothetical response to the question of enfranchising all affected interests. All four of the aforementioned parties would receive a voice in decision making—to various extents—if the requirements for citizenship of the U.S were altered to include members of its economy (assuming of course that the US dollar would be used directly in exchange for political participation, rather than just as a reserve currency as is currently the case).\(^{32}\) This change would also enable a government to take full advantage of its status as a sole issuer of currency; however, that is once again outside the scope of this chapter.\(^{33}\)

Finally, shifting the mandate of a Nation-State to include all actors in its economy would also make it substantially easier for governments to tackle issues that are currently outside its scope. Certain issues pose a threat to humanity as a species, and governments—as the most

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\(^{32}\) In an entirely globally integrated economy, this would inevitably result in a unified universal government.

\(^{33}\) For more information refer to *The Age of Blockchain Technology* and *Blockchain Technology in the Cryptostate*. 
sovereign political unit—have an obligation to address these issues collectively; however, as we are
learning from our lackluster response to Climate Change, substantive cooperation between
Nation-States is easier said than done.

The Collective Action Problem

The Collective Action problem (CAP)—occasionally referred to as the free-rider problem
or prisoner's dilemma—describes a situation in which various autonomous actors choose to act in
a sub-optimal way in order to avoid potentially giving the other actors a relative advantage. We
can find a potential CAP very easily by looking for a resource that can be used with no
restrictions but requires resources to maintain. In the Nation-State, every government service can
be viewed as a solved CAP. Anyone can use libraries at any time, but they require resources to
maintain. So do roads, hospitals, police, schools, the army, etc. In theory, these public services are
paid for by the taxpayer, but they are not exclusive to taxpayers. Any service that one gets for
free is subject to the CAP. At this point, one could wonder where exactly the problem is, after all,
if the government funds these services and we pay taxes then most people are still contributing
their fair share. There may be free riders, but they are negligible when compared to the total
population. This is correct on the national level; however, on the international level most
individual governments are not in a position to be a supreme arbiter. While this chapter primarily
addressed issues of the Nation-State, it is essential to address the CAP in order to establish the
inseparable connection between structural problems within a Nation-State and the exponential
exacerbation of these problems in the international domain. An example of the collective action

34 It is worth noting that in monetarily sovereign economies, taxation does not fund government spending. In fact, in
countries like the US, India, or Japan it is the other way around. For the government to be able to tax people, they
need, and this is achieved through spending on resources such as libraries or the military. We will elaborate
extensively on this dynamic in The Economy as the State, but for an introduction see: Wray, L. Randall. Modern
problem on the international level would be the protection and policing of oceans. The 1982 United Nations Law of the Sea Convention declared all oceans and seas international territory. It ensured that all vessels had a right to navigate the ocean, that national sovereignty could only extend 12 miles offshore, and it established maritime mediation authorities.\textsuperscript{35} UNCLOS was the formalization of a de facto freedom of the seas doctrine established during the 17th century, and both doctrines fall prey to the collective action problem. The biggest threat to maritime travel does not come from quarreling States, but from piracy and privateering. Policing the oceans is a peculiar task. It is expensive, resource intensive, and almost impossible to limit to the vessels of a specific State. Due to international ethical norms, no State can intentionally ignore the S.O.S of any vessel, so by policing a trade route, the policing State is inadvertently protecting all operating vessels. This is a great benefit to humankind, but as mentioned earlier, Nation-States’ generally are not designed to care for humankind. Instead, the role of policing the oceans is seen as a burden. As long as one State dedicates resources to protecting a shipping lane, all States benefit equally. If all States’ follow this rationale, then none would want to police the seas. Today, the US Navy functions as a de facto ocean police; however, this is not an institutional solution.\textsuperscript{36}

Death by Natural Causes

Let us return to the issue of Climate Change. If by this point our premise—that a government’s real impact is far greater than those currently under its jurisdiction—is not apparent, then we need only look to the grave issue of our time: Climate Change. On January


18th, 2019 the Pentagon published a report on the impact of climate change on US military bases which in no uncertain terms asserted that “the effects of a changing climate are a national security issue with potential impacts to DOD missions, operational plans, and installations.”

Our impending Climate Catastrophe is acknowledged by all credible organizations and a majority of world governments, yet a coordinated response to the existential threat of our times has been non-existent. One would imagine that one of the most effective means to motivate a nation into action would be by saying its military assets were in danger, but unfortunately, even nations that are wholeheartedly dedicated to fighting Climate Change can do little. Disasters such as tornados, tsunamis, heat waves, crop failures, and mass flooding are all expected to increase in frequency and intensity in the coming century, but perhaps the most existential threat is one oft-neglected if only for the sake of avoiding mass panic. Our access to fresh water is quickly dwindling. Over two-thirds of my native home of Bangladesh is expected to be submerged by rising sea-levels even if we manage to limit climate-related damage to our most optimistic predictions, but that should not terrify us nearly as much as the inevitable worldwide scramble for fresh water. 

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38 “The United Nations is powerless to compel cooperation. Even in military alliances, national sovereignty is preserved. Very occasionally, as with the Montreal Protocol, international cooperation to solve an environmental problem through economic self-denial is successful. However, such action is always merely on the margins of an economy and in no way even a possible threat to the pursuit of national interest.” Manne, Robert. "Climate Change: Some Reasons for Our Failures." The Guardian. July 22, 2013. Accessed April 12, 2019.

39 “Given that 70% of the Earth’s surface is water, and that volume remains constant (at 1,386,000,000 cubic kilometers), how is a water shortage even possible? Well, 97.5% is seawater unfit for human consumption. And both populations and temperatures are ever-rising, meaning that the freshwater we do have is under severe pressure. Water demand globally is projected to increase by 55% between 2000 and 2050... the near future presents one big freshwater drain after the next. What’s more? Right now, according to a Nasa-led study, many of the world’s freshwater sources are being drained faster than they are being replenished.” For further reading see: Smedley, Tim. "Future - Is the World Running out of Fresh Water?" BBC. April 12, 2017. Accessed April 12, 2019. http://www.bbc.com/future/story/20170412-is-the-world-running-out-of-fresh-water.

for access to fresh water. The impact of our impending Climate Catastrophe is going to affect everyone regardless of nationality, wealth, or location, but unfortunately, the measures being taken to address the issue on both a National and International level is wholly inadequate.

First, let us take a look at the difficulty of addressing an issue such as Climate Change through the framework of the Nation-State. We have domestic interests. Here we see the issue of disenfranchisement once again rears its ugly head. Theoretically, representative democracies are supposed to interpret the general will of the people; however, without strict campaign finance laws—and in many cases even with such laws—private interests can sway individual representatives into pursuing policies that are contrary to the peoples best interest. As the United States has demonstrated, lobbying is a powerful feature of modern democracy and profitable industries, such as the natural resources sector, are capable of obstructing legislation and even scientific research into green energy.\(^\text{41}\) Even if lobbying were illegal, there would be numerous other ways for powerful interests to directly manipulate State policy, especially in small and medium-sized States that are highly reliant on said industry—which, in the case of energy, would be every State. There is no guarantee that a direct democratic referendum would have a different

\(^{41}\) “In briefing papers given before meetings to the US under-secretary of state, Paula Dobriansky, between 2001 and 2004, the administration is found thanking Exxon executives for the company's "active involvement" in helping to determine climate change policy, and also seeking its advice on what climate change policies the company might find acceptable.” Other papers suggest that Ms Dobriansky should sound out Exxon executives and other anti-Kyoto business groups on potential alternatives to Kyoto… Until now Exxon has publicly maintained that it had no involvement in the US government's rejection of Kyoto. But the documents, obtained by Greenpeace under US freedom of information legislation, suggest this is not the case… ‘Potus [president of the United States] rejected Kyoto in part based on input from you [the Global Climate Coalition],’ says one briefing note before Ms Dobriansky's meeting with the GCC, the main anti-Kyoto US industry group, which was dominated by Exxon.” Vidal, John. "Revealed: How Oil Giant Influenced Bush." The Guardian, June 08, 2005. Accessed April 12, 2019. https://www.theguardian.com/news/2005/jun/08/usnews.climatechange.
outcome;\textsuperscript{42} however, direct democracy has the advantage of removing interested parties from being able to influence decision making regarding those interests disproportionately.

Even if a State can overcome internal domestic pressures, it must then be able to withstand international pressure. In our neoliberal world, national sovereignty does not extend to markets. If an oil producing State was not fond the decision to abandon fossil fuels—or any other policy for that matter—then it could intentionally sabotage an attempt to do so by manipulating prices, restricting trade, or even issuing embargoes.\textsuperscript{43} Thus, even if a State managed to overcome private interests, it would need to be able to tackle another layer of the collective action problem on the international level. One State that has not only managed to transition to green energy, but also become a role model for progressive energy consumption is Norway, yet this eco-consciousness only gave rise to new challenges.

\textsuperscript{42} The advent of social media has enabled wealthy entities to influence public opinion through subtle and misleading advertising campaigns. “In the run-up to the US midterm elections last year $2m was spent on targeted Facebook and Instagram ads by global oil giants and their industry bodies, promoting the benefits of increased fossil fuel production, according to the report published on Friday by InfluenceMap... Separately, BP donated $13m to a campaign, also supported by Chevron, that successfully stopped a carbon tax in Washington state – $1m of which was spent on social media ads, the research shows... Edward Collins, the report’s author, analysed corporate spending on lobbying, briefing and advertising, and assessed what proportion was dedicated to climate issues. He said: ‘Oil majors’ climate branding sounds increasingly hollow and their credibility is on the line. They publicly support climate action while lobbying against binding policy. They advocate low-carbon solutions but such investments are dwarfed by spending on expanding their fossil fuel business.’” See: Laville, Sandra. “Top Oil Firms Spending Millions Lobbying to Block Climate Change Policies, Says Report.” The Guardian. March 22, 2019. Accessed April 12, 2019. https://www.theguardian.com/business/2019/mar/22/top-oil-firms-spending-millions-lobbying-to-block-climate-change-policies-says-report.

\textsuperscript{43} The power of Oil conglomerates such as OPEC are decreasing as the world turns to alternative forms of energy and fuel extraction; however, until a State becomes self-reliant it faces a threat of coercive international pressure. “The Organization of the Petroleum Exporting Countries (OPEC) is a bloc of fourteen oil-rich states spanning the Middle East, Africa, and South America. Combined, the group controls close to forty percent of world oil production. This dominant market position has at times allowed OPEC to act as a cartel, coordinating production levels among members to manipulate global oil prices.” See: Chatzky, Andrew. "OPEC in a Changing World." Council on Foreign Relations. January 18, 2019. Accessed April 12, 2019. https://www.cfr.org/backgrounder/opec-changing-world.
The Norwegian Predicament

Over 99 percent of the electricity produced in Norway comes from renewable sources. Norway is a staunch supporter of the Paris Climate Agreement and has taken radical steps in dismantling its modern economy’s fossil fuel dependence. However, despite these noble domestic ambitions, Norway remains among the largest oil exporting countries. Many critics of the Norwegian approach to addressing global warming accuse the Scandinavian nation of exporting their carbon footprint. In Norway’s defense, any attempt to combat Climate Change is empirically more productive than not doing so, and it is not as if nations in need of oil would stop consuming oil if Norway left the market, but the Norwegian predicament serves as an example of one of the biggest issues in our international system: the collective action problem.

The CAP is one of the biggest roadblocks to international cooperation. It postulates that four actors with a common goal would—under the right circumstances—intentionally undermine attempts at realizing that goal in order to avoid an adverse outcome. We see this phenomenon influence decision making on multiple levels in our Norwegian example. Climate Change would be, well catastrophic, for all nations and in order to prevent it, all nations must drastically reduce their carbon footprints. Unfortunately, fossil fuels are the most accessible source of energy in most of the world and the lifeblood of numerous national economies, so deciding to drastically reduce consumption comes at a significant—admittedly short-term—economic cost.

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44 “While Norway wants to wean its own citizens off fossil fuels, it remains one of the world’s biggest oil producers and is revving up production, almost all of it for export. So even as the country tries to cut emissions and clean up its own carbon ledger at home, it is effectively doing the opposite abroad… Spurred by attractive state subsidies, the Norwegian oil company Statoil is chasing after new oil and gas fields in the Arctic. Nearly all of the supply is destined for export — and to show up in the carbon emissions of countries that burn Norwegian oil and gas… There’s a lot of it, too. Peter Erickson, a senior scientist with the Stockholm Environment Institute, a research organization, found that emissions from Norway’s oil exports this year will be 10 times as much as Norway’s domestic carbon emissions.” See: Sengupta, Somini. "Both Climate Leader and Oil Giant? A Norwegian Paradox." The New York Times, June 17, 2017. Accessed April 12, 2019. https://www.nytimes.com/2017/06/17/world/europe/norway-climate-oil.html?smprod=nytcore-iphone&smid=nytcore-iphone-share&ex_cid=SigDig&r=0.
for most nations. However, in order to reduce the consequences of Climate Change, we need only to reduce a certain quantity of carbon emissions, indiscriminately of the nation doing the emitting. In a world populated entirely by Norway-esque States, this would mean that certain States could get away with not changing their fuel consumption at all if a majority of the States did, a situation that would put any eco-friendly State at a significant economic disadvantage compared to any oil-dependent State. Thus, a concern of freeloaders, or the potential benefit of being a freeloader, would prevent the planet from successfully reducing emissions.

The second level on which we see this phenomenon working is concerning oil exports. If all nations collectively decided to stall oil exports—or raise oil prices significantly and funnel the profits towards the development of renewable energy sources—then Norway could make a significant impact by removing their market share of oil exports. However, coordinating the interests of various oil producing nations to ensure such an outcome is impractical in our current geopolitical climate, and even if an agreement could be reached, the lack of any authority to hold nations accountable to their promises would cause the same freeloader issue faced in our previous example.

The Nation-State is a sophisticated and robust political unit that has guided humanity through an era of rapid change and technological advancement; however, it is becoming apparent that the same characteristics that gave rise to the Nation-State is now hampering our societies. It is high time for a reevaluation of the philosophical underpinnings of a state. The ethnocentric and insular Nation-State is a relic of the past that perpetuates problematic ideas and allows governments to escape the true extent of their moral obligations. If one of the responsibilities of a government is to provide welfare for its citizens, then we can see how governments today are failing to accomplish that, either by not sufficiently accounting for the
individuals affected by their decisions or by not coordinating with other governments to address existential threats to our species. We have seen how one of the most limiting factors in a Nation-State's ability to adequately govern stems from the fact that more and more issues faced by society are global in nature, and require a degree of coordination among Nation-States that does not exist. The United Nations does not have decision enforcing power, but the individual states that comprise it do.

The limited, semiformal and ever-shifting, degree of cooperation among Nation-States that do exist can be viewed as a de facto global governance structure. The national and international are two points on a continuous spectrum of governance apparatus'. Thus, any critique of the failings of Nation-States must by extension include critiques of its natural outgrowth, the international system.

\[45\] The study of International Relations is partly a study of de facto global governance. Many of the problems faced by traditional IR theorists—such as the collective action problem, democratic peace theory, the anarchic state, etc.—are a direct result of the tension borne out of attempting to explain the various power relations in global governance without any sovereign structure for global governance.
Chapter II

The International System

It may be tempting to view the relations between various Nation-State’s as isolated interactions; however, doing would cause us to miss the nuances and intricacies that guide inter-state relations. The field of study of inter-state relations, International Relations, has developed various philosophies to address this shortcoming. In its early phase, International Relations was dominated by the competing ideologies of realism,\textsuperscript{46} which asserted that power was the primary motivator of State action and liberalism,\textsuperscript{47} which asserted that ideology was the primary motivator of State action. Both liberalism and realism drew heavily from natural law traditions to


\textsuperscript{47} Scholars of the Liberalist tradition claim that the framework extends as far back as Bartolomé de las Casas, and includes the likes of John Locke and Immanuel Kant. For more recent scholarship see: Keohane, Robert O., and Joseph S. Nye. Power and Interdependence. 1977.
justify their theories.\textsuperscript{48} In essence, both philosophies treated Nation-States as individual entities that were capable of operating in a vacuum (i.e., a State of Nature). Scholars quickly realized; however, that Nation-State behavior could not be sufficiently explained by viewing each State in isolation, and that any thorough explanation of the behavior of States must account for the unspoken forces that govern international relations. This lead to the birth of neorealism and neoliberalism.\textsuperscript{49} Both ideologies still disagreed on what the primary motivation of a State was but acknowledged that there was an International System in which States operated, and the root of their disagreement stemmed from the particular characteristics of the international system rather than a universal assumption regarding the state of nature. In this chapter, we will see how our present International System suffers from many of the same issues as the Nation-State, in part because it is essentially a hodgepodge of Nation-States. We will explore the political issues of jurisdiction, responsibility, and representation, as well as the economic issues of wealth inequality, and global capitalism, but first let us pick up where we left off: the collective action problem.

**Anarchy in the International System**

Anarchism is a philosophy that strives for the abolition of government. The lack of an overarching regulatory body in the International System means that the system is often described as anarchic. If one asked a politician or world leader if they were anarchists they would, with very few exceptions, say no. At the same time, if one asked them whether they would want to

\textsuperscript{48} The Realist tradition has a pessimistic view of human nature as expressed in the writings of Machiavelli and Hobbes, whereas the Liberal tradition features a more optimistic perspective as seen in the writings of Kant and Locke. For a summary of the similarities and differences between the two, see: Jackson, Patrick T. "An Online Exploration of Diplomatic History and Foreign Affairs." A Brief History of U.S. Diplomacy. Accessed April 12, 2019. http://www.usdiplomacy.org/diplomacytoday/values/theories.php.

\textsuperscript{49} “Earlier critics of realism, especially in the 1930s, 1940s, and 1950s often cast the debate as one between altruistic moralists and egotistic power calculators. In the current debate [between neoliberalism and neorealism], however, both sides argue from assumptions that states behave like egotistic value maximizers. Moral considerations are hardly mentioned.” For more information, see: Baldwin, D. A., 1993. Neorealism and Neoliberalism: The Contemporary Debate. New York: Columbia University Press. 9.
abandon anarchy on the international level, they would also say no. As we noted in the previous chapter, an anarchic state comes with significant disadvantages for the ecosystem as a whole. Fighting climate change is one example of this, but if we try, we can see examples of the collective action problem all around us.

One example of such a disadvantage concerns space exploration. The Kessler Effect, a term coined by Donald Kessler in 1978, describes a catastrophic atmospheric event that we as a species will have to address at some point in our future. Every time we launch a satellite or spaceship into orbit, we leave debris behind. Much of this debris remains in orbit, and over time this debris will come to pose a severe problem for space exploration. In space, all debris moves at a speed of around 28,000km/h, so even a scrap of metal the size of a marble could easily damage a satellite to the point of critical failure. This is inconvenient, but Kessler recognized a far more significant harm. As the amount of debris surrounding our atmosphere grows—as it is currently doing—we will reach a critical mass at which point a single collision can cause a chain reaction of scattering debris that would sheath our atmosphere in a human-made asteroid belt.\footnote{See: Kessler, Donald J., Nicholas L. Johnson, J. C. Liou, and Mark Matney. "The kessler syndrome: implications to future space operations." Advances in the Astronautical Sciences 137, no. 8 (2010): 2010.}

Although scientists are currently working on ways to de-clutter our Low Earth Orbit, we are still far from an economically feasible solution. From an International Relations perspective, the Kessler Syndrome presents an instance of the Collective Action Problem that also demonstrates how such problems can be overcome through proper collaboration. Space Agencies around the world are in constant contact with each other, and the government’s of various space-faring States have, for the moment at least, put aside political and ideological differences for the sake of
scientific progress. Union’s such as this are examples that support the idea that Nation-States can collaborate in an anachic environment; however, this cooperation is fragile, and is partly due to the fact that space exploration is a fringe sector of the economy which—unlike in the case of climate change—have relatively few private interests lobbying for influence.

Another example of the Collective Action Problem is that of military build-up. States cannot commit to not proliferate or build up arms as a means of deterrence, even though doing so increases the risk of war. A potential solution to this predicament is an arms agreement, but as history has made clear, without a body to enforce deals, such agreements are tenuous. The build-up of arms increases the volatility of the international landscape which could spark into the archetype of the collective action problem: warfare. State-on-State war and civil war are both astonishingly damaging to the citizenry of participating States. Conflict usually begins because States cannot commit not to invade other countries, because if they did the other State would have the potential to attack first. Finally, we also see the CAP during peace attempts. If no belligerent has a total victory, neither party will commit to taking the first step towards a ceasefire.


52 Kenneth Waltz notes that, according to the theory of defensive realism, “the first concern of states is not to maximize power but to maintain their position in the system.” Thus in order to maintain their place in the system States must partake in military build-up and other potentially aggravating actions. For more information see: Waltz, Kenneth N. Theory of International Politics. New York: McGraw Hill (1979) p. 126.

53 We can find a modern example of a CAP in the operations of NATO. “Using theories of collective action, which focus on whether and when individual actors will contribute toward the provision of non-private goods, I find that out-of-area peace operations pose precisely the wrong kinds of incentives for NATO to succeed in this area. Both humanitarian operations and operations designed to affect the political incentives of the actors in a conflict are likely to be seriously undersupplied, which could pose a difficult international problem in view of the need for such operations. Unless NATO members find ways to change dramatically the individual incentives they confront on these issues, the alliance is unlikely to carry out peace operations often or successfully.” See: Lepgold, Joseph. "NATO's Post-Cold War Collective Action Problem." International Security 23, no. 1 (1998): 78-106.
due to the temporary vulnerability they would face doing so. This is especially true in civil wars, where first-strike advantages can decisively turn the tide of the conflict. Thus, we can find war in situations where peace would make everyone better off.

The Collective Action Problem can be seen on both the National and the International level, but the ability for society to deal with them varies substantially. On the National level, the government is equipped to address the free-riders far more thoroughly than in our International system of anarchy. This situation is even more condemnable considering that on the International level the stakes are much higher—by virtue of involving the populations of multiple nations. It is imperative that any potential solution to the problems of the Nation-State also address issues of the International system because—as an instrument of societal organization—our International system is worse than the Nation-State in almost every regard.

The International-State

There is no single definition for what a State is, but one could describe it as an amalgam of codified, sometimes representative, power structures guided by a constitution. This definition is missing two key elements of a traditional definition of a State: territoriality and sovereignty; however, these two criteria are more fiction than fact. Similarly, at a certain scale, the global

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54 One potential solution to the collective action problem is through the hegemonic power theory, which asserts that political superpowers can bring order to the international system. This phenomenon solves specific CAPs (for example, the issue of protecting the seas) but it does so at the expense of democratic governance. The hegemonic power might be a democracy, but this democracy would not extend to the billions of people around the world that would fall under its influence. For more information, see: Webb, Michael C., and Stephen D. Krasner. “Hegemonic Stability Theory: An Empirical Assessment.” Review of International Studies 15, no. 2 (1989): 183–98.

55 For a comprehensive debunking of the origins and prevalence of the idea of Westphalian Sovereignty, see Appendix A. The myth of territoriality is similar to the myth of sovereignty in that it was developed post hoc to explain the status quo. Territoriality and sovereignty are intimately tied in our modern world, but that has not been the case historically. An example of this can be seen in the medieval Catholic Church and the early modern Ottoman Empire. In the medieval Catholic Church, sovereignty over territory was divided between the nobility and the clergy. Additionally, the Church had sole sovereignty over matters of spirituality. Thus, laws varied depending on whether the transgression in question was spiritual, or occurred in an ecclesiastic property. For a more detailed discussion, see: Sheehan, J. (2006). The Problem of Sovereignty in European History. The American Historical Review, 111(1), 1-15.
economy is also an amalgam of codified power structures—sans guaranteed individual liberties, democratic involvement on a meaningful level, or any substantial regulatory body. Nation-States in a global economy can be considered a society without a centralized government. We can view each Nation-State can as an organization, with the citizenry of each Nation-State being its members or shareholders (a libertarian ideal). However, reframing the Nation-State using characteristics of the international system quickly reveals the many problems that arise from anarchy. The inability to enforce rules, the inconsistent power structures of each organization, the lack of guaranteed representation in an organization, and the absence of individual liberties are an affront to our conception of modern political life. Yet, on the international level, many willingly endorse this status quo.

If any U.S politician were asked if all States in their Union should be allowed to declare independence, the politician would most likely scoff at the notion. Their reaction would be warranted, as the federal government is essential for inter-state coordination in our modern world. However, if we asked the politician if they would support a sovereign global government, they would likely reject it. A global federation could be a tool for tyranny. The whims of the majority could swamp the interests of individual nations, and our cultural traditions could be trampled over. Some global president could dictate the lives of billions! Of


57 Interestingly, the founders of the U.S. realized this, and took the necessity of a strong pan-colonial executive branch into account when drafting the U.S constitution (as the articles of confederation resembled an alliance more than a State). See: Kelly, Martin. “Why the Articles of Confederation Failed.” ThoughtCo. https://www.thoughtco.com/why-articles-of-confederation-failed-104674 (accessed April 14, 2019).

58 The possibility for a global government to descend into tyranny is substantial, and the sheer number of people the tyranny would effect might make the entire endeavor seem like an unacceptable bargain; however, avoiding such a possibility is a core tenet of The Cryptostate. The political institutions and distributed ledger are both designed to make the consolidation of power incredibly difficult and unsustainable for any prolonged period of time (discussed in Part II).
course, for many, Nation-States are already vehicles of tyranny. The interests of individual regions or subdivisions are already, in unitary states, swamped by the desires of the capital.\textsuperscript{59} Pop culture and the internet is already eroding traditional cultures,\textsuperscript{60} and a handful of leaders—sitting in the security council room at the United Nations Headquarters in Manhattan—already have the power to influence billions of lives.

Centralization, regardless of scale, comes with costs: the loss of power on a local level. Centralization, regardless of scale, comes with benefits: standardization, improved coordination, and collective power. There is no inherent reason that the benefits of the federal governmental structure of a Nation-State cannot be extended to the supranational level, especially because as things stand, our international system is already suffering from the drawbacks of pseudo-warlordism. Many of the alleged disadvantages of a global state are already present in our International-State, just buried under numerous layers of bureaucracy masked as sovereignty.

**Liberalism Sans Liberalism**

Liberalism is a political philosophy that values liberty and equality above all. Historically, liberalism was borne out of the same environment that gave rise to Nation-States, and liberal ideas were espoused by philosophers such as Adam Smith, John Locke, Jean-Jacques Rousseau,

\textsuperscript{59} Examples of this conflict can be found on almost every part of the world; however, as it is not particularly relevant to this thesis, we will only point to two examples: the U.S and Mexico. For the U.S struggle between Federalists and anti-Federalists, see: Nedelsky, Jennifer. "Confining Democratic Politics: Antifederalists, Federalists, and the Constitution." (1982): 312. For the Mexican struggle between Centralists and Federalists, see: Jaime E. Rodriguez O. "The Struggle for the Nation: The First Centralist-Federalist Conflict in Mexico." The Americas 49, no. 1 (1992): 1-22.

\textsuperscript{60} The primary benefactor the internet's cultural reach has been the U.S. "One of the central ideas [for Washington] was using “soft power” by spreading American television and movies to foreign audiences, especially in the Muslim world, to help sway public opinion... In the last eight years, American pop culture, already popular, has boomed around the globe while opinions of America itself have soured. The television program “CSI” is now more popular in France than in the United States. Hollywood movies routinely sell far more tickets overseas than at home. A Russian remake of the TV show “Married With Children” has been so popular that Sony, the producer of the show, has hired back the original writers to produce new scripts for Russia. Even in the Muslim world, American pop culture has spread." See: Arango, Tim. "U.S. Media Thrive Worldwide, but Not U.S." The New York Times. November 30, 2008. Accessed April 14, 2019. https://www.nytimes.com/2008/12/01/business/media/01soft.html.
and Immanuel Kant. Free markets, democratic representation, individual rights, and internationalism are all hallmarks of the liberal tradition. The United Nations is a monument to the liberal tradition; it represents the idea that all nations of the world can come together and debate the great issues of our time in a fair and equal manner. However, in reality, the United Nations is anything but democratic. As with almost all tools of international discourse, the layperson has little to no institutional influence, and in the case of the U.N, the voice of entire continents are undermined by the oligarchic might of the Security Council.

The United Nations is just one example of the myriad of actors and institutions in the International system, none of which genuinely enfranchise the people. Despite our allegedly liberal world order, many core values of the philosophical tradition—non-authoritarianism, the rule of law, constitutional government with limited powers, and the guarantee of civil and political liberties—are absent on the international stage. Nations are given rights, but the individuals within them are not.61

The historical reason behind a lack of representation for the citizenry in international affairs is simple: warfare. Conflict between states has been the historical norm, and outside of civil wars, this conflict occurs in the International realm. For a vast majority of history States — defined as the sovereign—did not believe that citizens were equipped to handle any decision making, let alone during times of crisis. Today, even with the rise of democracy, general wisdom claims that the citizenry is ill-equipped to handle executive decision making in emergencies such as war.

A positive result of neoliberal globalization has been an unparalleled economic interdependence between States. This has made warfare between economic superpowers

61 The exception to this is Universal Human Rights, but even these values are applied to individuals with respect to their nations, not in a vacuum.
impractical while simultaneously increasing the effectiveness of less aggressive means of coercion such as economic sanctions. While there are still many ongoing conflicts,—that have resulted in an overwhelming number of casualties and millions of displaced peoples--these conflicts are not between superpowers. However, it would be incredibly naive to believe that conflicts between major powers are a thing of the past, primarily because of the inherently exclusionary and ethnocentric character of our base units of societal organization. Economic integration is a step in the right direction, but without adequate political integration, the situation will remain fragile.

The first step towards politically enfranchising citizens in the international realm is to allow people to participate in diplomacy—not necessarily by making specific decisions, but by at the very least electing their representatives. The diplomatic arm of a State has, much the military arm, remained outside the reach of the public.

Unrepresentative Representatives

All democratic Nation-States divide government into various branches. This separation of powers is integral to stymying attempts at despotism and maintaining the integrity and independence of various aspects of the government. The most prominent example of this is the independent judiciary. If the purpose of a judiciary is to hold all citizens—including members of government—accountable, then it naturally follows that one would not want the judiciary tied to the interests of any specific branch of government. Often, the desire to leave a branch of government independent comes at the expense of democratic involvement. The founding fathers of the United States never implemented a direct democracy partially because for most of history—and especially following the French Revolution—a tyranny of the majority was feared as much

62 The Bolivian constitution of 2012 was the first example of a Supreme Court that received its mandate directly from the masses. The judges are elected by a direct vote. See: Lehoucq, Fabrice. "Bolivia's constitutional breakdown." Journal of Democracy 19, no. 4 (2008): 110-124.
as the tyranny of a despot. We see one aspect of this de-democratization in the United States’ unelected judiciary. The structure of the entire US government can be viewed as a compromise. It aims to enfranchise citizens to a certain extent, but never completely. The office of the President is an elected position, but nominees to the Supreme Court and other Federal judges are appointed. Members of Congress are elected, but the generals are appointed. One branch of government that remains unelected—in every single nation—is the Foreign Service. Ambassadors, diplomats, and representatives to International Organizations are all appointed by the executive branch, and it is these individuals that represent the interests of the State on the international stage.

Historically this has made sense, the primary concern of international affairs for was warfare. Trade agreements, humanitarian treaties, and multi-lateral treaties not borne out of warfare are almost exclusively a feature of the early modern age. Of course, warfare continues to be a significant facet of foreign affairs for any nation; however, today international institutions, such as the United Nations or the International Monetary Fund, have come to play a significant role as well. Foreign aid, labor agreements, tax structures, and human rights guarantees are all

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63 This fear can be seen in works as early as *The Republic*, in which Plato asserts that democracy is the bastardization of oligarchy (rule by the rich) and results in anarchy, moral corruption, and tyranny. "Democracy comes into being after the poor have conquered their opponents, slaughtering some and banishing some, while to the remainder they give an equal share of freedom and power; and this is the form of government in which the magistrates are commonly elected by lot." See: "Book VII | The Republic By Plato." 2019. The Internet Classics Archive. Accessed April 14. http://classics.mit.edu/Plato/republic.9.viii.html.

64 There are a variety of methods through which judges are appointed, and many of them are democratic. "Shugerman discovered that at first the plan to create a more independent judiciary through popular elections worked. The first generation of elected judges in the early 19th century exercised the power of judicial review far more often than their predecessors did. Perhaps ironically, these democratically elected judges were also the first to criticize democratic excesses and to argue from a counter-majoritarian perspective." See: Zeder, Jeri. "Elected vs. Appointed?" Harvard Law Today. July 1, 2012. Accessed April 14, 2019. https://todaylaw.harvard.edu/book-review/in-new-book-shugerman-explores-the-history-of-judicial-selection-in-the-u-s/.

65 However, as recent elections have highlighted, the Electoral College is a substantial barrier to any direct democratic election of the president. Mathematically, it would be possible for a candidate to win "the presidency with only around 23 percent of the popular vote." See: Kurtzleben, Danielle. "How To Win The Presidency With 23 Percent Of The Popular Vote." NPR. November 02, 2016. Accessed April 14, 2019. https://www.npr.org/2016/11/02/50012248/how-to-win-the-presidency-with-27-percent-of-the-popular-vote.
decisions that affect the lives of citizens within any given Nation-State—often in profound ways—yet citizens have no say in these matters. An unfortunate side effect of locking the Foreign Service behind the discretion of the executive branch is that it has locked citizens out of having a voice in what is—in light of a globally integrated world—becoming an increasingly important aspect of all governments. This alienates the average citizen from the international community. Further, it makes any attempt at establishing a connection between the respective populations of the two nations almost impossible.\(^{66}\) When two nations—or an extensive collection of nations—come to a consensus it is not an achievement of the people of the respective nations nor the elected representatives of those nations; it is a consensus of unelected representatives.

**The Problem with Global Governance**

The Columbia Center on Global Governance is one of many organizations that have recognized and embraced the reality of our international state. These organizations are spearheading initiatives that will address the problem of anarchy and allow Nation-States to cooperate without succumbing to the collective action problem.\(^{67}\) However, these institutions mostly ignore the problem of democratic participation or enfranchisement on an individual level. Nation-States have the right, but individuals within Nation-States do not. Of course, the reason behind this is mostly pragmatic. Many States today are not democracies, and even among democracies, there is a considerable variation in the extent to which the people are genuinely empowered. The lowest common denominator between the various Nation-State’s present today is the theoretical concept of national sovereignty, however dubious it may be in practice. In a

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\(^{67}\) A few such entities are the Columbia Center for Global Economic Development, the Center for Global Development, the Center for Global Governance, and the Global Governance Institute.
nutshell, this is the problem of global governance. Any attempt to create a global governance framework within our modern Nation-State based international system is both philosophically, and practically infeasible. The international system is far from equal, and Nation-States vary tremendously in terms of almost any demographic. Any (peaceful) attempt at global governance would require that the existing powers willingly cede their right to rule by might, a feat akin to asking a toddler to give up their candy voluntarily. It may technically be possible but is indeed a long shot, even more so if the toddler happens to possess nuclear weapons.

In the Cryptostate I propose an alternative framework for global governance. As mentioned last chapter, a citizenry of a the Cryptostate would consist of all those in its economy, and in a globalized world such as ours, it is inevitable that at a certain point the cryptostate would come to represent individuals from all over the world, creating a de facto global governance framework. This would be fundamentally different from existing global governance frameworks because of its emphasis on the individual, not a nation, as a political unit. By bypassing Nation-States altogether, the Cryptostate simultaneously delegitimizes the fractured National-International systems. More importantly, in order to appeal to individuals, any prospective Cryptostate must be structured in a manner that protects individual liberties and gives its citizens a legitimate voice in government. Because the impact of any State tends to scale with its economic output, any Cryptostate that does not eventually constitute vast portions of the world will not—by definition—be in a position to impact global affairs significantly. To summarize, if the citizenry is the economy, and we have a global economy, then the State could—but by no means will—eventually become a de facto global governance framework: a framework that bypasses the problematic Nation State.

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68 The exact manner in which such a State can coexist with contemporary Nation-States is elaborated on in Creating the Cryptostate.
On Libertarianism

To many of us more libertarian-minded, the thought of a global government might sound like an Orwellian nightmare. For the unacquainted, libertarianism is a philosophy that says a government should attempt to remain as uninvolved in regulating economic activity as possible in order to empower market forces, which will in turn sort out the societies economic woes. Most libertarians view the government as an impediment to innovation and economic growth, often going as far as blaming government interference for many global recessions. There are many profound insights to be found in libertarian philosophy, one of which is that libertarianism asserts that personal autonomy and individual rights are paramount to any fair society. Libertarianism goes on to claim that governments, being dominant structures in society, are the greatest threat to individual freedoms and liberty. We need only look at the various State-driven genocides of the past century to find evidence of the harms of tyrannical government; however, the major flaw in this mode of thinking is the mental separation between a government—regardless of whether it is democratic or not—and private individuals or corporations.

The role of government in committing atrocities is very tangible, whereas the role of the latter is not after all the Nazi regime was propped up by investments from private corporations, and similarly the Belgian Kongo under the private rule of Leopold II witness horrific atrocities. Most historians would be quick to point out that it is not a government that is the problem, but any dominant power structure that is not accountable to those they impact. That is not to say that democratic institutions are not capable of similar atrocities, but that it is far less frequent.

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As a general trend, the more accountable a power structure is, the more responsible it has to be.\textsuperscript{71}

Returning to libertarianism, the economy can be visualized as a matrix of various actors interacting with other actors with the government at the top of the food chain, but the purpose of the government is— theorists—to represent the interests of the people, whereas the interests of private organizations is explicitly limited to those of its members. Suggesting that the government take its hands off the economy would only shift the power dynamics to favor entities that are less accountable to the public.

To summarize, if we view the economy as an amalgamation of power relations, then removing an actor or adding many actors changes the matrix of power relations in the economy. In our present society, there is one actor that dwarfs all others, the government. The government uses its enormous power to manipulate the economy. Libertarians consider this a negative because the government impedes market forces. However, in reality, market forces can only operate with the support of the government, and all private actors—incentivized by profit—will also attempt to undermine market forces. The decision for a government to minimize its influence in the economy would in itself have an impact on the power relations within the economy. It would merely distribute and decentralize the power held by the government into the hands of less accountable corporations. It is at this point that libertarian philosophy begins to reach its limits. Suppose we do abolish a government's influence on the economy, what mechanism is there now to prevent a private actor—or a conglomerate of actors—from assuming the government's mantle? One response would be market forces, namely the people's purchasing

\textsuperscript{71} At this point, we should distinguish between theoretical accountability and effective accountability. If, as is the case in the United States, an electoral campaign costs millions to run and these millions are raised through private corporations, then the accountability for these offices will, in practice, be much smaller than its accountability in theory.
power. That may be true for particular goods or services, but there is a plethora of evidence indicating that a consumer's purchasing power does not impact demand for essential goods and services. What mechanism is there to prevent price manipulations, insider trading, monopolies, ensure safety standards, or even guarantee basic goods such as education, food, and water if there is no power structure to hold various private corporations accountable?

The most significant difference between the government as an institution and corporations as an institution is that the government derives its mandate from its citizens. We have seen in Chapter One that this mandate is far from comprehensive; however, further decentralizing the source of power to corporations would be a step in the wrong direction. If looking for differences between a government and the private sector then it is true that the government uses its influence to manipulate the economy; however, it is also true that unlike private corporations, the government is representative in nature.

The libertarian response to this argument would be to claim that the government is not actually representative and that powerful or influential interest groups manipulate it. However, there is no logical leap from this assertion (which is a critique of corruption and can be addressed using other measures such as direct democracy) and the conclusion that the government should

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73 “How much of the work is actually monopolistic? How much is truly competitive? It is hard to say because our common conversation about these matters is so confusing. To the outside observer, all businesses can seem reasonably alike, so it is easy to perceive only small differences between perfect competition and monopoly, and most businesses are much closer to one extreme than we commonly realize… Monopolists lie to protect themselves. They know that bragging about their great monopoly invites being audited, scrutinized and attacked. Since they very much want their monopoly profits to continue unmolested, they tend to do whatever they can to conceal their monopoly—usually by exaggerating the power of their (nonexistent competition).” See: "Competition is for losers." The Wall Street Journal 2 (2014).
stop unduly influencing the economy because all other actors in the economy are more selfish by
design. In the absence of government what would prevent other interest groups from continuing
their collusion or corruption? In fact, to see exactly how an economy without a hegemonic
power structure functions we need only to look at the subject of this chapter. In our modern
world, multi-national corporations have received a degree of freedom from government oversight
previously alien. Natural monopolies and monopolies in industries with a high barrier to entry
can be found within national borders, but the problem is far worse if we look at the international
landscape. Far worse than monopolies are the loss of other benefits brought by regulation: (and
conveniently ignored in libertarian theory) safety and ethical standards. Nike manufactures its
products in factories that employ child labor. The horrors of these sweatshops are well
documented, but for many consumers of the product, the horrors are far enough to continue to
purchase their products. Nike is a U.S based company, yet a majority of its operations occur
abroad. This is because the cost of labor is cheaper in places such as Vietnam, and the cost of
labor is cheaper because there are far fewer de facto restrictions on exploitative labor practices

74 On the International Level we already see the creation of powerful economic cliques (referred to as international
cartels) such as OPEC which manage to unduly coerce States without any overarching regulatory body. See: Gülen,

75 One example of a trans-national monopoly is Luxottica, which has over 80% of the market share for the designer
#3fda709b6b66. Another example is the agricultural and chemical research giant Monsanto, which has a monopoly

76 "Industry experts said the disclosure, included as part of the company's corporate responsibility report, makes the
sneaker giant the first major apparel manufacturer to voluntarily disclose its entire supply chain. In the report
released Wednesday, Nike also acknowledges that factories with which it contracts to produce goods have harassed
workers and forced some to work overtime. For years, activists have demanded that Nike and other major companies
reveal where factories are located, so that independent observers could go and assess the labor conditions.
Corporations have been reluctant to do so, arguing that the plants are where the company's trade secrets are laid
that have long been outlawed in the U.S. The representative power structure acted in the interest of the majority of the people under its jurisdiction. If a government were to take its proverbial hands off the economy, then there is no reason to assume that these exploitative practices would end, or that there would be any future labor right concessions.

A normative response to this could argue that a government should not be regulating the behavior of their citizens—or corporations—outside its borders, after all the laws of a host nation takes precedence over those of a foreigners nation. While this is an accurate description of the status quo, it once again begs the question of whether the practice is consistent with an underlying principle of democratic government—a government's mandate form the people. The assertion that a foreigner within the borders of a host nation is subject to the laws of that host nation seems to affirm the premise that a government is responsible for those under its jurisdiction, provided that the definition of jurisdiction is tied to geography, not tangible impact. In this scenario, the visiting foreigner is not entitled to vote in any domestic affairs even though these affairs may very well concern him.

This phenomenon appears to contradict the “no taxation without representation” mantra touted by the American revolutionary forefathers. Most people would dismiss the notion that a visitor—regardless of the nature of their visit—deserves the right to have a say in local affairs because the visitor is substantially less invested to the status of the locale than a native.

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77 "In an inspection report that was prepared in January for the company's internal use only, Ernst & Young wrote that workers at the factory near Ho Chi Minh City were exposed to carcinogens that exceeded local legal standards by 177 times in parts of the plant and that 77 percent of the employees suffered from respiratory problems. The report also said that employees at the site, which is owned and operated by a Korean subcontractor, were forced to work 65 hours a week, far more than Vietnamese law allows, for $10 a week. The inspection report offers an unusually detailed look into conditions at one of Nike's plants at a time when the world's largest athletic shoe company is facing criticism from human rights and labor groups that it treats workers poorly even as it lavishes millions of dollars on star athletes to endorse its products." See: Greenhouse, Steven. "Nike Shoe Plant in Vietnam Is Called Unsafe for Workers." The New York Times. November 08, 1997. Accessed April 14, 2019. https://www.nytimes.com/1997/11/08/business/nike-shoe-plant-in-vietnam-is-called-unsafe-for-workers.html.

78 Daniel A. Smith, Tax Crusaders and the Politics of Direct Democracy (1998), 21-23
This would be a valid response, so long as the visitor is enfranchised in another community, and so long as that community has a say on issues that concern both communities. This way, the foreigner is represented in a broader framework, but not on the local issues of a community they are temporarily visiting. One way to achieve this sort of enfranchisement would be through a decentralized federal structure, not unlike that of the United States. However, the United States currently offers no representative accountability of citizens from another nation. This is the problem with our international landscape in a nutshell. Our international system is in many ways a perfect case study for the libertarian ideal: various Nation-States with a complicated web of bilateral and multilateral relations without any supreme arbiter of justice capable of securing universal standards. Needless to say, our International-State suffers from many of the same economic and political harms that would come from removing government interference within domestic markets.

The Benefactors of Globalization

Not all citizens are shut-out of the international community; in fact, many benefit tremendously from the fractured un-representative nature of our international system. On September 7th, 2017, Amazon announced that they were going to hold a competition among U.S states to determine where to build their new headquarters. The press depicted the announcement as a pseudo-competition, and the not so subtle hint was that the state that offered the most concessions would win the privilege of hosting the new headquarters.79 The corporation used its financial prowess to gain a monopolistic advantage against other competitors by using the

79 “Amazon took the unusual step on Thursday of announcing it wants a second home outside Seattle, starting what is sure to be a fierce bidding war to lure Amazon — and the thousands of high-paying jobs it will bring to town — using a combination of tax breaks and other sweeteners.” See: https://www.nytimes.com/2017/09/07/technology/amazon-headquarters-north-america.html?module=inline.
freedom and differences between state laws and policies. Of course, the federal government could still intervene to ensure that these new offices were not staffed by temp-workers being paid under minimum wage, or that the buildings adhered to safety standards but, on an international scale there is no such authority. The Amazon episode is a small-scale example of what happens across national borders every day. Tax havens,\(^{80}\) dummy corporations,\(^{81}\) child labor,\(^{82}\) and in some cases, outright slave labor,\(^{83}\) are utilized by various corporations to skirt their responsibilities and obligations to their respective Nation-States. This blatant abuse of the international landscape has given globalization a poor reputation. Closing legal loopholes and creating accountability for global citizens can theoretically be achieved within our existing framework; however, any decisive action in that direction is incredibly unlikely due to the apathy—or even outright support—of our unelected. Even when multi-national widescale corruption is exposed—such as with the Panama Paper leaks—there is little to no recourse for laypeople around the world. In our current

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\(^{80}\) The 2015 Panama Paper leaks revealed that tax evasion is epidemic among the wealthy. Three popular tax havens are the Cayman Islands, the State of Delaware, and Ireland. For an overview of the Panama Papers, see: Harding, Luke. "What are the Panama Papers? A guide to history’s biggest data leak." The Guardian (2016).

\(^{81}\) "Think of a problem in the US or abroad that you care deeply about. Is it the opioid epidemic? Terrorism? Election meddling? Maybe rhino poaching? Any issue you name is facilitated in one way or another by the (ab)use of anonymous shell companies — limited liability corporations (LLCs) with no easily identifiable owner — a legal entity that anyone can register in the United States with less identification than is required to obtain a library card. The effects of this are so wide-ranging that it boggles the mind to try and bring it all together. Pick your poison: national security, tax evasion, compliance, or privacy. Whatever your concern, the arguments and research are complete and well-developed. So, what to do? Proposed solutions and the actions taken thus far are equally varied, and the arguments for or against them are similarly solid. But the problem remains: the anonymous shell company." See: Fuller, Clay. 2019. "Dealing With Anonymity In Business Incorporation". AEIdeas. https://www.aei.org/publication/dealing-with-anonymity-in-business-incorporation/.

\(^{82}\) "According to the International Labour Organization (ILO), in 1990 there were almost 79 million children around the world who did regular work (see Kebebew Ashagrie, 1993 p.16). This estimate of child labor would vary depending on how we define work, how we define a child, and how we collect data, but no matter which estimate we take, the inescapable fact remains that this is a problem of gigantic proportions. Moreover, the magnitude of the tragedy is not captured by numbers alone, since the conditions of child labor can vary. There are children who work in hazardous industries, risking accident and injury; there are others working in conditions that take a slower but definite toll on the children’s health."

international system what potential recourse—short of a U.N invasion of Panama followed by
the confiscation of assets—could there be? There is truth to the idea that the benefactors of
globalization are exploiting the lack of an overarching body to regulate global capitalism in order
to enrich themselves, and one way to address this issue would be to introduce a border-agnostic
representative power structure. If a vital responsibility of a government is to hold its citizens
accountable for their actions, then this trans-border shenanigans is fundamentally undermining
that goal.

**Populism as a Response to Globalism**

The Brexit referendum, the election of Donald Trump, and the Yellow-Vest protests in
France can all be classified as populist revolts. The root of these revolts is a distinct lack of power
for the individual on the international level, and this frustration is often mislabeled as being anti-
globalist. Globalism has brought people around the world a lot closer together, but its material
boons have not been enjoyed by the vast majority of the global population. Global wealth
inequality has become much worse in recent years. The people participating in these anti-anti-
globalist protests do not benefit from globalization. They see multinational corporations shutting
down factories in developed countries only to open a new one, reliant on child labor, half-way

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84 "Widening income inequality is the defining challenge of our time. In advanced economies, the gap between the rich and poor is at its highest level in decades. Inequality trends have been more mixed in emerging markets and developing countries (EMDCs), with some countries experiencing declining inequality, but pervasive inequities in access to education, health care, and finance remain." Dabla-Norris, Ms. Era, Ms. Kalpana Kochhar, Mrs. Nujin Suphaphiphat, Mr. Frantisek Ricka, and Evridiki Tsounta. Causes and consequences of income inequality: A global perspective. International Monetary Fund, 2015. 4.
across the world. They see foreign speaking people arrive to take lucrative positions in their offices. They are forced to encounter radically different cultural and religious practices in the public sphere daily. They feel as though their traditions and way of life is under attack, and that the globalists are spearheading this attack. Many of these dissenters are xenophobic or hold other prejudices (which are without a doubt encouraged by the ethnocentrism implicit in the Nation-State), but that is no reason to discount the sentiment, especially since there are a plethora populist movements without an element of bigotry.

85 "Barra [General Motors CEO] came under pressure from Ohio's two U.S. senators and other lawmakers who want GM to shift production of a vehicle from Mexico or build electric vehicles at the Lordstown Assembly plant in their state that the automaker has said it intends to close... GM said last week it would close five North American assembly plants next year and cut up to 13,000 jobs as it blames slow-selling car sales for the need to restructure. The CEO said GM planned to add other products at U.S. plants next year and that the automaker would have some jobs to fill at other Ohio facilities in 2019." See: Shepardson, David. "GM CEO Will Keep 'Open Mind' on Plant Closings, Acknowledges Anger." Reuters. December 06, 2018. Accessed April 14, 2019. https://www.reuters.com/article/us-gm-restructuring/gm-ceo-will-keep-open-mind-on-plant-closings-acknowledges-anger-idUSKBN1O42M2.

86 "Blaming immigrants for the nation's woes has long been an American pastime, especially in hard economic times like today. Recently, there has been an upsurge in anti-immigrant sentiment, particularly in areas of the country that host large number of immigrants. Public opinion surveys indicate that the public does draw a distinction between legal and undocumented immigrants, and that the public regards undocumented immigrants with increasing disfavor. One of the most well-entrenched myths about immigrants is that they steal jobs from American workers, collect an excess of government benefits and in general represent a drain on the economy. According to an August 1993 Field Poll of Californians, 39 percent of respondents agreed that illegal immigrants are 'taking jobs away from Californians.' But these are all myths that must be refuted to create a more hospitable environment for immigrants' rights." See: "Immigrants and the Economy." American Civil Liberties Union. Accessed April 14, 2019. https://www.aclu.org/other/immigrants-and-economy.

87 The Muslim community is a recent example of a stigmatized community whose population is rising in many Western Nation's as a result of the Syrian Civil War. Religion and culture outpace politics across all regions surveyed as the root cause of tension between Muslim and Western worlds. This is significant in discussions about Islamophobia, considering political interests can vary and change while cultural and religious differences are more ingrained within populations." See: Gallup, Inc. "Islamophobia: Understanding Anti-Muslim Sentiment in the West." Muslim Studies. Accessed April 14, 2019.

88 "Suddenly, people all over Africa and the rest of the non-Westernized regions of the world, appear to be imbibing materialistic and individualistic values previously associated with Western culture. What explains this apparently abrupt Westernization? One major reason is the structural change in the world economy: globalization and the flood of goods dumped in poor countries that are marketed by mass seductive advertising which is blatantly superficial but nonetheless successful in creating fresh desires in peoples' traditional societies. For some, especially the young, these new products and content with new ideas can be exhilarating. Change may mean escape from oppressive traditions. It may also bring new opportunities for cultures to mingle in creative ways. Obviously, it would be an excessive form of cultural fundamentalism to suggest that Africans should try to keep everything exactly as it is, rather than allowing culture to develop. However, there is genuine cause for concern about the rate at which cultures (African and non-African) are being undermined in a world that is bound together by ever-stronger economic ties." See: Akande, Wole. "The Drawbacks of Cultural Globalization." Global Policy Forum. November 10, 2002. Accessed April 15, 2019. https://www.globalpolicy.org/component/content/article/162/27594.html.
Globalism as Global Capitalism

Bernie Sander’s U.S presidential campaign is an example of an anti-globalist expression sans xenophobia. It may not be blatantly apparent how the Sanders campaign was anti-globalist, but the connection becomes clear when we view globalism in its present form as intrinsically tied to global capitalism. As an umbrella term globalism characterizes any framework that attempts to account for actors beyond national borders. This means universal human rights theory, communism, and global capitalism can all be characterized as globalist. While all three of the aforementioned ideologies have been influential in our lives, it could be argued that global capitalism is a tier above the rest with regards to impact. There are no autarchic nations today and even the most isolated of nations, North Korea, is dependent on their communist neighbor for support. Global capitalism is the dominant philosophy that governs economic transactions across national borders and has thus come to be closely tied to the word globalism in popular consciousness.

Of course, global capitalism is merely regular capitalism on a global scale, and this is why Bernie Sander’s pro-socialist policies can be considered as anti-globalist. One feature of

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90 "Globalisation entails a universal shift towards economic liberalisation, rather than a selective liberalisation with particular disadvantage to the Third World. The movement also bemoans the erosion of traditional economic functions in Northern governments, thus diminishing their agency in globalisation and largely absolving them of responsibility for it. Instead, the focus of protest should shift from international financial institutions (IFIS) to the state-IFI interface. Finally, the movement fails to engage with the ever-changing nature of capitalism's structural search for expanding profits." See: Thomas, Neil. “Global Capitalism, the Anti-Globalisation Movement and the Third World.” Capital & Class 31, no. 2 (July 2007): 45–78.

91 "The first World Social Forum, held in Porto Alegre in January 2001, illustrated the growing importance and breadth acquired by the movement protesting against neoliberal globalization. The authors analyse the genesis of this complex movement from the First International Encounter for Humanity and Against Neoliberalism (Chiapas, Mexico, 1996) to the recent Forum in Porto Alegre, describing the different social movements which, from a variety of perspectives, now converge in the international struggle against neoliberal policies." See: Seoane, José, and Emilio Taddei. "From Seattle to Porto Alegre: The anti-neoliberal globalization movement." Current Sociology 50, no. 1 (2002): 99-122.
global capitalism is a lack of economic regulation. The neoliberal philosophy at the heart of globalization has fostered much resentment among the working classes. Protests against the status quo have gripped nations across both the developing and the developed world. In 2011, the Arab Spring erupted in Tunisia as a protest against oppressive regimes and a low standard of living. In 2018, the Yellow Vest movement erupted in France for similar reasons. The people were not protesting immigration, foreign corporations, or multi-multiculturalism. They were protesting tax cuts, nepotism, and economic policy. Any attempt to address the rising populism—and anti-globalism—of our time that does not address our broken international system is not tackling the real root of our problem. The real root of the problem is that the current benefactors of globalization are not the laypeople or even anyone elected by democratic consensus. The current benefactors are those with the tremendous capital required to access the international realm.

If at the onset of this chapter, the link between the failings of the Nation-State and the failings of the international system was not clear, then hopefully this chapter has fixed that. In our rapidly globalizing world, there must be democratic participation on an international level to prevent many of the present political, social, and economic abuses and injustices present around the world. The structural deficiencies of the Nation-State and the International system are only partly to blame for our failure to adapt to issues such as rising inequality, unemployment, lower standards of living, and economic hardship. These are economic issues that have plagued all

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93 “Thus far, the 'yellow vest' protests in France have lacked a party, structure and leadership. But lists of demands have been circulating. At their heart is an unworkable fantasy, such as a constitutional cap on taxes at 25 percent, coupled with a massive increase in social spending. What is striking about these manifestos is that they combine traditional wish lists from the left and right. No wonder, then, that nearly 90 percent of people who back the major far-left and far-right parties view the movement favorably, compared with only 23 percent of people in President Emmanuel Macron’s centrist party.” Zakaria, Fareed. "The New Dividing Line in Western Politics." The Washington Post. December 13, 2018. Accessed April 15, 2019. https://www.washingtonpost.com/opinions/the-yellow-vest-protests-add-to-a-new-dividing-line-in-western-politics/2018/12/13/f668b8d8-flid-11e8-862ab6a6f3ce8199_story.html?utm_term=.72030c165f8d.
societies at one point or another, and many Western anti-globalists argue that many of the issues mentioned above are solely a result of globalization. This may be true to a degree; however, it is important to also acknowledge the role of technological innovations and economic policy in these disruptions. Jobs are leaving many developed countries, and in many cases, they are not coming back. Instead of obsessing over employment rates and trade deficits we need to question the underlying economic philosophy deeply in our culture. In the next chapter, we will address the above issues by taking a step back from a structural critique of governance systems to instead analyze the role of modern government in the local and global economy.

94 See Appendix B for a detailed discussion on the role of automation in severing the relationship between productivity and the person.
The Arab Spring was driven by a desire for greater representation and higher standards of living. Political reform and greater enfranchisement can provide representation, but how does one address the issue of economic destitution? Our mainstream economists and financial institutions have taught us that the economy is a realm beyond reproach. The economy is depicted as a black box that is influenced by our behavior, but only indirectly. The role of a State, in this neoliberal narrative, is to appease the whims of the economic realm by maintaining a set of principles that, in theory, will lead to the prosperity of society. Unfortunately, modern economic philosophy drastically understates the role of government in the economy. This fundamentally flawed rhetoric has fostered a degree of economic apathy among the citizenry. The first step towards remedying the status quo is to understand the nature of modern money.
The influence of money throughout history cannot be overemphasized. Money is a
societally agreed upon representation of wealth. The shape, material, and philosophical
conception of money changed many times throughout history; the most recent of which was the
global adoption of fiat currency. Fiat money does not have any intrinsic value. It is not tied to a
commodity such as gold, and its supply is only restricted by the whims of a State’s central bank.
Despite this, money today still has tremendous value. This is because the value of any given
currency is guaranteed by the government that issues it. The Federal Reserve backs the dollar, the
Peoples Bank of China backs the Yuan, and the Bangladesh Bank backs the Taka. In turn, these
financial institutions are backed by the political, economic, and military assets of their respective
State.

Additionally, each Nation-State has an internal economy, denominated in its currency
(with notable exceptions such as the Eurozone), and participates in the global economy—which,
while technically not denominated in any single currency, ordinarily defaults to the hegemonic
US Dollar. The Foreign Exchange (ForEx) Market intimately interconnects these two
economies. The job of a Nation's central bank is to regulate the unemployment and inflation
rates of the internal economy, and the job of the representative assembly is to determine how to
spend the Nation's fiat currency. The global economy functions differently to a domestic
economy because of the same anarchic features of the international political system. However,
unlike the international political space, the global economy is far more integrated and, as the

noting that the prevalence of barter economies described in the summary is absent from any anthropological record.

96 There are a plethora of sources describing the nature of ForEx markets, but for a simple description see:
2008 financial crisis demonstrated, the activities of markets in a large economy has profound implication for all smaller economies.97

Economic codependence raises an important question regarding the exact boundaries of a government's influence. If we adopt the perspective that the citizenry of a State needs to enfranchise all affected interests and accept the reality that by using a States' currency one is implicitly supporting its government, then it follows that we should enfranchise all actors—i.e., individuals—in a State's economy. Further, if the economy affects all citizens of a State, then all citizens should have a say in both fiscal and economic policy. After all, the US government is a public utility, and everyone that uses the US dollar is affected by decisions made by the Fed, so why should the citizenry not have a say in what the inflation target should be, or how the government spends the money? One response would be to claim that the public is unqualified to make such decisions, but this was the same excuse historically used to prevent non-landowning men, women, and minority groups from gaining political suffrage.98 Democracy relies on the premise that popular judgment is the correct judgment. Many political issues are extremely complicated, nuanced, and often have no objective answer, yet the people are entrusted to have a say in them. There are those who argue that increasing democratic participation would lead to the ruin of society, but these individuals may have a conceptualization of prosperity that is

97 “Our first main finding is that politics takes a hard right turn following financial crises. On average, far-right votes increase by about a third in the five years following systemic banking distress, as shown in Figure 1. This pattern is visible in the data both before and after WWII and is robust when controlling for economic conditions and different voting systems. The gains of extreme right-wing parties were particularly pronounced after the global crises of the 1920s/1930s and after 2008. However, we also find similar patterns after regional financial crises, such as the Scandinavian banking crises of the early 1990s. Moreover, we identify an important asymmetry in the political response to crises – on average, the far left did not profit equally from episodes of financial instability.” See: Funke, Manuel, Moritz Schularick, and Christoph Trebesch. “The Political Aftermath of Financial Crises: Going to Extremes.” VOX, CEPR Policy Portal. November 21, 2015. Accessed April 16, 2019. https://voxeu.org/article/political-aftermath-financial-crises-going-extremes.

98 Democracy relies on the premise that a public decision is the correct decision. Further, this chapter will demonstrate that the current individuals in charge of making fiscal and monetary policy decisions are either as clueless as the general public, or too mired by conflicts of interest to make objective decisions.
counter to that of the majority. The same reasoning can be made to democratize economic decision making. It is easy for former banking executives at the Federal Reserve to prioritize a low inflation-rate over decreasing unemployment, but this completely ignores the opinions of those threatened by unemployment. Of course, any increase in economic enfranchisement must be accompanied by an increase in economic literacy, since it is essential to understand the institutions, structures, and capabilities of government in our modern economy before deciding what course to take.

The Modern Economy

Our contemporary economic system is an outgrowth of the Nation-State, yet as individuals, we have little to no say in controlling it directly. Most Nation-States divide their economic policy between a central bank and a representative branch of government—such as parliament or congress. The central bank dictates monetary policy (inflation, unemployment rate, bond yields) while the government creates fiscal policy (taxes, government contracts, welfare, etc.). Together these two entities have a great deal of influence over a State's economy. Another entity that has a profound impact on a States’ economy is its monetary sovereignty. Monetary sovereignty is a measure of economically independent a State is. State’s are less monetarily sovereign if they: are dependent on fuel or food imports, do not have an independent central bank (an independent currency), or have large amounts of debt denominated in a foreign currency.

99 Fiscal policy effects all individuals of a State, so it is impossible to avoid a conflict-of-interest when making such decisions. To refer back to our analogy in Revisiting the Nation-State, the consensus mechanism of our current system is akin to asking wealthy plantation owners to decide whether to abolish slavery.

currency. The U.S, Australia, and Japan are States with an extremely high degree of monetary sovereignty while Venezuela and all members of the Eurozone are examples of States with little monetary sovereignty. A monetarily sovereign State has more tools to manipulate its domestic economy—to fend off a recession, meet a target unemployment rate, etc.—while their counterparts are much more vulnerable to shifts in the global economy.

Any State that issues its own currency can, in theory, create as much currency as it needs. In reality, this is exactly what governments do. Now, the Bangladesh Central Bank creates far less money than the U.S Federal Reserve, but that is because the Bangladeshi government is less monetarily sovereign, and spends less Taka than the US does dollars. In modern economies, taxation does not directly fund government spending.

Debt and Taxes

In November 1789, during the initial phases of the French Revolution, Benjamin Franklin wrote to his colleague, French physicist Jean-Baptiste Le Roy. “It may all end well and happy, both for the King [Louis XVI] and the [French] nation… Our Constitution is now established, and has an appearance that promises permanency; but in this world, nothing can be said to be certain, except death and taxes.” Over the years, ‘Death and Taxes’ has come to embody a sardonic perspective on government. Taxation is a sacred tenant of modern government. A more appropriate adage for our modern times would be to say that nothing is certain but debt and

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taxes. The military, the public school system, libraries, roads and highways, law enforcement, consumer protection agencies, and welfare programs are just a few of the essential public goods funded through taxes. Despite these benefits, there is still a great disdain for taxes.\textsuperscript{103} This disdain is driven by the belief that the government is either corrupt, wasteful or that it does not reflect the interest of the majority. These are all valid concerns, after all, why should the government get to take a citizen's hard-earned income and spend it on some war half-way across the world even if the citizen is a pacifist? To understand this, we need to consider for a moment where the money came from originally.

In all modern economies, the government is the sole issuer of currency. This means that at a certain point every single denomination of currency in circulation, whether cash, coin, or digital, was sanctioned by the State’s central bank. So,"

\"Taxes are a necessary evil; governments, like people and businesses, must finance their spending one way or another. Governments generally do it with taxes. However, the way in which governments collect tax revenue can affect economic performance and welfare. Our issue is not that taxes take purchasing power away from individuals. They do, but if government spending must be financed, that’s really a question of whether the purchasing power they take is put to good use.\" See: Backus, Dave, Gian Luca Clementi, Tom Cooley, Joe Foudy, Kim Ruhl, Tom Pugel, Kim Schoenholtz, Laura Veldkamp, Venky Venkateswaran, Paul Wachtel, Mike Waugh, and Stan Zin. The Global Economy. Version 2.4. New York: NYU Stern Department of Economics, 2017. December 29, 2017. Accessed October 13, 2018. http://www.stern.nyu.edu/sites/default/files/assets/documents/The_Global_Economy_Amazon_Digital (3).pdf. 208
when collecting taxes, the government is not taking its citizens money; it is taking back the money it injected into the economy (either through government contracts, the banking system, or social service payments). Why did the government create money in the first place then? Because money is a lubricant for economic activity. The government injects money into the economy and simultaneously demands that actors using the currency pay taxes in said currency. As counterintuitive as it may sound, taxes give all government-issued money an intrinsic use, since now in order to function an actor needs to look for a way to acquire the government's currency.¹⁰⁴

In addition to that fundamental value, a legal tender has another enormous advantage: it is incredibly liquid.¹⁰⁵ Provided one is operating under the jurisdiction of a government, one can use government money to buy anything from anyone, to legally pay off debts to private individuals, and finally, to pay taxes. It is important to note that this has not always been the case, and less monetarily sovereign States other significant factors that limit their ability to issue currency.¹⁰⁶ Any State that issues its own currency, whether the U.S, or Bangladesh, has to spend

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¹⁰⁴ “The lifeblood of [Modern Monetary Theory] doctrine is a government’s fiscal policy (taxing and spending). Taxes are only needed to regulate consumer demand and control inflation, not for revenue. A sovereign government that issues its own floating rate fiat currency is not revenue constrained. In other words, taxes are not needed to fund the government. This point is graphically described by Warren Mosler as follows: ‘what happens if you were to go to your local IRS office to pay [your taxes] with actual cash? First, you would hand over your pile of currency to the person on duty as payment. Next, he’d count it, give you a receipt and, hopefully, a thank you for helping to pay for social security, interest on the national debt, and the Iraq war. Then, after you, the taxpayer, left the room he’d take that hard-earned cash you just forked over and throw it in a shredder. Yes, it gets thrown it away [sic]. Destroyed!’” See: Mosler, Warren. "MMT History and Overview." The Center of the Universe. August 04, 2011. Accessed April 16, 2019. http://moslereconomics.com/2011/08/04/mmt-history-and-overview/.

¹⁰⁵ “Market liquidity refers to the extent to which a market, such as a country's stock market or a city's real estate market, allows assets to be bought and sold at stable prices. Cash is considered the most liquid asset, while real estate, fine art, and collectibles are all relatively illiquid.” See: Chen, James. "Liquidity." Investopedia. March 12, 2019. Accessed April 16, 2019. https://www.investopedia.com/terms/l/liquidity.asp.

¹⁰⁶ A Nation that cannot go bankrupt is considered to have a high degree of monetary sovereignty. There is no strict definition of what constitutes monetary sovereignty but the Economist Robert Mundell defined it as something that: “can be broken into three parts: (a) the right to determine what constitutes the unit of account—the commodity or token in which price lists are specified; (b) the right to determine the means of payment—legal tender for purposes of the discharge of debt; and (c) the right to produce money—or else determine the conditions under which it is produced by others.” See: Mundell, Robert A. “Monetary Unions and the Problem of Sovereignty.” The ANNALS of the American Academy of Political and Social Science 579, no. 1 (January 2002): 123–52.
that currency into circulation, and then recollected the currency in the form of taxes. Now that we have established that government expenditure is equivalent to available money to the public and that monetarily sovereign States can never run out of money, we can look at how mainstream economic discourse creates misunderstandings and contributes to the economic impoverishment seen around the world.

The Myth of Barter

The first of the erroneous assumptions that riddle mainstream economics is the idea that before the development of money, societies relied primarily on barter. The version of events taught in schools and universities claimed that before the creation of money, people lived in a barter economy. The story went that if a farmer grew wheat but wanted a cow, they would have to trade for it. There were many problems with the barter system, the most prominent of which was the ‘double coincidence of wants’ dilemma: if the farmer had wheat to sell, but a butcher already had wheat, then trade would break down because the butcher had his needs fulfilled. Unless there was a ‘double coincidence of wants,’ barter could not take place. This kind of economy was incredibly inefficient, so the narrative claimed that people invented money. Money functioned as a blank cheque that circumvented the need for a coincidence of wants. This made the economy more efficient and allowed people to specialize. Now, instead of trading grain for steak, the farmer could sell grain for money which he could then spend on whatever he needed—assuming the vendor accepted the money. This intuitive and straightforward narrative has been
perpetuated time and time again by a variety of influential figures from Plato and Aristotle,\textsuperscript{107} to Adam Smith and Karl Marx.\textsuperscript{108}

However, recent developments in the field of economic anthropology have brought this narrative into question.\textsuperscript{109} Instead, anthropologists argue that debt and credit based economies were the earliest economic systems, and that in reality, “barter in the present world is, in the vast majority of cases, a post-monetary phenomenon (i.e., it coexists with money), and that it characterizes economies which are, or have become, de-coupled from monetary markets.”\textsuperscript{110}

The field of economic anthropology has a turbulent and antagonistic relationship with the field of economics, and this friction is primarily caused by a disconnect in the aims of each discipline. Economic anthropology seeks to understand the history of economic systems whereas economics seeks to develop a theory in the existing economic system. Thus, when anthropologists say barter economies never existed, economists render the revelation irrelevant. This friction can also be


\textsuperscript{108} "In the direct barter of products, each commodity is directly a means of exchange to its owner, and to all other persons an equivalent, but that only in so far as it has use value for them. At this stage, therefore, the articles exchanged do not acquire a value form independent of their own use value, or of the individual needs of the exchangers. The necessity for a value-form grows with the increasing number and variety of the commodities exchanged. The problem and the means of solution arise simultaneously… Nomad races are the first to develop the money form, because all their worldly goods consist of moveable objects and are therefore directly alienable; and because their mode of life, by continually bringing them into contact with foreign communities, solicits the exchange of products.” See: Marx, Karl. Capital A Critique of Political Economy. Vol. 1. Moscow: Progress Publishers, 1887. Accessed October 13, 2018. https://www.marxists.org/archive/marx/works/download/pdf/Capital-Volume-I.pdf.

\textsuperscript{109} "Barter is at once a cornerstone of modern economic theory and an ancient subject of debate about political justice, from Plato and Aristotle onwards. In both discourses, which are distinct though related, barter provides the imagined preconditions for the emergence of money. Why should anthropologists be interested in logical deductions from an imagined state? No example of a barter economy, pure and simple, has ever been described, let alone the emergence from it of money; all available ethnography suggests that there never has been such a thing” For further reading see: Humphrey, "Barter and Economic Disintegration."

\textsuperscript{110} Humphrey, "Barter and Economic Disintegration." 49
seen in numerous other fields that share a similar theory versus history dynamic.\textsuperscript{111} Of course, not all economists have been dismissive of these discoveries, and some economists concede that the discovery of debt-based ancient societies suggests that the contemporary perspective on the origins of mainstream macroeconomic theory is flawed.\textsuperscript{112}

The Myth of Austerity

Another pervasive economic myth in contemporary society is the idea that government spending is akin to household spending. While, in this case, economists have universally acknowledged that the role of government in controlling the money supply is fundamentally different to consumers, a majority of the public has not. News outlets, armchair economists, and politicians treat the government like a wealthy, misguided uncle.\textsuperscript{113} Whenever any public program is announced, the first question asked by an opponent is that of funding? This is a very compelling question because mainstream discourse maintains that government expenses come

\textsuperscript{111} Another example, briefly discussed in Revisiting the Nation-State, is the conflict between International Relations (IR) and International History. The field of IR is determined to develop a theory that accounts for why states behave the way they do and discover the universal principles that guide them. In contrast, the field of Diplomatic History emphasizes the unique aspects of various states and asserts that it is not possible to model the behavior of states in a way that can be predicted without generalizing or misrepresenting reality. A specific example of this conflict can be seen in the Westphalian System. The foundation of State Sovereignty in IR theory claims historical legitimacy through the Peace of Westphalia, an assertion that historians have vehemently disputed as oversimplified and fundamentally wrong. See: Osiander, Andreas. "Sovereignty, International Relations, and the Westphalian Myth." International Organization 55, no. 2 (2001): 251. http://www.jstor.org.proxy.library.nyu.edu/stable/3078632.

\textsuperscript{112} "From its inception in the work of Mauss, Firth, Malinowski, and others, much of what counts as 'economic anthropology' has emphasized that 'economy' cannot be seen as a separate sphere, must be seen as a dimension of multi-stranded social relations… an understanding of 'economy' as an aspect of broader forms of social action (a position perhaps visible in its purest form in the work of Polanyi); and another, mainly emergent from western analyses of capitalism, of economy as a hypostatized domain.” See: Merlan, Francesca. “Introduction: Recuperating Economic Anthropology.” Australian Journal of Anthropology 20, no. 3 (December 2009): 269–84.

\textsuperscript{113} Economist, Warren Mosler, demonstrates the degree to which this misunderstanding permeates all levels of society: “Several years ago I had a meeting with Senator Tom Daschle and then-Assistant Treasury Secretary Lawrence Summers… who is also a former Harvard economics professor and has two uncles who have won Nobel prizes in economics. I opened with a question: 'Larry, what’s wrong with the budget deficit?' He replied: 'It takes away savings that could be used for investment.' I then objected: 'No it doesn’t, all Treasury securities do is offset operating factors at the Fed. It has nothing to do with savings and investment.' To which he retorted: 'Well, I really don’t understand reserve accounting, so I can’t discuss it at that level.' Senator Daschle was looking on at all this in disbelief. This Harvard professor of economics, Assistant Treasury Secretary Lawrence Summers didn’t understand reserve accounting?” See: Mosler, Warren. Seven deadly innocent frauds of economic policy. Davin Patton, 2010.
from taxes, so the question of funding is automatically associated with raising taxes, pushing away any on-the-fence support for the program. In reality, this is a misconception. It persists because of its intuitive appeal and the constant reaffirmation by public figures. We are very familiar with how our finances work, and so it is easy to assume that the State follows the same rules. However, as we learned earlier, while we can run out of money, our government—if monetarily sovereign—can not. An unfortunate side-effect of this misconception is that it has created a hostile atmosphere for any government that seeks to remedy economic issues through fiscal policy.

Another impact of this myth is the glorification of austerity. Austerity policies assume that the government should aim to maintain a balanced budget, if not even a surplus. Austerity advocates claim that by reducing government spending, it would have to borrow less money from the private sector, be able to reduce taxes, and thus contribute to an overall economic boom. This line of thinking is rational for a household, but it is a terrible policy for a government to pursue. As established earlier, government expenditure is what introduces money into the economy, so a reduction in spending would lead to less, not more, money in an economy. This might still be a desirable option if the economy was suffering from an overheating economy, but historically,

\[114\] But we know that in reality, all government spending comes before, and is not linked to, any taxed revenue.

\[115\] The US Government’s reaction to the Financial Crisis demonstrated that its current money supply was inadequate for its total economic capacity: “The current higher deficits follow both an increase in expenditure and a decrease in revenue. Compared with the average of the five years preceding the financial crisis and recession (2004-08), outlays net of interest payments increased by 5.0 percent of GDP. Two-thirds of this increase was due to transfers—payments to individuals, either directly or through grants to states and local governments. Over the same period, revenue fell by 2.8 percent of GDP as a result of combined tax cuts, credits, and rebates and also likely due to depressed economic activity... [but] inflation has remained low between 2009 and 2011, averaging about 1.3 percent annually, well below the pre-crisis average.” See, Fernando M. Martin, "Fiscal Policy in the Great Recession and Lessons from the Past," Economic Synopses, No. 1, 2012. https://doi.org/10.20955/es.2012.1
austerity measures have almost always been advocated for during times of economic hardship. In such cases, the purported benefits of austerity policy are not just factually incorrect; they are actively harmful. The appropriate response to an economic depression would be to increase government spending and directly stimulate the struggling sectors of the economy.

A question that naturally follows is: if a government can create as much money as it wants, why does it not just create more money to give to those in need? The simple answer is inflation. The slightly less simple answer is that while government money could have inherent value when interacting with the government (such as paying taxes), in the private sector the price of goods typically adjusts to the money supply. Inflation describes a situation where the government introduces more money into the economy while the economy is already at its maximum capacity, so prices rise to compensate.

For example, imagine that the great grandchild of our barterer-farmer is a baker who lives in a society where the only commodity is bread. She bakes 200 loaves of bread a day but usually only manages to sell 180 loaves. One day, the government announces that it is going to give some money to those who could not previously afford to buy an entire loaf of bread. At first, the government injects precisely enough money for people to buy 20 more loaves from her. This would not cause any inflation because our baker is now using her resources more efficiently. It would not make sense for her to raise the price of bread because she was selling her full inventory previously. However, the next day, the government announces that it is giving even more money

116 Historically, the most successful attempts to tackle economic crises have been through government spending, not austerity. Presidents Harding and Hoover preceded the Great Depression, promoted conservative austerity programs which historians claim exacerbated the crisis. On the other hand, President FDR's extensive capital injections and public works programs are credited as the reason for recovery. See: Auerback, Marshall. "The Real Lesson from the Great Depression: Fiscal Policy Works!" Roosevelt Institute. August 30, 2010. Accessed April 16, 2019. http://rooseveltinstitute.org/real-lesson-great-depression-fiscal-policy-works/.
to those who cannot afford bread. Our baker is already selling all her inventory but, now that there is more demand than supply, the society will begin to see inflation.

The government notices rising inflation and wants to check it. The most straightforward choice would be to redact the subsidies, but the government wants to avoid doing that because it would leave many citizens hungry. Thus, the government looks at three alternatives: price controls, State ownership, and increasing total economic output. If the government mandated that all bread be sold at the earlier price (price controls), then any inflation would come to a grinding halt if. Inflation could also be curbed if the government started its own bakeries for which it could set a fixed, affordable price (State ownership). Finally, the government could change its approach from giving people a universal bread income (UBI) to a baker job guarantee, where it offers people training and baking jobs which pay an equivalent to the sum of bread they produce (increasing total economic output).

Thus, we see that the government can create as much money as it wants, but it cannot necessarily give that money a fixed value in the private sphere. If it injects too much money into the economy, then it suffers from inflation, but it is important to note that inflation only occurs if a particular sector of the economy is already at full capacity. Price controls, State ownership, and increasing the total economic output of the economy are three ways a government can fight inflation, and of these, the least invasive—and most universally beneficial—is increasing total economic capacity. One final way for the government to address inflation is to decrease the money supply. This can be done in two ways: decreasing government spending (austerity) or

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117 A Job Guarantee is the most sustainable way of increasing a Nation’s economic capacity because wealth is not being distributed without an equivalent cost in labor. This has been observed in real-life experiments: Azam, Mehtabul. "The impact of Indian job guarantee scheme on labor market outcomes: Evidence from a natural experiment," Available at SSRN 1941959 (2011). For an extensive discussion of the theory behind the policy, see: Wray, L. Randall, Stephanie A. Kelton, Pavlina R. Tcherneva, Scott Fullwiler, and Flavia Dantas. Guaranteed jobs through a public service employment program. No. 18-2. Levy Economics Institute, 2018.
increasing taxation. Decreasing spending while simultaneously decreasing taxation as many austerity politicians advocate would only redistribute wealth.\textsuperscript{118} Macroeconomists are familiar with this dynamic, but for those who are not it may seem like an absurd concept, and that is precisely the problem. The lack of economic literacy has proliferated dangerous conceptions of how the government functions in the economy. This misinformation has in turn been taken advantage of by politicians, either through complacency or complicity to advocate for policies that exacerbate wealth inequality.

\textbf{Complicity or Complacency}

The economic exploitation and increasing wealth inequality discussed last chapter are both significant factors behind the rise of populist movements worldwide. They are also characteristic of the institutions and mechanisms of our current economic system. Government's in free-market States adhere to a set of principles that facilitates the accumulation of wealth at the expense of the lower and middle classes. Corporations can pick and choose where to conduct business,\textsuperscript{119} but by doing so undermine the impact of local laws, human rights initiatives, and that the ability of Nation-States to coordinate with each other to create mutually beneficial working

\textsuperscript{118} If the government was previously spending on supporting the lower classes by taxing the wealthy, then austerity would take money from the lower classes, while tax reductions would give money to the wealthy. If the government were spending extensively on supporting the rich, and taxing the lower classes, then austerity would take money from the rich and give more money to the lower classes. In most societies today the government follows the first model, so austerity spending would only exacerbate income inequality.

\textsuperscript{119} The State of Delaware is an example of a tax loophole within the United States. “Of course, business — the legal kind — has been the business of Delaware since 1792, when the state established its Court of Chancery to handle business affairs. By the early 20th century, the state was writing friendly corporate and tax laws to lure companies from New York, New Jersey and elsewhere. Most of the businesses incorporated here are legitimate and many are using all legal means to reduce their tax bills — something that most stockholders applaud.” See: Wayne, Leslie. "How Delaware thrives as a corporate tax haven." \textit{The New York Times} 30 (2012).
conditions. That being said, Nation-States are not entirely powerless against the forces of global capitalism. The global economy is a scapegoat for politicians and businesses. The CEO of the world's wealthiest organization can justify evading taxes, or hiring child labor because of its adherence to our present bastardized free-market principles. Similarly, the minister of finance of a developing Country can wave away criticisms about questionable standards of labor, wage stagnation, or other forms of economic hardship, by pointing at abstract notions of the international market.

Of course, in reality, the effect that the international market has on a domestic market is determined by government policy. There are many steps a State can take to increase their monetary sovereignty, but if a government continues to subsidize export-oriented industries of a volatile good, or rely extensively on foreign aid, then the government has to, at least partially, blame itself. While many governments throw their arms in the air and decry the unjust whims

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120 Here we see yet another example of a collective action problem; Nations that attempt to improve labor conditions domestically are directly competing with nations that do not do so and are economically punished as a result of their humanitarian pursuits. We can see this phenomenon occurring in China right now. As the price of labor steadily rises more and more international corporations are looking to move their manufacturing base to South East Asian nations such as Vietnam. China is attempting to slow this process down by artificially surpassing the value of the Yuan (by buying a lot of US treasury bonds), but this is only a temporary solution. As China transitions to a service based economy, its manufacturing industry will shift to other less developed regions. For more information, see: Shane, Daniel. "This Is How China Controls Its Currency." CNN. October 01, 2018. Accessed April 16, 2019. https://www.cnn.com/2018/10/01/economy/china-currency-yuan-rmb/index.html.

121 Economists have long argued that the benefits of trade between countries -- which include lower prices and higher living standards -- outweigh the costs, which include a higher risk of displacement for workers in competing industries. Recently, however, the costs of trade have dominated the discussion, in the wake of large job losses in the manufacturing sector from 2000 to 2011. While running for president, both Donald Trump and Bernie Sanders denounced trade agreements as disastrous for the U.S. and for the nation's middle class because manufacturing-sector wages tend to be relatively high. Meanwhile, Hillary Clinton distanced herself from her earlier pro-trade positions. The argument Trump and others make is that trade with China and other low-income countries harms Americans by depriving them of good-paying jobs." See: Rothwell, Jonathan. "Globalization: Scapegoat for Economic Problems." Gallup.com. February 27, 2017. Accessed April 17, 2019. https://news.gallup.com/opinion/gallup/204317/globalization-scapegoat-economic-problems.aspx.

122 Fadhel Kaboub, a professor of economics at Denison University, examines emerging markets through the MMT lens. While it’s true that emerging markets don’t have the same kind of fiscal capacity as nations like the U.S., Canada, and Australia, the theory still offers insights into how EMs can pursue development policies that are different from the mainstream prescriptions.” See: Wiesental, Joc. Tracey Alloway. “MMT and Emerging Markets” Odd Lots. 2019. https://www.bloomberg.com/news/audio/2019-04-05/this-is-how-mmt-applies-to-emerging-markets-podcast.
of the global economy—while making no effort to address the systemic causes—certain States have taken a proactive role in regulating their national economy. Countries such as Singapore, China, and South Korea have demonstrated how sustained economic development is possible in underdeveloped countries with diligent government oversight. A century ago, all three of these ‘tiger economies’ had minimal industrial capacity, however, over the last 100 years, the three States used extensive government inference to facilitate a rapid economic development scheme that saw astronomical economic growth rates. The tools used to achieve this growth—fiscal and monetary policy—are accessible to all States; however, extensive use of such resources is stigmatized and discouraged in free-market societies. That being said, social welfare programs, government subsidies, state ownership of industry, the sale of bonds, the printing of currency,

123 “The present article analyzes the nature of government involvement in the Singapore model of economic development, and emergence of a developmental state closely associated with this model. It compares Singapore's experience with South Korea's and Taiwan's, where government also contributed to development success, and with other Asian countries where government failed to play a strong developmental role.” See: Huff, W. Gregg. "The developmental state, government, and Singapore's economic development since 1960." World Development 23, no. 8 (1995): 1421-1438.


125 “In the first three decades after the Park Chung Hee government launched the First Five-Year Economic Development Plan in 1962, the South Korean economy grew enormously, and the economic structure was radically transformed. South Korea's real gross national product (GNP) expanded by an average of more than 8 percent per year, from US$2.3 billion in 1962 to US$204 billion in 1989... The Park administration decided that the central government must play a key role in economic development because no other South Korean institution had the capacity or resources to direct such a drastic change in a short time. The resulting economic system incorporated elements of both state capitalism and free enterprise. The economy was dominated by a group of chaebol, large private conglomerates, and also was supported by a significant number of public corporations in such areas as iron and steel, utilities, communications, fertilizers, chemicals, and other heavy industries. The government guided the private industry through a series of export and production targets utilizing the control of credit, informal means of pressure and persuasion, and traditional monetary and fiscal policies.” See: "South Korea - The Economy." US Library of Congress. Accessed April 17, 2019. http://countrystudies.us/south-korea/45.htm.

and bailouts, such as those after the 2008 crisis, are all tools that have recently been or are currently used by the United States government to manage its economy. The United States could theoretically employ all its citizenry to facilitate rapid industrial growth, but it does not do so because both the politicians and the public are either ideologically opposed to—or simply unaware of—the government's ability to do so. As mentioned when discussing libertarianism, because the government is the most powerful political entity in a Nation-State its decision to not involve itself in regulating the economy is interference in of itself.

We must acknowledge that the discontent caused by the exploitative practices of global capitalism is only partly due to the anarchic international system. Most Nation-States are readily equipped with the tools necessary to fight economic issues such as unemployment, stagnating wages, and poverty. The main factor stopping them from doing so is ideological reservations. Popular economic discourse rests on a series of oversimplifications or outright incorrect assumptions that have significantly tainted the way people understand the role of government in the economy. When developments in fields such as anthropology or history reveal new information that invalidates calls attention to these inaccuracies, they are disregarded as irrelevant or outright inaccurate. The lack of democratic representation in economic policy

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127 "In fulfilling its obligations as a lender of last resort, a central bank may encounter conflicts with its responsibility to manage the nation's monetary policy. Crisis lending through the discount window, particularly to save troubled institutions, is viewed by critics of Federal Reserve policy as inflationary and thus undesirable." The bank bailouts did not cause inflation. We see how the ideological constraints on fiscal policy are potentially erroneous. For further reading see: Butkiewicz, James L., and Kenneth A. Lewis. "Bank Bailouts and the Conduct of Monetary Policy." Southern Economic Journal 58, no. 2 (1991): 501-09.

128 These include, but are not limited to, the myth of barter, the household analogy, and the austerity narrative.

129 Of course, economic modeling is not a natural science and many social sciences are guilty of making over-generalizations to some degree; however, there is a categorical difference between predictive social sciences (such as Economics or Political Science) and descriptive social sciences (such as History, and Anthropology). Ideally the predictive social sciences would collaborate closely with the descriptive social each other to develop more accurate interdisciplinary frameworks; however, the trend of specialization within the individual social sciences has only distanced the fields. If the goal of a subject is to understand how economic systems function then it is imperative that the base premises on which the model is built are historically accurate.
decisions only exacerbates this issue. The economic issues that affect the majority of the population are not the same issues that affect those in a position to change policy, and this shows. The answer to asking whether or not the government should aim for full employment at the risk of inflation will vary depending on the person being asked, and right now the only ones being asked are a sliver of the economic elite.

A Call for Democratization

What then should a government do in the face of globalization? What policies should they pursue, and more importantly, how would this translate to the Cryptostate? First, we should distinguish between policy advocacy and policy decision making. A lot of political and economic
frustrations of our times can be attributed to the fact that the individuals making monetary and fiscal decisions are not representative of the general will. Expanding economic suffrage would lend democratic legitimacy to the economic decisions taken by the State, regardless of the consequences. Thus, democratizing the economy would, in of itself, be of utmost importance to any democratic State because a democratized economy would expand the economic conversation to include the voices of previously disenfranchised or marginalized peoples.

The definition of a legitimate State must be changed to one that truly governs over all individuals it affects, and the simplest ways to ensure that would be by defining a State’s citizenry as those in its economy. This expanded mandate would revolutionize the way governments function, as they would no longer be allowed to exploit foreign entities or the fractured international landscape without giving those entities a representative voice. Just as the American Revolution was prompted over taxation without representation, the Cryptostate is a response to our current international model which enables for exploitation without representation.

In the Cryptostate the union of Coin and Country will be officially acknowledged and democratized. In addition to expanding political representation, citizens of the Cryptostate will have a direct voice in both fiscal and monetary policy. While there is no guarantee that the problems facing us today will be successfully addressed—as the decision making power will rest with the people—it would undoubtedly be more just than our present technocracy, and one could contend that the public’s negligence on economic matters was actually caused by a lack of exposure or participation in economic policy. As a result, accountability in the economic realm has been nonexistent, and a culture of ignorance and misinformation has come to dominate such issues. If we are willing to trust each other to make domestic political decisions by electing

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130 For more information see Institutions and Mechanisms in the Cryptostate, and Blockchain Technology in the Cryptostate.
politicians—of whom many have little to no relevant experience—then why draw the line at economic decisions? Democratizing the economy is merely a formal recognition of the state of current affairs while empowering those who previously did not have a voice. We have seen how our National and International polities have deeply rooted structural issues, now we have seen how both the national and global economy of a State suffer from a lack of accountability, democratic participation, and erroneous mythologies. It is now time for us to look forward, and find solutions to the various failures of modern governance. It is time for us to venture forth, into the Cryptostate.
Part II

Solutions

Having identified several critical shortcomings of governance in our contemporary era, we must now beg the question of what to do about them. At the beginning of this project, the question of how to implement solutions was not even a consideration. This was intended to be a purely hypothetical discussion; however, as we analyzed the current institutions, a clearer picture of a potential solution materialized. The most straightforward solution to our problems would be to pass legislation addressing every one of these concerns in the existing governance frameworks of a or, in the case of international issues, all States; however, in practice, this is very unlikely. As mentioned in The International State ITALICS, the problem with attempting to tackle the crises of our times within the existing governance framework is that we would essentially be asking our existing institutions to destroy themselves. We would be asking the current benefactors of the
Surprisingly, a more practical solution would be to bypass the current governance framework altogether. Instead of petitioning reform to the government, we must petition directly to the individual. The governance framework described in Part II—the Cryptostate—does precisely that. The primitive Cryptostate would still require a host Nation-State, in order to develop infrastructure and attain recognition on the international stage, but this would only be a temporary phase. The main challenge posed by abandoning the current framework is that we need to replace it with an alternative framework. In Part II, we sketch a rough outline of the constitution for the Cryptostate. However, in order to do so, we must first determine the general purpose of a governance framework.

In essence, a governance framework is a constitution. It is a set of rules that governs government. A constitution must describe what a government looks like, its responsibilities, its powers, and also its limitations. A constitution must also find a balance between granting the government power and preventing abuse of said power. Finally, a constitution must articulate the source of the government’s power. In the Cryptostate, the source of the government’s power is its people. However, this thesis immediately faces a challenge in attempting to create a governance framework based on consensus, without any consensus. The specific structures, institutions, rights, and limitations prescribed in any democratic State’s constitution should be birthed from dialogue not a prescription, but this text is not a literal constitution and should, therefore, be interpreted as a guideline.

131 The manner in which the Cryptostate can be realized is discussed in Creating the Cryptostate.
The secondary purpose of this text is to familiarize the audience to the concepts and language relevant to the Cryptostate. Political literacy is perhaps the most vital aspect of any democracy, and this is especially the case within the Cryptostate. The citizenry needs to be politically literate in order to contribute to the governance process. Decades—if not centuries—of exposure to democratic institutions have for the most part provided a degree of political literacy as related to our contemporary political instruments, but there is a distinct lack of familiarity amongst the public on blockchain-based political philosophy.132

The framework of the Cryptostate can be divided into either structural prescriptions or ideological prescriptions. Structural prescriptions are those that concern the very institutions necessary for creating a functional governance apparatus. They are institutions that make it possible for the citizenry to exercise their democratic will. A legislative body, judicial body, and an electoral committee are all examples of structural prescriptions. Structural prescriptions do not create policy but ensure that policy is effectively enacted. On the other hand, ideological prescriptions are policy suggestions. A bill of rights, universal basic income, or an ideological non-establishment clause are examples of ideological prescriptions. These prescriptions are subjective opinions, and should ideally be determined by democratic consensus.

That being said, we need to include ideological prescriptions for two reasons: first, as discussed extensively in Part I, social and economic inequality is a serious problem in our world, and addressing it requires, in addition to increasing enfranchisement, specific policy prescriptions. Second, the proliferation of the Cryptostate is entirely dependent on its appeal to the individual, and it would be substantially more difficult to convince individuals to voluntarily sacrifice their

132 Acclimation to a direct democracy will take time, but the Cryptostate addresses partially this by exposing children to the voting process from birth. As mentioned in *The Economy and the State*, economic literacy is another aspect of governance that the citizenry would need to familiarize themselves with, but this literacy will also increase over time after citizens are granted a say in economic decisions.
individual liberties without a Bill of Rights, no matter how appealing the structural design may be. None of the policy prescriptions are built-in to the Cryptostate. The heart of the Cryptostate is distributed ledger technology (more specifically, blockchain technology), and this technology is apolitical. In fact, it could be argued that blockchain systems are far easier to design as a tool for authoritarian regimes than a democracy, but the same can be said for almost any technological innovation. Policy prescriptions are an additional way to stymy authoritarianism within the Cryptostate. Throughout the next four chapters, we will describe the various components of the Cryptostate's governance framework, the role of blockchain technology, and how to take the Cryptostate from a concept to a reality.
Chapter IV

Institutions and Mechanisms in the Cryptostate

As discussed extensively in Part I, the structural limitations of our present institutions only exacerbate the problems of our era. This chapter innumerates the various political apparatuses required to maintain a functional and healthy society. While blockchain technology plays an essential role in implementing these institutions and mechanisms, we will avoid discussing it in detail for the sake of clarity.\textsuperscript{133} Mechanisms and institutions are the backbones of government. In this chapter, we will describe the mechanisms and institutions that are so integral to the day-to-day functioning of the Cryptostate. Before creating any institutions, we need to define precisely what we need our institutions to do. The Cryptostate relies heavily on direct democracy, so the first order of business is to design a democratic decision-making mechanism, preferably multiple mechanisms for different kinds of decisions (e.g., economic, social, political). Next, we need

\textsuperscript{133} For a detailed introduction to blockchain technology, see: \textit{The Age of Blockchain Technology}, and for a discussion on the specific applications of blockchain technology, see: \textit{Blockchain Technology in the Cryptostate}.
institutions to ensure that these decisions are faithfully executed. It is one thing for a government to make a decision, but another to successfully implement it. It is also imperative to ensure that too much power cannot be consolidated in any single institution, and for this purpose, we need an institution dedicated solely to assessing and securing the integrity of other institutions. Today, most States attempt to curtail power accumulation by separating their institutions into one of three branches of power: the legislative, the executive, and the judicial.\textsuperscript{134} We will adopt a similar division in the Cryptostate, although there is no reason to limit ourselves to three branches. Finally, should the need arise, we need a mechanism to facilitate the use of executive powers—preferably via a committee rather than any single individual.

A Hierarchy of Administrative Authority

The Cryptostate features a highly decentralized administrative bureaucracy. The highest tier of government encompasses all citizens of the State, whereas the lowest—tentatively named 'the community'—encompasses between 50-100 (so that at any given time any number of people can be divided into appropriately sized communities). The population of the Cryptostate could—and almost definitely will—vary tremendously over its lifespan, so the number of administrative tiers must adjust accordingly. If the total population of the Cryptostate is 200 people, there will be an upper administrative tier consisting of 200 and a lower administrative tier consisting of between 50-100 each. If the total population of the Cryptostate explodes to 10 billion (Figure 3), then the highest tier will include all 10 billion, and the lowest will still have between 50-100 people. The only difference is that, in this scenario, the Cryptostate will have eight intermediate tiers.

The divisions between the tiers are based on two metrics: the first is the total population (lowest tier has to consist of between 50-100 people), and the second is the ratio of sub-units to a unit. For example, in figure 3 we see that the Global tier consists of 5 Continental tiers. Each continental tier is comprised of 20 Regional tiers. Every Regional tier is made up of 10 Divisional tiers which, in turn, consist of 100 provincial tiers each.

This numerical sequence: 1, 5, 20, 10, 100, is designed to mimic the jurisdictional divisions of our Nation-State system. For example, in the 10 billion citizens example, we would see 2 billion people per Continent, 400 million people per Region, and 20 million people per Division. The Regional population mirrors that of a large Nation-State whereas the divisional population resembles a sub-division inside that Nation-State. The Provincial level (of which there are 100 per Region) is the lowest tier of government with control over its autonomous maintenance apparatus (a judiciary, police, etc. See Figure 6). Once we delve below the Provincial level, the sequence of sub-division conforms to a simple but scalable: 5, 5, 5, x sequence, with x representing the number of divisions required to arrive at a Communal population of 50-100.

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<td>Divisional</td>
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<tr>
<td>2 M</td>
<td>100</td>
<td>100,000</td>
<td>0.005%</td>
<td>Provincial</td>
</tr>
<tr>
<td>20,000</td>
<td>5</td>
<td>500,000</td>
<td>0.000002%</td>
<td>Principality</td>
</tr>
<tr>
<td>4000</td>
<td>5</td>
<td>2.5 M</td>
<td>Insignificant</td>
<td>County</td>
</tr>
<tr>
<td>800</td>
<td>5</td>
<td>12.5 M</td>
<td>Insignificant</td>
<td>Municipality</td>
</tr>
<tr>
<td>50-100</td>
<td>10-20</td>
<td>~125 M</td>
<td>Insignificant</td>
<td>Community</td>
</tr>
<tr>
<td>25</td>
<td>N/A</td>
<td>8</td>
<td>N/A</td>
<td>Executive</td>
</tr>
</tbody>
</table>

Figure 3: Visualization of the hierarchy of administrative jurisdictions in the Cryptostate (assuming a population of 10 Billion).
The primary motive behind the 50-100 person limit at the Communal tier is social cohesion. A small population would ensure that all members of the community know each other personally, which would foster social cohesion, cultural familiarity, and aid conflict mediation. This limit gives communities a degree of autonomy that is not shared by any other tier of government, and access to Social Institutions. Social Institutions, also called Societies, are semi-autonomous governance networks that are not administered by government officials. They are voluntary organizations with their own rules and customs.

A Community can choose to associate with any Society, but no Province, Region, or Continent could. This ensures that no Society has official representation on higher tiers of government and it also increases the likelihood for disgruntled individuals to find alternative Communities to join. For example, if 200 people live in a rural town, and 85 people want to join an Orthodox Christian Society, 100 people do not want to join any society, and 20 people want to join an Islamic society. The town would consist of between 2-4 (either 4 groups of 50, or 2 groups of 100) communities, of which one would join the Orthodox Christian Society while the three others would be neutral (as the Islamic population is too small to form an exclusive community). One of the biggest critiques of a multi-ethnic government is that over time it will erode the identities of minority groups, and the Social Institution framework is an attempt to

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135 To clarify, delegates to the Representative Assemblies can hold dual positions in social institutions; however, their obligations as a representative is in no way related to their obligation as a member of a Society. Thus, it is possible for members of a Society to occupy roles in government, but they cannot officially extend their Societal norms to the greater populace (even if 100 percent of the jurisdiction subscribes to the same Society).

136 Some may object to the fact that the 20 Muslim citizens are not allowed to profess their beliefs officially, but this restriction is a deliberate decision aimed at promoting some degree of conformity. In most cases, there will always be alternative Communities nearby for a citizen to join, but in the case that there is not (suppose in an extremely rural area), then it is vital that the Community share a common bond.
address that.\textsuperscript{137} While Societies maintain a high level of local autonomy, they must all be registered with the government, and adhere to all stipulations in any Bill of Rights, or other regulation passed at the Global level.

The Community is also the lowest tier of direct democratic government. Extremely localized issues, such as whether to instill a curfew, will be settled by a Communal vote. Communities must also elect representatives to the Municipal Councils, and serve an important role in helping citizens develop statesmanship. For individual citizens, the right to vote on issues depends on the relevant jurisdiction of the issue. As a rule, one can vote ‘up,’ but not ‘across.’ Individuals in Community $x$ can vote on issues concerning community $x$, but not community $y$.

Similarly, citizens of Communities $x$ and $y$ can vote on issues concerning their shared municipality $a$, but not their neighboring municipality $b$. The voting principle continues in this manner—up, but not across—until the global tier, at which point every individual is entitled to vote.

\textbf{Decision Making, Nominating, & Petitioning}

We have already established that citizens of a particular jurisdiction can vote on any issue relevant to their jurisdiction, but how is relevance determined? To answer this question, let us follow a hypothetical issue X. First, issue X must be submitted as a proposal through either the Petition Process, a Representative Assembly, or—in rare cases—the Executive Assembly.

\textsuperscript{137} In a Nation-State framework, this fear has merit; however, history shows us that multi-ethnic States prospered without eradicating cultural minorities. As extensively discussed in Revisiting the Nation State, a State's identity is a vital source of legitimacy, and a State is likely to prevent anything that erodes this legitimacy. Thus the idea that minority identities will be eradicated is much more credible if the legitimacy of the government is tied to a specific identity. The Cryptostate is built on the principles of equity, transparency, and accountability. Additionally, the Cryptostate will have certain universal protections—clarified in a Bill of Rights—to protect against such erasure, but for the most part, the creation of Societal rules will be left to the jurisdiction of the various Communities.
Depending on the method of proposal, issue X will have different thresholds and qualifications required to be officially nominated. However, regardless of the method of proposal, the final verdict will be decided by a direct referendum.

The Petition Process

For example, a petition aimed at banning litter would be submitted to the Electoral Jurisdictional Authority [EJA] who could decide to implement it on a Provincial level. First, the petition would need to be passed in referendums on the Communal, Municipal, County, and Provincial levels. If throughout this process the petition averaged a 1% turnout, then the EJA might decide that an official vote would need a 10% turnout to be valid. If, however, the petition was controversial or engaging and received a high 30% turnout, then the EJA could decide that the official vote would need a 60% turnout to be valid. The EJA’s rationale behind their decision will be published alongside the announcement of the official vote. Should the citizenry feel that the requirements are unjust, they are entitled to appeal the decision to the Court of Voter Appeals. However, in order to be considered, the appeal would need to be supported by at least 20% of the prescribed voter turnout requirement (to demonstrate a significant opposition to the EJA verdict). The petition system ensures that, with sufficient support, any proposal can be nominated for a vote; however, the EJA’s restrictions ensure that any proposal brought to an official vote has the support of the relevant jurisdictional governments and sufficient turnout.

The Representative Assemblies

An alternative method to bring an issue to vote is through the Representative Assembly. Representative Assemblies are present on every tier of government, and representatives are

138 Alternatively the citizens can attempt to nominate the petition again, and it would likely be reviewed by a different set of individuals.
elected using a direct democratic vote. The Assemblies are deliberative institutions (Figure 4), and as such do not have any decision-making powers. If a majority of representatives at an Assembly support a nomination, then the issue is submitted to the EJA for review before an official vote; however, unlike with the petition process, any Representative Assembly nomination is only reviewed for jurisdiction applicability, and not assigned a voter turnout requirement. Thus, while Representative Assemblies do not have any decision-making capabilities, they do have the ability to bring issues to a vote without a turnout requirement. This is because all representatives are democratically elected and have an implicit mandate from their electorate, so a vote passed in an Assembly theoretically has the turnout of everyone in the jurisdiction.

A Representative Assembly can only nominate an issue that exclusively concerns its jurisdiction, but if an issue concerns overlapping assemblies—e.g., a highway spanning multiple Provinces—then the matter is referred to the next tier of government—in the case of Provinces, this would be a Regional Assembly.

<table>
<thead>
<tr>
<th>METHODS OF NOMINATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>THE EXECUTIVE COMMITTEE</strong></td>
</tr>
<tr>
<td>- Only accessible to members on the executive committee (on the Global level).</td>
</tr>
<tr>
<td>- Not subject to jurisdiction relevance requirement set by the EJA.</td>
</tr>
<tr>
<td>- Subject to voter turnout requirement set by the EJA.</td>
</tr>
</tbody>
</table>

*Figure 4: The three methods through which an issue can be nominated to a vote.*

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139 For an issue to be successfully nominated through the Representative Assembly system it must first reach a 51% approval rating in the relevant jurisdictional Assembly.

140 Importantly, jurisdictional governments are not allowed to vote on issues that concern other jurisdictions. Such matters are deliberated in the Assembly of the next tier of government.

141 However, representatives only receive one actual vote in any official election.

142 It is worth noting that the Regional Assembly includes representatives from many non-affected provinces as well, and as such has a a higher probability of being stalled or dismissed.
However, if the same proposal is nominated through the Petition System, then the EJA would specify that select relevant jurisdictions, and only grant voting rights to citizens in said affected jurisdictions. This creates a framework where local disputes are easier to address using the petition system, while more universally relevant issues are easier to nominated through the Representative Assemblies.

The Executive Committee

The final way to bring an issue to a vote is through the executive method. The Executive Committee is the only body in the Cryptostate’s governance apparatus that is capable of making decisions without a democratic vote. The Committee’s primary function is to make decisions in the case of emergencies, but it also has the authority to nominate issues that affect the entire Cryptostate. Unlike with Representative Assemblies, any vote proposed by the Executive Committee is assigned a turnout requirement by the EJA. Thus, the Executive method is best for issues that require a certain degree of urgency or are at the forefront of peoples consciousness.

The rationale for having varying requirements for the different methods of nomination is to account for the potential fringe use cases of these methods. For instance, the Petition Process requires some degree of moderation because all citizens in the Cryptostate, regardless of age, are entitled to a vote. Many modern democracies simply deny children the right to vote; however, that is not necessarily the best approach, as it does not give children exposure to the political process, and reinforces the idea that democratic rights can be curtailed for those deemed unfit.

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143 The Executive Committee is discussed in detail in the Executive Institutions section of this chapter.
Instead, in the Cryptostate children are exposed to the realities of political life from, theoretically, birth.144

If two children submitted a petition each, one to prevent littering in schools, and another to make ice cream free, then it would be wrong to claim both children are unfit to participate in the electoral process (as one displays a degree of maturity). At the same time, it would be arbitrary to discard the petition for ice cream but keep the petition against littering, as the basis for that decision would be personal preference. In the Cryptostate, such a dilemma would be addressed via the all affected interests principle. Both petitions affect more people than just the children, but it is entirely possible for both petitions to pass while flying under the radar due to low voter engagement. This is why the EJA must assign a voter turnout requirement. If, in a city of 200, both petitions passed with 20 votes, then it would hardly be accurate to describe it as representative. However, if the petitions passed with 20 votes each, and then the EJA determined that one needed 100 votes to succeed, and the other needed 80 (taking the all affected interest principle into account), then the result of the subsequent election would be considered representative. So the open-ended nature of the Petition Process is counteracted by the turnout requirement. Similarly, the lack of consensus required for the Executive Committee method is counteracted by a voter turnout requirement. The Deliberative Assemblies feature a certain level of both consensus and voter engagement and are thus the most efficient method through which to nominate legislation.

144 It is very likely that children will vote similarly to their parents, but they are nonetheless being educated in democratic practices. This exposure will also play a vital role in developing a tolerance to voter fatigue.
Dynamic Geographic Governance

The Dynamic Geographic Governance [DGG] framework is a dynamic algorithm that automatically rearranges citizens into communities. The DGG is built-in to the Passport of a citizen and parses through information—weighing a variety of factors such as location, kin, age, sex, ideological preferences, etc.—to divide individuals into Communities that share an ideological identity.\(^{145}\) The 50-100 range for a Community ensures that any reasonably dense population center will have an abundance of Communities into which citizens can be sorted.\(^{146}\) The plethora of options will ensure that various groups can preserve their cultural or religious identity; however, it also allows for situations where a minority population is forced to join the majority, but as mentioned earlier, this is to foster communal cohesion.\(^{147}\) The DGG is integral to maintaining the high autonomy and flexibility required by the Cryptostate on the Communal tier. Without the DGG we would be forced to create static Communities, which would make it both challenging and complicated to adjust to migration or population growth.

Additionally, because a Community can only associate with one Society at a time, the DGG functions as a community-building tool (as over time the community will come to embrace that identity over others). Societal disputes over jurisdiction are settled by the Social Institution Regulation Authority, while the Judiciary settles disputes over the rules and regulations of a

\(^{145}\) The DGG will never be a perfect algorithm and there will always be individuals that are discontent with their allocated Community. In such cases, citizens can signal their dissatisfaction to the DGG so that they are prioritized for reassignment at the next update phase.

\(^{146}\) The DGG updates Community assignments every 24 hours, to incorporate new members of the Cryptostate, or to reassign discontent members. Communities that reach a 100 members will not be included in the reassignments unless someone within the community wishes to leave. There are already sophisticated match-making algorithms employed in the video game industry that can be re-appropriated for the DGG’s purpose. For an example of such an algorithm, see: Agarwal, Sharad, and Jacob R. Lorch. "Matchmaking for online games and other latency-sensitive P2P systems." In ACM SIGCOMM Computer Communication Review, vol. 39, no. 4, pp. 315-326. ACM, 2009.

\(^{147}\) For example, if a rural community of 80 people has a 30/50 split regarding which community they wish to join. The 30 individuals would be forced to assimilate, find 20 more members to create their community, or move to join another community.
particular society. Decision making within social institutions will function independently of the EJA, as the exact mechanisms through which this is done will be left to the discretion of each society.

The Four Branches of Government

The numerous institutions in the Cryptostate can be divided into four categories: executive, functional, deliberative, and regulatory. The reason for this was briefly mentioned earlier, but to reiterate: the Cryptostate is designed to include all people on the planet, and as such it is imperative that no single actor—or clique—can seize power. Thus, the Cryptostate features many anti-corruption mechanisms,\textsuperscript{148} democratic decentralization, and a strong distaste of tyranny. In this section, we will discuss the differences between the four branches and briefly outline the specific institutions within each category. As it would be impractical to describe the minutia of each institution, we will instead emphasize the general purpose they serve in the broader framework.

Executive Institutions:

The executive branch of government concerns institutions that have a decision-making capacity beyond conventional means. Direct democracy is wonderful, but it is not necessarily time-efficient, and in time-sensitive situations, the executive institutions have the power to direct State policy—albeit for a limited period. The four institutions that make up the executive are the Department of Defense [DoD], the Extra-Statist Executive Committee [ESEC], the Economic Executive Committee [EEC], and the Political Executive Committee [PEC]. The Department of Defense is an umbrella institution for the various non-domestic instruments of violence at the

\textsuperscript{148} The most important, and effective, of these mechanisms is the Blockchain, which we discuss in \textit{The Age of Blockchain Technology}, and \textit{Blockchain Technology in the Cryptostate}.
Cryptostate’s disposal. Conceptualizing a coordinated self-defense apparatus in a society as decentralized as the Cryptostate is a serious challenge, and one possible method to reduce the difficulty of such a task would be to leave the Department of Defense centralized.  

That being said, the flexible nature of how the Cryptostate’s jurisdiction would make violent action against it impractical. We will discuss this in detail in our final chapter, but to summarize the Cryptostate is capable of existing in our present national framework, and if a hostile actor wanted to target the Cryptostate through physical destruction then it could only do so by sabotaging its own infrastructure. Furthermore, the Cryptostate is essentially just an idea and some code. Theoretically, any individual with access to the internet could create their own Cryptostate. The value of the Cryptostate depends entirely on the value of its economy—the goods and services that its citizens have access to, the number of people the State provides a livelihood for, and the general welfare of its population. What makes the Cryptostate valuable is its citizens, so the only meaningful way to attack the Cryptostate would be to ban all individuals from associating with the State (which can certainly be done, but requires a lot more effort that could be completely undermined by creating another Cryptostate to take its place). Of all the institutions we will discuss, the DoD is the least developed—so much so that the original draft of the Cryptostate did not even feature it.

In addition to the DoD, the Executive branch features three executive Committees, one for regulating political affairs, one for regulating economic affairs, and one to function as a diplomatic corps. These committees are made up of 25 representatives, five from each

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149 A risk of centralizing the defense apparatus is that of a military coup; however, such an event is unlikely for the same reason that a foreign invasion is unlikely: the Cryptostate is not tied to physical locations, and the only way to attack it would be to attack all its citizens. At the same time, without the citizens, the Cryptostate has nothing of value to any potential aggressor.
Continent, elected via Single Transferrable Vote [SVT]. The Committees are the only institutions in the Cryptostate that can make decisions without requiring the public’s consent. Should an emergency arise, the appropriate Committee can choose to enforce policy for three months at a time, but at the end of the emergency period, all representatives are required to resign, and new elections are held. Furthermore, the old representatives are barred from holding office for the next 25 years. These restrictions are intended to disincentivize the abuse of emergency powers. If no emergency arises, then each representative to an Executive Committee serves a 25-year term. All other representative offices in the Cryptostate only serve four-year terms, but the Executive representatives serve longer terms to balance any short-termism in the representative assemblies and to promote long-term planning at the macro-scale.

Figure 5: Preliminary sketch of the Cryptostate’s four institutional categories, and the various institutions within the categories.

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150 “We give evidence that Single Transferrable Vote (STV) is computationally resistant to manipulation: It is NP-complete to determine whether there exists a (possibly insincere) preference that will elect a favored candidate, even in an election for a single seat. Thus strategic voting under STV is qualitatively more difficult than under other commonly-used voting schemes. Furthermore, this resistance to manipulation is inherent to STV and does not depend on hopeful extraneous assumptions like the presumed difficulty of learning the preferences of the other voters. We also prove that it is NP-complete to recognize when an STV election violates monotonicity. This suggests that non-monotonicity in STV elections might be perceived as less threatening since it is in effect “hidden” and hard to exploit for strategic advantage.” See: Bartholdi, John J., and James B. Orlin, "Single transferable vote resists strategic voting." Social Choice and Welfare 8, no. 4 (1991): 341-354.
Of the 25 seats in an executive committee, one is re-elected each year. This is to counter any potential disconnect—caused by the longevity of the representative’s terms—by providing an avenue through which to register shifting public sentiments. For example, if a citizen were elected to the 9th seat of the Economic Executive Committee, then they would see one of their fellow representatives replaced every year until, in 25 years, they would vacate the seat themselves. If the Committee declared an emergency, then they would need to vacate their seats immediately (and would be barred from all offices for another 25 years). If a representative passed away or resigned, then elections would be held immediately, but replacement representative would only serve for the duration of their predecessor’s term. Representatives to the Executive Committees are elected exclusively by voters from their respective Continents, and the only eligible candidates are those that hold (or have held) a position in their respective Continental Assembly.

When designing a government, any entity with executive power has the potential to be abused, yet our current political institutions are filled with such institutions. In most States, even our elected representatives have very little accountability once in office. It would not be unreasonable to suggest that a significant factor behind peoples fear of any global government is the assumption that the political institutions of that government would be similar to those we currently use. The staggered election cycles, contingent emergency powers, and lengthy term limits are all unique characteristics to the Cryptostate’s Executive branch, and these features were designed to limit the ability of malicious actors to exploit the system.

Deliberative Institutions

The deliberative branch of the Cryptostate is composed of representative institutions with the authority to nominate issues to a vote. This includes the representative assemblies of all
levels of government, and purpose-specific assemblies such as the Institution Creation Assembly, the Political Continental Senate, and the Economic Continental Senate. Elections in the representative assemblies are conducted using the Single-Transferable Vote system, and the candidacy pool at the upper levels are restricted to those that served previously on a local government—to ensure familiarity with candidates as well as to reduce the number of potential candidates. Members of the representative assembly serve four-year terms, and can only serve two terms in an Assembly. The number of representatives at the Assemblies of each tier of government varies based on the total population of the Cryptostate, but generally, the number of representatives per tier increases until the provincial level, at which point it stagnates at 500 representatives per unit.\textsuperscript{151}

If there are insufficient candidates to fill all positions, the seat is considered an absentee in any votes and thus does not count towards the required majority votes needed to nominate an issue. Theoretically, the Cryptostate would allow an individual could spend most of their lives in various public offices so long as they continue to change offices and have the support of their constituents. For example, a citizen could serve on the Community Assembly to become an eligible candidate for office on all other Representative Assemblies. They could then go on to serve in the Municipal Assembly for a term, or go directly to the Continental Assembly. The citizen’s only limitation would be the term limit per assembly.

As discussed earlier in the chapter, the Representative Assemblies do not have decision-making powers, so their primary role is to nominate relevant proposals for a public vote. However, one should not underestimate the influence of these offices, as the Assemblies are the

\textsuperscript{151} The total number of Assemblies could vary, but the number of representatives would not. For example, there could be a total of 100,000 Provincial representatives and 1000 Continental representatives, but there would still only be 500 representatives per Assembly.
only institution that can bypass the voter requirement for nominations and are thus far more likely to pass legislation than via the petition system. These assemblies make up the bulk of the Crypto-states’ deliberative apparatus, but there are three others: the Continental Senates (economic and political) and the Institution Creation Assembly [ICA].

The Continental Senates are divided into political and economic benches. Each branch has 500 representatives,—100 delegates from each continent—and, unlike the Representative Assemblies, Senators can only be elected from current or former Continental Assembly representatives (similar to the Executive Committees). The Senate is tasked with addressing economic or political issues that affect multiple Continents, and function as a deliberative equivalent to the Executive Committee. However, unlike the Executive Committees, the Senates retain the privilege of nominating issues without a voter turnout requirement.

The final institution in the deliberative branch is the ICA. The ICA is structurally identical to the Senates in all respects except two: first, the ICA’s mandate is exclusively concerned with designing various supplemental institutions to address the changing needs of the Cryptostate, and second, the ICA’s electoral pool is open to all citizens. The ICA and the EJA are two institutions that need to draw heavily on the expertise of academics or industry professionals. This is similar to the lobbying mechanism in the U.S; however, the potential for corruption or abuse is severely negated by the fact that neither institution has the ability to make decisions. While the ICA is explicitly tasked with creating new institutions, other Representative Assemblies, Executive Committees, and petitions are allowed to do so as well.

Functional Institutions

The functional branch of the Cryptostate is comprised of institutions that enforce and enact the decisions made by the executive or deliberative branches. Thus, the institutions in the
functional branch will expand and contract to accommodate the actions and institutions created by the deliberative branch. The functions and structure of the functional institutions vary tremendously, but they are all are held accountable by an oversight committee of representatives at every tier of government. These committees are composed of delegates assigned randomly from the Representative Assemblies. The oversight committee functions as a legislative liaison between the institution, its members, and the government. They have the authority to alter institutional directives temporarily, suggest permanent changes to the ICA, and reprimand abuses of office (provided they have a warrant).

Functional institutions operate on every level of government down to the Provincial level, but not below. So the Community, Municipality, and County governments are all dependent on the Provincial functional apparatus. This is mostly for practical reasons, as it would be very challenging to coordinate, supply, and oversee day-to-day affairs for these services on a local level. In its current iteration, the Cryptostate features four functional institutions: the Blockchain Policing Authority [BPA], Department of Education [DoE], the Wallet Issuance Authority [WIA], and the Law Enforcement Agency [LEA]. The DoE and LEA are equivalent to our contemporary police and educational institutions. Education is the cornerstone of any democracy, and while specific directives are out of the scope of this thesis, it is worth mentioning that educational infrastructure, whether teachers or equipment, will be the first focus of the Job Guarantee program.152

On the other hand, the BPA and WIA are institutions exclusive to the Cryptostate. The BPA’s primary responsibility is to monitor the numerous blockchains used by the Cryptostate. Attempts at deceit, unauthorized government spending, suspicious transfers of money, and

152 For a discussion on the specific recommended policies, see Creating the Cryptostate.
suspicious voting activity, are all activities monitored by, and subject to the inquiry of the BPA. However, just as in our present system, an actual arrest can only take place with a warrant from the judiciary—or, in this case, the Blockchain Integrity Authority.

The WIA is the embodiment of the expansive demos necessitated by the All Affected Interests Principle. The WIA is responsible for distributing and maintaining Wallets and Passports for all current and prospective citizens of the Cryptostate. The WIA has a straightforward mandate: to enfranchise all interested individuals and to ensure the accuracy of information submitted by prospective citizens. In addition to this vital role, the WIA managed Passport maintenance, distributing unique Passport categories, and implementing protocol updates.

Regulatory Institutions

Finally, we have the fourth branch of the Cryptostate: regulatory institutions. Regulatory institutions oversee the functions of all elements of the Cryptostate, from government institutions and Societal regulations to disputes in civilian life. Like their contemporary counterparts, regulatory institutions are primarily concerned with interpreting legislation and determining the legality of actions. The regulatory institutions: the Blockchain Integrity Authority, the Department of Civil Justice, Governmental Integrity Authority, and the Electoral Jurisdictional Authority are integral for maintaining the health of the Cryptostate.

Unlike with other institutions, all regulatory institutions operate outside the traditional jurisdictional hierarchy. An oversight committee of 50 representatives are randomly selected from all active representatives—from the provincial level and above—to monitor the activities of these

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153 Passports are an important part of the Cryptostate, and the topic is extensively discussed in Blockchain Technology in the Cryptostate.
institutions, but these committees are only capable of referring individuals suspected of unethical behavior. Altering the ability of the oversight committee to interfere in regulatory operations can only be achieved through a public referendum (and even then, only specific actions can be vetoed, not their overall mandate). All regulatory institutions can only be staffed by individuals who have never held public office, and any former employee at a regulatory institution is barred from all representative offices for 25 years. A board of 25 directors, elected in a universal referendum, head each institution and serve 25-year terms, with annual staggered elections as with the Executive Committees. In the event that these institutions are themselves compromised,

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**Figure 6**: Visualization of the division between democratic mechanisms and maintenance mechanisms as well as the various categories of institutions within the categories, and the various jurisdictions in which these institutions function.
citizens and elected representatives can initiate a vote of no-confidence to vacate all offices and begin anew.

The first of these institutions is the Blockchain Integrity Authority [BAI]. As briefly noted, the BAI works in tandem with the Blockchain Policing Authority to ensure that no attempt to undermine the integrity of the Cryptostate’s blockchains succeeds. The importance of this function cannot be overstated. Blockchain technology is at the heart of the Cryptostate, and all other institutions rely on the security and integrity of the blockchains. A modern equivalent to the BAI does not exist, but if it did, it would be akin to having an institution dedicated to maintaining the integrity of our voting systems, government communications system, national identification system, and our financial system, all in one. Blockchain technology is already extremely resistant to manipulation, but the sheer importance of this technology to the functioning of the State merits extensive protection and regulation.154

The Department of Civil Justice [DCJ] is the Cryptostate’s equivalent to a judiciary. It has jurisdiction over the vast majority of legal issues, from copyright law to human rights abuses. The only legal categories that fall outside the DCJ’s jurisdiction are blockchain-related matters and political crimes. Unlike in most States today, political crimes are judged by a separate institution: the Government Integrity Authority [GIA]. This essentially gives both the GIA and the DCJ a second line of defense. If individuals in the DCJ are suspected of corruption, then the GIA is entitled to prosecute them, and similarly, if individuals in the GIA are suspected of corruption, then the DCJ is entitled to prosecute them. In the Cryptostate government officials are held to a very high standard, and political crimes are punished sternly. Corruption, nepotism,

154 The task of monitoring and regulating the Blockchain is divided between the regulatory and functional branches. The BAI is the judicial arm of blockchain policing, and can issue warrants or begin investigations, but the responsibility to physically enforce the BAI falls to the BPA (Figure 5).
money laundering, and cronyism are deadly viruses that attack a State’s integrity. The transparency of the blockchain already discourages monetary-based corruption, but other forms of favoritism and exploitation can still go unchecked. The GIA’s mandate is to eliminate political crimes within all government institutions.

The final institution we will discuss is the Electoral Jurisdictional Authority. The EJA featured heavily in our discussions of voting mechanisms, so hopefully their significant is obvious. The EJA is the arbiter of jurisdictional conflict. If a community in Buenos Aires wanted to vote on whether or not motor vehicles are allowed in their city, it would up to the EJA to determine whether they have the jurisdiction to move forward with that vote, or if it must be referred to a higher Assembly. The EJA consists of a core staff—composed of citizens (under the same restrictions as all other regulatory institutions)—and a fluid amalgamation of professionals (lawyers, academics, industry leaders, etc.) to advise EJA officers on the most appropriate jurisdictions for a given petition. Like other regulatory institutions, the EJA features a staggered board of directors and an oversight committee. However, the EJA also features a Court of Voter Appeals. The Court is a semi-autonomous department within the EJA, and it consists of 50 dedicated officers and 40 members randomly selected from the Continental Assembly.

Overarching Themes

In this chapter, we have reviewed the mechanisms and institutions that make up the social and political framework of the Cryptostate. Throughout this process, there have been a few recurring themes worth explicitly addressing. The first of these is that of enfranchisement. Much of our present institutions are far too restrictive with regard to enfranchisement. Even institutions that are supposed to represent the people, such as Parliament or Congress, do not genuinely
enfranchising us. Our economic institutions are even worse in this regard, as they are often not
even masked as working in the interest of the people. The Cryptostate attempts to rectify this.
Excluding emergency powers, the only way to pass legislation is through a popular vote, elections
to the various political offices are all direct, and use an SVT system to better capture voter
preferences.

Another important theme throughout the chapter was preventing tyranny and ensuring
accountability. Every institution was modeled with this theme in mind. The executive branch
features staggered election cycles and severe consequences for the use of emergency powers. The
Representative Assemblies feature shorter term lengths and term limits. The functional
institutions all feature oversight committees and are divided into autonomous units at each tier of
government. The regulatory institutions are equipped with the power to hold all other institutions
accountable but are simultaneously tasked with holding each other accountable. Finally, in the
event that the regulatory institutions are compromised, the people can call for an institutional
reset to begin the process anew. One aspect of the Cryptostate we have not touched on is
blockchain technology. Now that we have a fundamental idea of what the Cryptostate would look
like—as analogous to our existing institutions—we can address the more abstract nervous system
of the Cryptostate: blockchain technology.
A citizen in the Cryptostate could go their entire life without understanding blockchain technology, just a citizen today can spend their entire life without understanding the makings of the underbelly of modern society, be it the internet, the economy, or the government. However, it would not be possible to truly understand or appreciate the Cryptostate without understanding its underlying technology. Blockchain technology—and more generally, distributed ledger technology—plays many indispensable roles in the Cryptostate. Voting is registered and tallied on a blockchain, sensitive information is safeguarded on a blockchain, and the entire economy is built as a cryptocurrency algorithm (a tangle).

Before we can begin to discuss the specific application of blockchain technology in the Cryptostate, we need to familiarize ourselves with its genus: the distributed ledger. Put simply, a distributed ledger is a system that can store, and accurately update, identical information in
multiple locations. An analogy would be to imagine a pair of pants with a magical pocket. Anything put into that pocket is instantly cloned and distributed to all other magical pockets in existence. Importantly, the item one put into the pocket exists even if one were to lose the original pocket. Such a system is described as having Multiple Points-of-Failure [MPOF]. A MPOF system is incredibly useful for storing sensitive information, or for guaranteeing the accessibility of a network. To illustrate this, suppose a citizen had two magical pockets. The moment they placed their keys into a pocket, it would instantaneously appear in all other pockets. Now, suppose that our citizen told an unfortunate lie, their pants caught on fire, and they lost the magical pocket. Then, fortunately, their second magical pocket would still have an un-charred set of keys.

Distributed ledger systems are similar to decentralized ledger systems; however, decentralization is far more vulnerable to data loss. A decentralized system relies on multiple central nodes whereas in a distributed system each node contains a complete copy of the information. Returning to our example, a decentralized magic pocket would be one where the key is only cloned to select pockets, and all other pockets are given a hologram of the key. This is still infinitely better than not having a backup, but if one was a compulsive liar--or lived with an arsonist--then one could potentially lose all backup pants to a fire. In a decentralized pocket, all hologram keys would disappear as soon as the last real key was destroyed. Thus, the most reliable contingency would be a distributed system.

A political analogy would be that direct democracy is distributed, while a representative democracy is decentralized. Distributed ledgers are a fundamental component of all blockchain

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The network would have no regard for the ‘truth’ because ‘truth’ is not a distinct entity in blockchain networks. The only factor that matters to the algorithm is the majority consensus. So, ‘truth’ is an interpretation of the data displayed by the network. This is similar to a tenet at the heart of democratic theory: that the right decision is one made by a democratic process, regardless of its outcome.

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156 The network would have no regard for the ‘truth’ because ‘truth’ is not a distinct entity in blockchain networks. The only factor that matters to the algorithm is the majority consensus. So, ‘truth’ is an interpretation of the data displayed by the network. This is similar to a tenet at the heart of democratic theory: that the right decision is one made by a democratic process, regardless of its outcome.
would be substantially harder as they would need to control multiple ‘central nodes’—i.e., parliamentary or congressional representatives. If, however, the State was a direct democracy, then the malicious actor would have the herculean task of controlling over half the ‘total nodes’—i.e., the nations’ voting population. Any distributed data storage system is magnitudes more difficult to compromise than either of the first two options. Thus, our hypothetical State's democratic integrity is far more secure in a distributed system, and this security only increases as its population grows (more people = more nodes). In terms of digital data, the network size to security relationship is much more pronounced, since individuals and organizations frequently possess more computers than users. Thus, any entity that needs to store information safely can benefit from employing blockchain technology. However, most people today are not familiar with blockchain technology because of its resistance to manipulation. Most people associate the phrase with the rise of cryptocurrencies.

To summarize, in distributed ledger technology we have the ability to make decisions collectively, to prevent fraud through collective security, and to have data redundancy for emergencies. Throughout this chapter, we will add to our understanding of blockchain technology, and cover the fundamental mechanics of cryptocurrencies. We will analyze the characteristics, benefits, and drawbacks to some of the most popular cryptocurrencies today, and we will discuss their impact on society. By the end of this chapter, we will have a comprehensive command of key terminology and concepts, and we will know what cryptocurrencies are, how they work, what problems they face, and what we can do with them.
The first cryptocurrency was created in 2008 when an anonymous programmer published the paper: “Bitcoin: A peer-to-peer electronic cash system.”\textsuperscript{157} Under the pseudonym Satoshi Nakamoto, the author laid out a computer algorithm that solved certain longstanding issues in the field of cryptography. Satoshi used elements of cryptography to develop a transparent and immutable ledger to record financial transactions. This ‘ledger’ was different from every ledger in existence to date because it was ‘distributed’ to every member that had a stake in the network, and updated automatically every time anyone made a transaction. In order to understand why Satoshi’s ‘distributed ledger’ was so valuable we can draw an analogy to a physical ledger system:

Imagine four friends who frequently lend each other money for small purchases. Instead of paying each other back every transaction, they decide to keep a tab (or ledger) of every transaction made, and at the end of every month, tally all the transactions to settle their debts (whoever owes money puts it in a pot and whoever is owed money takes their share). In an ideal world, this system would work without any problems, because there is a certain degree of trust between friends that would dissuade them from attempting to defraud each other. However, imagine what would happen if an entire society functioned on this system. It would be perfectly feasible for a malicious agent to exploit the ledger--either by not put any money into the pot, or by taking unallocated money from the pot. Satoshi bypassed the need for trust by appropriating ‘digital signatures’ from the field of cryptography. Like in a physical contract, by attaching a digital signature to every transaction in the ledger, the party making the transaction can certify that it is voluntary and legitimate. However, digital signatures have the benefit of being substantially more secure than physical signatures. This is because a digital signature is comprised

of two signatures: a public key, and a private key. In a digital signature, the public key is a function (a combination) of the message (a transaction), and the private key is the only way to find the solution.

$$\text{Sign}(\text{Message}, \text{PrivateKey}) = \text{Signature}$$

The requirement of a private key ensures that only someone with the right key can reproduce the signature (preventing fraud). Furthermore, because the signature changes depending on the message, even if someone managed to guess the correct signature of a transaction randomly, they would not be able to use the signature to defraud any other transaction made by the sender. There is also a second function that can easily be used to verify if a signature is valid.

$$\text{Verify}(\text{Message}, \text{Signature}, \text{PublicKey}) = \text{True}/\text{False}$$

This function uses the public signature, the message, and one's private key to produce either a True or a False answer indicating whether or not the transaction is valid. In real life creating signatures that follow this system is extremely difficult. It is technically possible to reverse engineer a transaction; however, in cryptocurrencies, the signature is such a large number (256 bits) that it is realistically impossible to guess.\(^{158}\) In addition to this extremely secure function, every transaction on the ledger requires another unique key to differentiate it from previous transactions of the same value. This key uses the same encryption algorithm and is thus similarly difficult to forge but easy to verify for validity.

\(^{158}\) The most efficient way to ‘guess’ such a number would be to try every combination possible (of which there are $$2^{256}$$ or 4 billion^8) for comparison there are only 1.2 x 10^23 atoms in the visible universe.
The Double Spend Dilemma

The next important aspect of creating a cryptocurrency is ensuring that someone cannot spend more money than they have in their wallet (a wallet is a computer program that can store, send, and receive a cryptocurrency). This is commonly referred to as the Double-Spend Dilemma. In order to ensure that no overspending occurs every transaction made on the ledger must include both the total transaction amount and the remaining balance of the wallet. In a centralized system, such as a bank, overcoming this problem is simple. Every transaction is routed to a trusted entity (the bank) which subsequently judges the validity of each transaction independently. However, fixing the double spend dilemma in a distributed system is slightly more complicated. We must ensure that every time someone makes a transaction, they broadcast three elements: their public key, their transaction ID, and the recipients public key, to all other members in the network simultaneously. In the real world, transactions are registered at different times in different places, so ensuring the simultaneity of transactions, especially at large volumes, was a massive problem.

The most groundbreaking aspect of Satoshi’s Bitcoin was that it solved this problem. Satoshi used ‘computational work’ as a metric through which to judge the validity of a transaction. Thus, the ledger with the most ‘computational work’ (number crunching) would be the most valid. In Bitcoin work is calculated using a Cryptographic hash function. Understanding the exact features of the hash function is unnecessary for a basic understanding,

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160 The specific hash function used is a SHA256 which was developed by the NSA. SHA256 produces a hash value of 256 that changes in an unpredictable way with even the slightest variation in the values put into the function. This makes it infeasible to compute the function in the opposite direction (securing the message) but makes it extremely easy to verify if a number is correct. This hash function is the basis of a majority of security systems today (including the banking industry).
but the gist is that it takes a lot of ‘computational work’ to successfully solve a hash function. In addition to this, hash functions are impossible to reverse-engineer, which means that it is harder to forge a hash function than to solve a new one (in effect dissuading fraud). Thus, a hash function can be used to verify that a computer has done a significant amount of work. This method is known as ‘Proof-of-Work’ and is an integral part of the Bitcoin ‘mining’ process.

The Blockchain Network

In Bitcoin, transactions are grouped into ‘blocks,’ with each block requiring a unique hash that changes if a transaction within the block changes. This ensures that anyone trying to trick the network by manually changing the values in their personal ledger can be easily identified by their incompatible hash. In addition to this, every valid block must have the hash of the previous block in it too. This way, every new block includes a compressed version of every transaction before it—creating a ‘block-chain.’ Delving into this level of detail is not necessary to understand how cryptocurrencies work, but it reveals the origin of the term blockchain.

Understanding the structure of a block is also useful for understanding concepts such as ‘nodes’ and ‘mining.’ A ‘node’ is any member of the cryptocurrency community that acts as a watchdog, verifying any new blocks by running the hash function. A ‘miner’ is any member of the community that both verifies previous blocks and does the necessary ‘computational work’ to create a new block. In order to incentivize miners to do the ‘computational work,’ they are rewarded a small amount of the cryptocurrency every time they create a successful block. This is called a ‘mining fee’ or a ‘block reward.’ The process of ‘mining’ introduces small amounts of

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161 This means that with every transaction, the blockchain is becoming exponentially more secure since in order to change a previous transaction a malicious actor would have to do the computational work for every block before it (a figure so large it is considered impossible). In addition to creating this additional layer of security, this also allows for efficient sequencing of blocks in order to verify which transactions came in what order.
new currency into the economy over time (creating temporary inflation). There is no guarantee that a miner will successfully find the hash for a block, so miners are essentially entering a small lottery. To summarize, a miner is responsible for:

- ‘Listening’ for transactions made by regular users of the ledger,
- Creating blocks/ participating in a lottery’ by attempting to solve a hash function,
- Then ‘broadcasting’ those blocks in the public ledger.

For regular users of the blockchain the process is much more straightforward:

- ‘Listen’ for blocks submitted by the miners
- ‘Verify’ that the blocks satisfy the hash function (much quicker than finding a hash)
- ‘Update’ their existing blockchain with the new block

If a situation arises in which someone receives two blockchains with different hashes, they refer to the longest chain, as it is the one with the most ‘work’ put into it. If a situation arises in which there is a tie, then they simply wait for the next block to be broadcasted and use whichever chain it is added to. These mechanisms combine to replace a central authority with a decentralized consensus mechanism.

To understand why a distributed ledger is superior to a centralized ledger, we need only look to the issue of tyranny. Any central authority, or even decentralized authorities, are more

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163 There are other ‘decentralized consensus mechanisms’, the most significant of which are Proof of Stake which is used by Ethereum. In Proof of Stake, trust is manufactured by members of the community that ‘stake’ some of their coins as leverage for ensuring their integrity. The decision to distribute a successful new block is still a lottery; however, the more coins someone stakes (and the more they have to lose), the more likely they are to receive the next block (and its block-reward). If the block submitted by a miner is erroneous, then all their funds at stake are erased as a punishment. Vericooin uses a modification of this called “Proof of Stake-Time” in which newly staked coins are considered more ‘valuable’ in the lottery than old staked coins. This means that someone who put 50 coins at stake would initially have a greater chance of winning the lottery, but after a week someone who puts five coins would have the same chance of winning as the one who put 50. This gives people with fewer coins a better chance at winning the lottery and means that over time ownership of coins is fairer.
capable of being compromised than a distributed authority. The Cryptostate's political apparatus is designed to be as distributed as possible, and distributed ledger technology can do the same for economic institutions. As discussed in *The Economy and the State*, global capital is one of the most powerful forces in modern society, yet it remains entirely out of the reach of laypeople—in terms of both accountability and access. Among our contemporary institutions, the economy is the least democratic. The fact that a handful of individuals can throttle access to the global financial system, or gamble away the savings of millions, is laughably unethical. The Cryptostate's use of distributed ledger technology democratizes the economy in an unprecedented manner.

Another benefit brought by this technology is security. We now know how difficult it is to falsify information in a blockchain. Instead of tricking one person (a centralized authority), or a small group of people, a malicious actor attempting to undermine the Cryptostate would have to convince a majority of the users on the blockchain to follow suit—and assume a democratic mandate by doing so. In addition to this, to continue to undermine the legitimate blockchain, a malicious agent would need to continuously update their faux-chain at a faster rate than all other miners (since only the longest chain is considered legitimate). Thus, unless a malicious agent had over 50% of the total mining power, it would be impossible to compromise the network. Finally, even if an attack succeeds once the deceit is discovered, any victim can simply revert to the legitimate blockchain (provided the rest of the network allows), and it would be as if no fraudulent transactions were ever attempted.

To summarize, when Satoshi created Bitcoin, he discovered a method through which to ensure the integrity of a distributed ledger. A distributed ledger is a list of every transaction that everyone in the economic system can access. Transactions are incorporated into this system
through ‘miners’ who dedicate computational power to satisfy a ‘cryptographic hash function.’ This hash function is designed, so it is almost instant to verify but nearly impossible to trick. Nodes (as well as other miners and regular users) verify the integrity of each new block, always prioritizing the longer blockchain. Finally, by mathematical design, it is impossible to create a fake blockchain or spend money does not exist. (unless you own more than 50% of all the computing power used for mining).

Mining Mechanisms

A mining mechanism is a process through which new blocks, and new currency, are added to the network. As previously mentioned, miming algorithms are difficult math problems that miners attempt to solve (by using a dedicated resource) in exchange for a small amount of the cryptocurrency as a reward (the block reward). There are many miming mechanisms through which a cryptocurrency can be created, and each has significant benefits and drawbacks. The two most popular mechanisms are Proof-of-Work (PoW, used in Bitcoin) and Proof-of-Stake (PoS, used in Ethereum); however, developers are constantly experimenting with new mechanisms, an example of which is Proof-of-Stake/Time.164 For the time being, we will avoid discussing the various benefits and drawbacks of these systems to explain the differences between them instead.

All successful mining mechanisms share one function: they provide a math problem that users of a network dedicate a resource to solve, generally in exchange for a ‘block reward.’ While doing this the mining mechanism must adjust the difficulty of the problem or the value of the ‘block reward’ to keep miners incentivized to dedicate the aforementioned resource. Finally, the mining mechanism must have a way to punish malicious miners that attempt to include

fraudulent transactions in their blocks. Thus, every mining mechanism needs to have these three elements: a resource, a reward, and a punishment.

Proof-of-Work [PoW]:

Proof-of-Work, designed by Satoshi himself, was the first mining mechanism developed. In PoW, miners dedicate ‘computational work’ for the chance to earn a mining fee. The punishment for attempting to defraud the system is that all the computational work alongside any accrued mining fee is nullified on the blockchain.

Proof-of-Stake [PoS]:

Proof-of-Stake is an algorithm in which users ‘stake their coins’ in a lottery that determines who gets the next block (as well as its block reward). This is fundamentally different from PoW in that it does not rely on external resources to solve the hash function; it simply operates a lottery among existing users. In PoS there is an additional punishment for attempting to commit fraud: all the coins being staked are confiscated and redistributed to other miners as block rewards. In most variations of PoS users that stake more coins are given a proportionally higher chance of winning the lottery (as they technically have more at stake if they attempt to undermine the system).

Proof-of-Stake/Time [PoST]:

The final mining mechanism we will look at is found in VeriCoin and is a variation of PoS. In PoST, users still stake coins in exchange for a chance to win the block reward lottery; however, in PoST the number of staked coins decreases in value with time. This means that if $100 initially gave one a 5% chance to win the lottery then in 5 months, that same $100 would only give one a 1% chance. The rationale behind introducing time values to coins is that it helps
alleviate the ‘rich get richer’ dynamic present in most mining mechanisms. In PoS or PoW having $1000 to initially invest would put you—and keep you—at a significant advantage over any number of people who only had $100 to invest (because the block reward is a lottery that directly rewards more of a resource), whereas in PoST over time your $1000 would lose value over time. The punishment in PoST is the same as in PoS where staked coins are confiscated.

While far from comprehensive, this list should help familiarize us with the different kinds of mining mechanisms. Ideally, it would also develop an intuitive understanding of how mining mechanisms in the Cryptostate would work. Cryptographers around the world are constantly...
developing new mining mechanisms. The viability of these new methods is less thoroughly tested; however, it would be naive to disregard them for this reason. We will explore a final mining mechanism next chapter.

The Wallet

While the functions of wallets are the same across cryptocurrencies, the method through which the wallet is distributed is not. In all cryptocurrencies today the wallet protocol is free and accessible to anybody; however, this leads to significant identification difficulties. Controlling wallet distribution is very important if the state wants to be able to identify actors in the economy to do things such as implement a form of progressive taxation or any other wealth redistribution mechanism that needs to target an individual’s ‘total’ wealth instead of a wallet’s total wealth (since an unregulated wallet would allow individuals to ‘appear’ as multiple individuals by splitting total assets across multiple wallets. The best way to remedy this would be to find a method through which the state could regulate the distribution of wallets; however, this could potentially give the state a lot of control over the economy since it would allow the state to discriminate in awarding wallets, and by extension awarding citizenship, in the economy.

One way to prevent the state from discriminating between wallet applicants would be to have a ‘Wallet Distribution Protocol’ with specific requirements/parameters that are agreed upon by the majority of its community while simultaneously deterring the issues stemming from anonymous wallets. The viability of a wallet distribution protocol would rely on being able to collect information that is unique to an individual (such as a thumbprint, DNA, or an ID Number) which can be verified without the need for human interference.
An example would be that in order to receive a CryptoUS wallet one would need to scan one's fingerprint and have it be verified against a U.S Fingerprint Database. The reason behind this is to prevent one person from creating 200 wallets and splitting assets among them (which would undermine accurate assessment of wealth for progressive taxation schemes). Another potential solution would be to have a government agency in charge of distributing wallets, effectively transforming them into a passport. This is the approach of the Cryptostate, and it renders ‘citizens’ as synonymous with participants in its economy.

Reform Mechanism

In addition to the three ‘Universal Properties’ described above, a state would have several ‘Soft Properties’ that could be altered by a popular consensus. The alteration of any of these properties could be done using a currency fork, or by adopting On-Chain Governance systems. The Reform Mechanism is a literal manifestation of direct democracy. Features in this category would include things such as the total supply of the currency (if static), the rate of introduction of new currency (if dynamic), and any wealth redistribution paradigms, among

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165 “A soft fork is a change to the bitcoin protocol that restricts the ruleset enforced by full nodes that update to enforce the soft fork rules. A block that is considered valid before the soft fork activates will be considered invalid by updated full nodes if it violates the new soft fork rules after the soft fork activates... A hard fork is a change to the bitcoin protocol that loosens the ruleset enforced by full nodes that update to enforce the hard fork rules. A block that is considered invalid before the hard fork activates will be considered valid by updated full nodes if it follows the new hard fork rules after the hard fork has activated.” See: Light, John. “The Differences between a Hard Fork, a Soft Fork, and a Chain Split, and What They Mean for The...” Medium. September 25, 2017. Accessed April 20, 2019. https://medium.com/@lightcoin/the-differences-between-a-hard-fork-a-soft-fork-and-a-chain-split-and-what-they-mean-for-the-76927f355c9.

166 “Current governance systems in bitcoin and ethereum are informal. They were designed using a decentralized ethos, first promulgated by Satoshi Nakamoto in his original paper. Improvement proposals to make changes to the blockchain are submitted by developers and a core group, consisting mostly of developers, is responsible for coordinating and achieving consensus between stakeholders. The stakeholders in this case are miners (who operate nodes), developers (who are responsible for core blockchain algorithms) and users (who use and invest in various coins).” For further reading see: Frankenfield, Jake. “On-Chain Governance.” Investopedia, Investopedia, 12 Mar. 2019, Accessed April 20, 2019. www.investopedia.com/terms/o/onchain-governance.asp.
many other features.\textsuperscript{167} The creation of a Cryptostate would undeniably lead to several problems, some of which can be predicted and remedied, but most of which will arise organically and can only be addressed through the Reform Mechanism. Thus, the existence of such a device is integral to the sustainability of any blockchain-based system.

The nature of issues faced by a Cryptostate will vary depending on which Universal Properties were adopted and, to a lesser degree, by its Soft Properties. In the following section, we will attempt to highlight some problems that have already become apparent through the limited implementation of crypto-economies today. It should be noted that we have mentioned several of these problems sporadically throughout the text and that some of the solutions have already been discussed.

**Contemporary Cryptocurrencies**

It would be impossible to cover the various blockchain based projects in development right now. Throughout the process of completing this thesis, we have had to come back several times to incorporate the latest developments, but because blockchain technology is such a new field, it is inevitable that all the information presented will become outdated. Instead, in this section, we will take a closer look at three established cryptocurrencies in order to learn more about the various design choices possible in the field. Bitcoin and Ethereum are, as of 2018, the two most prominent cryptocurrencies. Vericoin is a relatively new player to the game; however, they are one of the first to attempt to address wealth inequality by somewhat equalizing the

\textsuperscript{167} Lightning Network is a second layer protocol on top of bitcoin. The protocol uses bitcoin as its native denomination, meaning that Lightning can only be used by those with real bitcoin. Under the hood, Lightning Network is a web of bidirectional payment channels, but the protocol's functionality is beyond the scope of this writing. The important takeaway is that Lightning allows for the instantaneous transfer of bitcoin from peer to peer with one considerable difference from the first layer: channel balances can adjust but do not require immediate settlement on the base layer. Simply stated, Lightning transactions are unsettled bitcoin transactions.” See: Bhatia, Nik. "The Bitcoin Second Layer." Medium. August 07, 2018. Accessed April 20, 2019. https://medium.com/@timevalueofbtc/the-bitcoin-second-layer-d503949d0a06.
process of mining. The purpose of this section is to help break the public perception that cryptocurrency is synonymous with bitcoin.

These cryptocurrencies have had to shoulder an enormous burden: introducing the world to the potentially revolutionary power of blockchain technology. So far it has been the financial sector that has been most concerned with the rise of blockchain technology. This is because cryptocurrencies could theoretically make large portions of the financial sector redundant.\(^\text{168}\)

Thus, it is unsurprising that many of these pioneering cryptocurrencies have come under harsh criticism. The largest—and frankly least interesting—critique form the financial sector is that cryptocurrencies are a pyramid scheme. Cryptocurrencies share many similarities with pyramid schemes, namely that a cryptocurrency requires a continually growing network in order to increase the value of each coin, and in many cases, these currencies are developed and distributed by a small team of developers. Many cryptocurrencies are abandoned within months of their initial coin offering [ICO], leaving the often anonymous development team filthy rich at the expense of any early investors.\(^\text{169}\)

However, calling cryptocurrency a pyramid scheme is akin to calling a government service a pyramid scheme. While technically private, a cryptocurrency such as Bitcoin functions as a standardized medium of exchange, similar to the US dollar. The US dollar is not a pyramid

\(^{168}\) The Banking industry would be especially affected by cryptocurrencies, as there is no reason to store funds with an external institution. Critiques of blockchain technology argue that this would have potentially devastating effects regarding lending and economic growth but these critics often ignore the latest developments in blockchain technology which facilitate peer-to-peer lending (in effect turning each individual into their own banks). Another way to substitute the lending aspect of the banking sector is to introduce government subsidies. For more information see: Sparango, Ben. "How Blockchain Based Lending Could Take Us From Billions to Trillions." Medium.com. May 20, 2018. Accessed March 05, 2019. https://medium.com/coinmonks/how-blockchain-based-lending-could-take-us-from-billions-to-trillions-a1de3f948c88.

\(^{169}\) ICO scams have become epidemic in the world of cryptocurrencies and are extremely hard to prosecute as many cryptocurrencies are anonymous with anonymous developers. As a result, ICO regulations in the United States are substantially more strict than initial public offerings (IPO) for non-blockchain based companies. "Spotlight on Initial Coin Offerings (ICOs)." SEC Emblem. January 10, 2018. Accessed April 20, 2019. https://www.sec.gov/ICO.
scheme because the US government issues it. The outrageous—and almost undoubtedly overinflated—value of Bitcoin plastered across news outlets is not a characteristic of bitcoin so much as those who trade it. The fact that people trade Bitcoin for a US dollar equivalent does not change its purported function. Perhaps more importantly, Bitcoin is not marketed as a tool to get rich quick, in fact, its developers and proponents strongly urge against price speculation and detest the notoriety it has gathered due to the shenanigans of financial speculators.

That being said, these critiques are still valid, and in order to address them the public needs to be educated on the details of blockchain technology, and the best way to achieve a comprehensive understanding of blockchain related ecosystems is to increase public exposure—all of which will be done in the Cryptostate. The more pressing critiques of cryptocurrencies (for our purposes) come from outside the financial sector. Environmentalists, economists, and government officials have all raised concerns over the role of cryptocurrencies as a viable alternative to conventional currency.

The Environmental Challenge

One of the biggest criticisms of Bitcoin is that its mining system is terrible for the environment. Proof-of-Work is a currency creation protocol that determines a blockchains legitimacy with the computing power dedicated to maintaining it. The explosion in the price of

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171 Alexis Ohanian, co-founder of Reddit and known crypto bull, claimed that the crypto hype is gone, leaving space for true crypto believers. Ohanian spoke on the subject in an interview with Yahoo Finance released on Feb. 22. When asked if he is still a big believer in crypto, Ohanian acknowledged that the current state of the market is undoubtedly still considered to be a crypto winter, which means crypto prices are depressed. However, citing Coinbase CEO Brian Armstrong, Ohanian emphasized that the bear market has contributed to the elimination of speculators, while true crypto believers have stayed to build real crypto infrastructure." For further reading see: Partz, Helen. "Reddit Co-founder Says Crypto Winter Erased Speculators, Gave Space to Real Builders." Cointelegraph. February 23, 2019. Accessed April 20, 2019. https://cointelegraph.com/news/reddit-co-founder-says-crypto-winter-erased-speculators-gave-space-to-real-builders.
cryptocurrencies has made it a very profitable commodity to mine, especially since there is a finite number of bitcoins that can ever be produced. As more and more resources are dedicated to mining people are becoming increasingly wary of the impact it is having on the environment. This environmental impact is not insubstantial but pales in comparison to the environmental impact of the existing banking industry. That being said, the energy consumption used in proof-of-work mining is still objectionable on the ground that there are viable eco-friendly alternatives. Implementing an eco-friendly alternative would be especially relevant in the Cryptostate because the currency supply would not be finite (like in Bitcoin). The two eco-friendly mining mechanisms available in cryptocurrencies today are proof-of-capacity and proof-of-stake. Proof-of-capacity has the caveat of continuing to rely on physical hardware as a barrier to mining (it draws on a computer’s available memory instead of its hash rate) whereas proof-of-stake has no physical requirement for mining and a comparatively negligible footprint as a result. Thus we can say that in deciding between the various mining mechanisms proof-of-stake is the clear favorite.

Income Distribution Challenge

Another major problem with the existing cryptocurrencies is wealth inequality. It is hard to come away without the impression that surprisingly little thought has gone into the macroeconomic issues of a crypto-economy. Satoshi Nakamoto may have been a brilliant cryptographer, but his macroeconomic muscles certainly needed more work, which is concerning

172 “Regarding the oft-cited estimation that mining used 30 terrawatt hours in 2017 – as much as Ireland – she explains: ‘This is a lot, but not exorbitant. Banking consumes an estimated 100 terrawatts of power annually. If bitcoin technology were to mature by more than 100 times its current market size, it would still equal only 2 percent of all energy consumption.’ [Dr. Katrina] believes this maturing process is inevitable, as happened with previous energy-intensive new technologies such as data centers and computers, saying: ‘Over time, all of these have become more efficient, a natural progression of any technology: Saving energy equates to saving costs.” See: Kelly-Pitou, Katrina. “Stop Worrying about How Much Energy Bitcoin Uses.” The Conversation. March 04, 2019. Accessed April 20, 2019. https://theconversation.com/stop-worrying-about-how-much-energy-bitcoin-uses-97591.
considering that Bitcoin was created as an alternative to FIAT money. Bitcoin’s finite supply and private autonomous wallet structure mean that the currency does not have any capacity for economy-wide wealth redistribution. This has created a situation where 4.11% of BTC wallets (as precise a measure possible in bitcoin’s anonymous ledger) own 96.54% of all available currency.\(^{173}\) This is already a troublesome state of affairs, but even more horrific is the fact that there is no systemic remedy. The situation will only get worse as the bitcoin supply limit is reached, and as wallets become accidentally inaccessible.\(^ {174}\) Cryptocurrencies such as Bitcoin also suffer from price manipulation. Whaling is a term that describes individuals or groups that organize to artificially inflate or deflate the price of the currency for a short period in order to trigger stop orders.\(^ {175}\) In regular markets price manipulation is illegal, and manipulators are prosecuted, but due to the lack of regulation and anonymity in most crypto economies, there is

\(^{173}\) In January, Bloomberg sources analyzing the public blockchain noted that the top 100 Bitcoin addresses controlled 17.3 percent of all bitcoins. At that time, Ethereum’s ether cryptocurrency saw the top 100 addresses controlling 40 percent of the supply, while smaller currencies such as Gnosis, Qtum, and Storj saw top holders controlling more than 90 percent.” See: "Centralization of Bitcoin Wealth." HowMuch.net. September 12, 2017. Accessed April 20, 2019. https://howmuch.net/articles/bitcoin-wealth-distribution.

\(^{174}\) The developers at Ethereum have recognized this problem and proposed to solve it with a steady supply of ETH each year. “Though the issuance of ETH is in a fixed amount each year, the rate of growth of the monetary base (monetary inflation) is not constant. This monetary inflation rate decreases every year making ETH a disinflationary currency (in terms of monetary base). Disinflation is a special case of inflation in which the amount of inflation shrinks over time. It is expected that the amount of ETH that will be lost each year caused by transmissions to addresses which are no longer accessible is estimated to be on the order of 1% of the monetary base. ETH may be lost due to loss of private keys, death of owner without transmission of private keys, or purposeful destruction by sending to an address that never had an associated private key generated.” For more information, see: Ethereum Foundation. "The Issuance Model in Ethereum." Ethereum Blog. Accessed April 18, 2019. https://blog.ethereum.org/2014/04/10/the-issuance-model-in-ethereum/.

\(^{175}\) A stop-limit order is an order to place a regular buy or sell order (also known as a "limit order") when the highest bid or lowest ask reaches a specified price, known as the "stop." This can be helpful for protecting profits or minimizing losses. The stop-limit box has three inputs: Stop - think of this as the "trigger price." If you place a stop-limit order to sell, it will turn into a regular limit order when the highest bid drops to or below the stop. If you place a stop-limit order to buy, it will turn into a regular limit order when the lowest ask raises to or exceeds the stop. Limit - this is the same thing as the "Price" on a regular buy or sell order. Once your stop-limit order has been triggered by the highest bid or lowest ask reaching your stop price, it turns into a buy or sell order for the price you enter in the limit field. Amount - this is the same as the "Amount" on a regular buy or sell order. It indicates the amount of coins you wish to buy or sell should your stop-limit order be triggered." See: "Poloniex - Crypto Asset Exchange." Poloniex Digital Asset Exchange. Accessed April 18, 2019. https://poloniex.com/support/stopLimitOrders/.
no accountability for whales.\textsuperscript{176} This is a side-effect of massive wealth inequality, which is, in turn, a result of the cryptocurrencies design.

There have been many proposed solutions to the wealth distribution issue. Mining algorithms such as Proof of Stake-Time are one example of how wealth distribution can be tackled at the moment of currency creation; however, such algorithms do not address the distribution of wealth once currency enters the economy. Next chapter we will look at more recent innovations that provide a better solution, but this explanation should suffice for the purposes of introducing the problem.

Identification and Regulation Challenge:

Finally, we have the problem of anonymity. When we highlighted the statistics for gross wealth inequality in Bitcoin, we could only identify wallets, not individuals. This is an intentional design that has been adopted by all cryptocurrencies. Privacy is considered a cornerstone of the crypto-world. To address the issue of piracy the cryptostate introduces layered wallets. There are various categories of economic agents in our contemporary economy, and these agents are entitled to differing degrees of privacy. For example, it could be argued that, as a public servant, a government employee should have a completely public wallet, but these individuals should also be allowed to own private wallets. In the next chapter, we will see how the Cryptostate addresses these challenges, and the many uses for blockchain technology in the governance apparatus.

\textsuperscript{176} One example of price manipulation that made headlines on crypto news sites through 2017 is an entity referred to as “Spoofy”, a spoofing trader or group of traders on the popular cryptocurrency exchange Bitfinex who regularly places large Bitcoin bids, and then quickly cancels them before the price moves too close to their order price. If Bitcoin’s price is falling and traders see a multi-million-dollar order come up at a higher price point, the price will likely go up in reaction to this order. This activity has been well documented by observers, who regularly record 900 to 5,000 BTC orders being placed on Bitfinex and other exchanges and then being cancelled before they are filled. Examples like this are likely why the US Justice Department is currently working with CFTC officials on price manipulation investigations for Bitcoin and Ethereum.” See: Rhode, Trent. "Cryptocurrency Wealth Concentration: Exploring the Problem and Possible Solutions." UNHASHED, July 12, 2018. Accessed April 19, 2019. https://unhashed.com/cryptocurrency-news/cryptocurrency-wealth-concentration-exploring-problem-possible-solutions/.
Chapter VI

*Blockchain Technology in the Cryptostate*

The Cryptostate derives its namesake because of the role blockchain technology plays in the governance framework. The most visible manifestation of this is the State’s cryptocurrency, which forms the basis of both its economy and its citizenry. Cryptocurrency is actually only one of the many cases in which the Cryptostate employs distributed ledger technology. As mentioned last chapter, blockchain technology is essentially just a versatile information storage tool. The major benefits to transitioning to a blockchain based information storage system—over conventional centralized systems—are transparency, verifiability, and security. Voting, legal contracts, petitions, and inter-governmental communication are all examples of other relevant uses for blockchain technology. Now that we have a rudimentary understanding of the basics of
the technology, we can discuss the ramifications of its implementation in the Cryptostate towards the ultimate goal of addressing the problems established in Part I.

In this chapter we will address the characteristics of the cryptocurrency, the design of its monetary ledger, the mechanics of having various wallet tiers (both for money and voting), political and economic enfranchisement via blockchain-based voting systems, communication capabilities across layers governmental jurisdiction, and tools for social organization. The aim of the chapter is to make it abundantly clear what role blockchain technology plays in government, so that next chapter we can discuss the Cryptostate’s numerous other mechanics and institutions.

The Currency

Let us begin with the currency. In designing a cryptocurrency to be used for a State we need to take special consideration of the consequences of each and every feature as the economy scales. Our previous analysis of the flaws plaguing many cryptocurrencies today is invaluable, but most likely not sufficient. The role and function of currency—as well as our economic systems—has changed a lot over human history, so even if we managed to design a flawless currency there is no guarantee it would remain that way. This is why we need to pay particular attention to the reform mechanism.\(^{177}\) The traditional method of altering the blockchain protocol is an informal process. Proposals are submitted by a developers and either adopted or rejected by miners (or anyone that maintains a node). Democratic consensus is achieved by communal negotiations. Developers reach out to the community over internet message boards to hopefully achieve an

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\(^{177}\) If worst comes to worst, the government could always issue a new cryptocurrency to replace the old one, but such a move would require the support of a supermajority of the Cryptostate’s citizenry.
unanimous consensus, but consensus is by no means a necessity.\textsuperscript{178} On-Chain governance (OCG) systems provide a formal system for adopting changes that does require consensus.

Just as with traditional reform mechanisms, a change in an OCG system begins with a proposal from the developers. The proposal is then voted on (via a blockchain voting system) by the various nodes in the network, with each node receiving voting power proportionate to their contribution to overall network traffic. Other implementations of OCG scale voting with the amount of money staked by nodes, or some other metric that incentivizes individuals to support the system. In the Cryptostate a reform mechanism would not need the same incentives as in a non-State cryptocurrency. The OCG reform mechanism would work in tandem with a department of blockchain reform to translate the desires of non-specialists into a proposal that would then be voted on by any user of the currency. Disproportionate electoral power across individuals in a system is antithetical to

\begin{figure}[h]
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\begin{tabular}{|l|}
\hline
\textbf{The Cryptostate Reform Mechanism:} \\
\hline
1. An On-Chain Governance system \\
2. Proposals can be submitted by anyone, official institutions exist to extend this capability to non-specialists. \\
3. Once proposed, each eligible user is entitled to vote on the change at every level of government. \\
4. If passed at the global level, the reform is adopted.
\hline
\end{tabular}
\caption{Description of the properties of the Cryptostate’s reform mechanism.}
\end{figure}

\textsuperscript{178} “Critics of the system claim that this form of informal governance is, in fact, centralized among miners and developers. They point to two prominent forks in the cryptocurrency ecosystem as proof. The first one is a split of the original ethereum blockchain into ethereum classic and ethereum in 2016. That split occurred despite another soft-fork proposal which would have been easier to implement but would have resulted in a loss for investors affected by a hack in the cryptocurrency’s blockchain. According to news reports, a majority of the ethereum community was in favor of a soft fork, but its core group of developers was swayed by investor opinion and implemented a hard fork. Some claim that this is a contravention of the widely-held “Code is Law” principle in which the governing parameters for a software are laid down in the original code. The second example provided as proof that current governance systems are broken are the series of events that led to the emergence of bitcoin cash in 2017. During that fork, a proposal to increase the average block size in bitcoin's blockchain was rejected by the cryptocurrency’s core development team. They rejected the change, despite the fact that high transaction fees made bitcoin’s use as a medium for daily transactions unsustainable. The only constituency that benefited from high transaction fees were miners. In the end, a renegade group of developers and miners moved away to create their own cryptocurrency with variable block size.” See: Frankenfield, Jake. “On-Chain Governance.” Investopedia, Investopedia, 12 Mar. 2019, Accessed April 20, 2019. www.investopedia.com/terms/o/onchain-governance.asp.
democratic practices and should be avoided at all costs. The Reform Mechanism is perhaps the most important characteristic of any cryptocurrency, as it offers a solution for any potential design flaws or scaling issues. The only characteristic that could rival the reform mechanism in terms of importance is the mining mechanism.

The mining mechanism of the Cryptostate needs to account for the environmental, equity, and scalability issues discussed last chapter. To refresh, mining serves two important functions in a cryptocurrency: to introduce currency into the economy, and to verify that the transactions made in an economy are legitimate. The rate at which currency is introduced into the economy is set by the currencies’ protocol (and can be altered as needed by the reform mechanism) but the act of introducing the currency still requires miners (or ‘stakers’ or any equivalent). Verifying the integrity of all transactions is essential to the maintaining the integrity of the economy of a Cryptostate and miners need to be compensated for their service. One solution is to give miners special voting privileges; however, we have already discarded that option as it sacrifices democratic integrity. The next—and most obvious—option is to give the miners a monetary reward for their service. In traditional cryptocurrencies, block rewards are how new currency enter the system but this causes serious wealth distribution challenges. VeriCoin’s PoS-T mechanism limits the degree of this inequality slightly but is still far from adequate. This would especially be a problem considering that in modern economies, government spending is what creates money. In the Cryptostate, the supply of currency is tied to government spending not mining, but miners still serve a very important role in verifying transactions. Thus miners could receive a block reward for each verified block, but the reward would only comprise of a percentage of the total currency created by the mining of the block. The rest of the currency would be deposited into a government account to be distributed throughout the population.
Another option would be to replace a mining algorithm with a Direct Acyclic Graph (DAG) algorithm. DAG’s essentially turn every user into a miner responsible for verifying their own transactions.¹⁷⁹ DAG’s are a relatively new concept in the realm of cryptocurrencies but have been successfully implemented by coins such as IOTA.¹⁸⁰ We should note that DAG is not a

¹⁷⁹ "This method of reaching consensus allows multiple transactions to be verified simultaneously. This is simpler and more flexible than the classic blockchain technique of bundling transactions into blocks that can only be validated in a rigid, linear way, one block at a time." For an introductory explanation see: Thake, Max. "What Is DAG Distributed Ledger Technology?" Medium. November 09, 2018. Accessed April 20, 2019. https://medium.com/nakamo-to/what-is-dag-distributed-ledger-technology-8b182a858e19.

blockchain algorithm (it is still an example of a distributed ledger technology) but it is frequently used to aid Blockchain technology. Using a DAG algorithm in the Cryptostate would solve the issue of mining centralization, environmental impact, and scalability; however, DAG requires far less verification than blockchain based mining systems. Some cite this as a positive, as it allows for more transactions per second and is less taxing on each node in the network, but the clear downside is that most nodes do not verify the overall network. Transparency and security are two pillars of blockchain technology and unfortunately DAG sacrifices security.

An ideal solution would be a marriage between the speed and scalability of DAG with the security of traditional protocols. This solution can be found in Bexam: a blockchain/DAG

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181 “A DAG works in depth. This means that every node consists of multiple layers of transactions. When a transaction is registered in a node, it first has to verify two other transactions before his transaction will be verified. Those two transactions are chosen according to an algorithm. The node has to check if the two transactions are not conflicting. For a node to issue a valid transaction, it must solve a cryptographic puzzle similar to those in the Bitcoin network (Proof of Work). Just two verifications are needed to verify a transaction. This gives the benefit of a drastic decrease in unnecessary verification.” [https://medium.com/coinmonks/dag-will-overcome-blockchain-problems-dag-vs-blockchain-9ca302651122](https://medium.com/coinmonks/dag-will-overcome-blockchain-problems-dag-vs-blockchain-9ca302651122)
hybrid, which pioneered the Proof-of-Round [PoR] mechanism. PoR introduces various tiers of nodes, each with different functions, similar to the separation of powers principle in politics.

Another benefit to using a Proof-of-Round mechanism would be that it returns the power of currency creation to the government. Unlike in bitcoin, the hierarchical node structure in PoR is a separated process from the currency output. In order to maintain a node in PoR you need to stake a certain amount of a specific token, but this token has no bearing on the manner of distribution. In the Cryptostate’s PoR mining system of a certain amount of currency would be randomly distributed to users supporting nodes, a random amount would be distributed to all users of the network and the rest of the currency would go to a government wallet, from which it would be distributed to various wallets or organizations determined by the political apparatus.

In places like the U.S, right now currency is introduced into the economy in two ways: direct government payments to individuals (i.e welfare, contracts, etc.) or by funneling money into the banking system who then lend it to the public. The system in the Cryptostate would be almost identical to our existing system, except that all transactions would be on a distributed ledger and individual control over wealth would removed the need for a banking industry. To summarize, the Cryptostate will have a On-Chain Governance Reform Mechanism and a Blockchain/DAG hybrid Proof-of-Round mining mechanism. This combines the security and

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183 One of the rallying cries of the Bitcoin community was that it would make the Banking sector obsolete; however, many bitcoin advocates ignored the fact that bitcoin does not provide an alternative to a critical role that the banking industry plays in the modern economy: appropriating funds to various sectors of the economy. This problem would be addressed in the Cryptostate by creating a State apparatus. Removing the profit incentive from banking would also prevent the kind of unnecessary risk that caused the 2008 financial crisis.
transparency of the blockchain with direct democracy and government control of the economy. Now that we have addressed two of the most important characteristics of the currency we delegate any deliberation on more trivial matters—such as the currency supply rate and 2nd layer protocols—to the various communities themselves. Of course, currency design is a very abstract idea. A more tangible manifestation of blockchain technology for individuals within the Cryptostate can be seen in the Passport.

The Passport

The Passport is a hub for all wallets an individual has access to. The Passport is a device that stores and displays all political, economic, and social wallets that a given individual is allowed to interact with. The goal of the Passport is to lower the barrier required for citizens to interact with various blockchains, and to make the all wallets more accessible. A contemporary equivalent

<table>
<thead>
<tr>
<th><strong>In PoR: (and other Blockchain/DAG hybrid mechanisms)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Token X is required in order to run a Master Node or Super Node. There is no mining so there is no ‘block reward.’ Instead the reward is that anyone who runs a Master/Super node can have support more transactions (so any group that has a lot of users would need a higher tier node)</td>
</tr>
<tr>
<td>The distribution of Token X is distributed based on a “Distribution Protocol” which can be altered by popular consensus.</td>
</tr>
<tr>
<td>The creation of currency is independent from the maintenance of the network. This reduces the influence of miners, and gives wealth creation and distribution power back to the government.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>In PoW/Pos: (and other traditional mining mechanisms)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Token X is the token awarded as a ‘block reward’ in exchange for miners supporting the integrity of the system.</td>
</tr>
<tr>
<td>Miners then spend Token X into the supply of the economy.</td>
</tr>
<tr>
<td>This means that the miner has tremendous economic power.</td>
</tr>
<tr>
<td>It also makes it difficult to redistribute currency.</td>
</tr>
</tbody>
</table>

Figure 12: The difference between traditional Proof-of-Work or Stake algorithms with the Proof-of-Round algorithm.
would be to say that the Passport would be a smartphone if wallets were individual apps. The institution responsible for manufacturing and distributing the Passport is the Wallet Issuance Authority.¹⁸⁴

A Visual Aid:

Figure 13.1 is an example of how an organization is currently attempting to implement blockchain voting systems. The specific details of the voting system are not as important (at this stage) as the fact that blockchain voting is already under development. 13.1 also provides a description of two central elements of the Passport of the Cryptostate: identity authentication and electoral enfranchisement.

Figures 13.2, and 13.3 demonstrate what a Passport or Wallet would look like in a Cryptostate. Figure 13.2 gives
examples of other decisions that could be made using blockchain as well as certain economic activities that citizens would be able to participate in. Figure 13.3 provides a contemporary analogy to help parse technical jargon. The Passport could—but by not means must—be a hardware device similar to the iPhone that would have various 2nd layer protocols which would allow them to participate in civic life.

Money Wallets

In creating a government such as the Cryptostate it is essential to maintain a large degree of transparency and accountability for individuals in positions of power. This is partially to make it easier to catch corruption but also to adhere to the adage: with great power—power being money—comes great responsibility. Regardless of whether a billionaire wishes to spend his fortune supporting the growth of ballet or terrorism, the public is entitled to know. This is why the Cryptostate will have various wallet tiers. As previously mentioned, a wallet is a virtual program through which an individual can interact with the economy. The wallet has an identity associated with it in order to make its interactions on the blockchain unique.

Different cryptocurrencies have taken different approaches to how anonymous the users identity need be kept but they all generally do not require the users to submit their identity in order to receive a wallet. This will be fundamentally different in the Cryptostate, because the wallet will serve as a vehicle of connection between an individual and the State. In the Cryptostate all prospective citizens will be required to provide various means of identity in order to be issued a wallet. The primary concern that is raised by this is that of privacy. There will be various tiers of privacy afforded to individuals in the Cryptostate—to be elaborated on shortly—but the layperson’s identity will not be publicly available on the blockchain. Instead, all
information gathered at the wallet issuance stage will be encrypted and stored on a separate
decentralized wallet blockchain which can be accessed as necessitated by law enforcement
officials with a warrant from the judiciary. Outside this occasional secession of privacy, the
layperson will have a pseudo-anonymous wallet ID similar to those present in existing
cryptocurrencies. However, Government officials, non-human actors, and transactions above a
certain threshold will be automatically de-anonymized by the wallet protocol.

Government Officials

Government officials are the cornerstone of any State, and their ethical behavior is the
primary defense against the degradation of State institutions through corruption. Because most
government positions are elected, individuals will be issued a separate Government Wallet upon
assuming their posts, and this wallet will be suspended once they vacate their post. No
government official will be provided the privacy that private citizens are entitled to exactly
because of this. They will still have a private wallet with a private ID, but on the public
Blockchain their identities will be synonymous with their government position, and a public list
of all government employees as well as their associated wallets will be accessible at all times.

Corporations and Non-Human Actors:

In the Cryptostate, all non-human actors will have publicly identifiable wallets. The right
to privacy will not extend to legal non-human actors such as NGO’s, government agencies,
religious or cultural organizations, charities, and especially corporations. This is for the same
reason that all these special classes are denied the right to privacy, to ensure moral and legal
accountability.
Economic Behemoths:

Individuals in the top 15% of the economy and individuals who make private transactions above 0.001% of the total value of the economy will have such transactions publicized. This proposal may sound terrifying to anyone in that demographic but the sheer fact that so much wealth could be in the hands of a single person sounds terrifying to everyone outside that demographic. To provide some perspective in 2007, the top 20% wealthiest US citizens owned 80% of all financial assets. Similarly, anyone making transactions that are 0.001% of the total value of the economy—roughly $1.94 million USD in 2018—needs to be held accountable for such actions.

Some may worry that exposing wealth in such a manner incentivizes potentially life-threatening hijacking; however, an open and transparent economy such as that of the Cryptostate completely nullifies that threat. If any amount of currency is extorted, then those responsible can be tracked, arrested, and the wealth re-appropriated: we need only follow the money. In addition to this we must consider the incentives behind actions such as robbery and hijacking: destitution. Although exceptions certainly exist, an overwhelming majority of crime is motivated, either directly or indirectly, by poverty. Transition

The level of transparency in the Blockchain would also go a long way towards stopping the most damaging crimes in our society. These are truly heinous crimes motivated out of greed rather than desperation. They do not have one victim, but many. They are gross abuses of power from people in positions of authority. In 2016, the FBI reported that the annual cost of such crimes—commonly referred to as white collar crimes—was over $500 billion, which far outweighed the estimated $15 billion lost in personal property crimes. If the government is held to a standard of ethics due to their position of power, then the private sphere should too.
Voting Wallets

In addition to the money wallets, citizens—not non-human agents—are given voting wallets. These wallets come with pre-built smart contracts to facilitate various voting methods and allow for an efficient direct democracy. Importantly, the voting wallets will remain anonymous for all individuals. Minors—the definition of which is to be determined by democratic consensus—will only receive voting tokens for issues that concern minors. Various voting wallets will be issued to citizens to represent any impending votes, and these wallets will be discarded following the vote (provided they are not a Continuous Polling Scheme). Both economic and political decisions will use voting wallets and the wallet for every vote that a citizen is eligible for will be displayed on their Passport; however, no voting is mandatory.

Democratic Participation

One of the key differences between Nation-States as they exist today and the Cryptostate is that the Cryptostate democratizes the economy. This means that citizens of the cryptostate are given a direct voice in both fiscal and monetary policy decisions. As established in chapter 3, currently in democratic Nation-States monetary policy is governed by the Central Bank of a nation while fiscal policy is debated by parliament, the senate, or some other democratically elected body. Both of these are powerful tools to manipulate the economy of the State and the decisions made by individuals in these positions affect every single person in the economy. As was also established in chapter 3, most people currently in such positions have no idea what is good for the economy, and the conflict of interest that arises from putting bankers in charge of policy at a central bank is simply absurd. In the Cryptostate both fiscal and monetary policy issues will be determined by vote; however, because geographically isolated regions have different
requirements, regional governments will have the power to petition to increase local money supply to meet growth demand. These petitions will be addressed by the Council of Economic Chancellors before being nominated for consideration in a democratic vote.

The nature of voting for economic policy in the Cryptostate will adhere to the same philosophy of political voting: the all affected interests principle. If an individual believes they are affected by a potential decision they will be able to vote via their wallet; however, they are not required to vote if they feel no need. The manner in which issues are raised to a vote functions similarly, with individual citizens submitting petitions for consideration to their various local councils, which in turn have the right to nominate it to a local vote, and if they determine the issue affects a greater community then they can extend the petition to their respective regional assembly, who in turn have the power to either push it to a vote, extend the petition to the next tier of government, or if they determine it to be a local decision, then resubmit it to the council to vote. This manner of bottom-up voting ensures that any decision enacted by a large population has the consent of various tiers of local government. In addition to this, the Council of Economic Chancellors have the ability to issue policy votes in the situation that rapid action is necessary, and in extremely urgent situations they may—through unanimous consensus—enact policy changes for 3 months, an act that is immediately followed by an election to replace the Chancellors. There are of course, certain facets of the currency, the Hard Properties described in chapter 4, that cannot be changed by policy decision.

Continuous Polling Schemes

Many issues that monetary and fiscal policy address are not conducive to one-time votes and instead require continuous consent. In the Cryptostate these decisions are called Continuous
Polling Schemes (CPS) and function similarly to single votes except that each citizen receives two tokens for each scheme, of which they can send one to the address of the decision they agree with, with the second token as a backup in case they wish to change their decision at a later date. If they should choose to change their decision then they need only send the second token to their updated choice, and the first token is returned to their wallet via a smart contract. This added flexibility allows certain key issues to remain in constant deliberation, and would be particularly useful on the highest level of government where there is the largest possibility of a disconnect between the will of the people and the policy decision enacted. Two integral issues that would benefit greatly from the CPS are Wealth Redistribution Protocols, Rate of Currency Supply.

Dynamic Geographic Governance

Another unique facet of the Cryptostate is the Dynamic Geographic Governance [DGG] system. As discussed briefly in Chapter IV, the DGG takes the approximate location of an individual recorded on their passport, and assigns a political jurisdiction to that individual based on that individual’s proximity to other citizens. This geographic requirement ensures that a citizen residing in Paris cannot vote on issues concerning a citizen in Moscow. The DGG algorithm periodically checks the location of the individual and assigns them to a specific community (the lowest level of government that consists of approximately 80 individuals). Each community is then assigned to a county, which are a part of a province, etc. until eventually the entirety of the Cryptostate is accounted for. If a citizen moves to another location, or if an influx of immigrants enter the citizens location, then the DGG re-evaluates its designation. The reason that the DGG limits its jurisdictional assignment to the lowest level of government is because the conflict resolution framework of the Cryptostate begins at the lowest level, only being elevated as required. If a dispute cannot be solved at the local level, or if it impacts multiple communities,
then suffrage is expanded to encompass the next level of government. Finally, we arrive at the question of pragmatism. In the next chapter we will conclude our line of inquiry by examining how we can take the Cryptostate from an idea to a reality.
We now arrive at the question of pragmatism. Sure, there are problems with our governance structures, and sure, the Cryptostate might be able to address many of these issues, but how do we go from here to there? There are many ways to get from point A to B. A lot will vary depending on where we start, but the process can generally be divided into phases that apply to all cases. The Cryptostate will bypass the Nation-State framework, but to begin we need a host State. Because the Cryptostate is a relatively sophisticated governance framework, a lot of the early steps can only be achieved by a State in which citizens have abundant access to energy and the internet.
Implementing the Cryptostate

The first step is for a host State to transition from FIAT currency to a cryptocurrency. This is a relatively minor but essential step in the process, because it will give the entire planet exposure to cryptocurrencies. Ideally, a host government would dedicate ample resources to educating its citizenry (and if possible the global population) on the mechanics, benefits, and challenges of distributed ledger technology—as I have spent this thesis attempting to do. Once the host-State believes that its citizenry has adjusted to the currency transition, it must then make another radical shift: expand its definition of citizenry to include all members of its economy.

The key to succeeding in executing such a move is to offer citizenship to individual people, not fellow States or multinational corporations. As individual citizens we lack enfranchisement, and are far more likely to recognize the potential benefits offered by the Cryptostate. Individuals can be incorporated into the Cryptostate by the Wallet Issuance Authority, and it should not be too challenging for them to acclimate to their new status as a citizen provided they understand the fundamentals of the philosophy behind the Cryptostate. During these early phases of creation, individuals need to take the initiative and govern themselves—maintaining only the thinnest veneer of loyalty to the host State so as not to arouse hostility from other States.

To successfully manage this transition, we need to leverage the network affect (i.e., the bigger the Cryptostate becomes, the more successful it can be). The first step is to ensure that the cryptocurrency at the heart of the cryptostate is exclusively used as legal tender. This would mean that all existing corporations, goods, and services in the host State would be using the blockchain. For the sake of brevity let us refer to this currency as the Crypto-Dollar (CD). Then, the host State can offer a Passport to any individual that holds any CD. These Passports will have
multiple tiers depending on who, or what, is using them (so for example, Foreign nations using
the CD as a reserve currency would get an identifiable wallet to except them from wealth
transfers). This would create a visualizable map of all CD around the world.

Next, the host State needs to begin to transform its internal structures into those
described in *Mechanisms and Institutions in the Cryptostate*. If the host State already has a federal
structure, then the shift to an even more decentralized structure would be easier. The successful
implementation of these institutions is very important for showcasing the appeal of the
Cryptostate to the rest of the world. The host State needs to advertise the benefits of its
decentralized governance framework, because it serve a dual function as an argument for why the
Cryptostate can function on a global scale.

An emphasis should be placed on the anti-tyranny mechanisms, and the direct
democratic mechanisms. Additionally, it is worth mentioning high autonomy for geographic
communities, extensive wealth redistribution mechanisms, protection of individual liberties,
participation in the democratic process, and the benefits of Blockchain technology: security and
transparency (the different Wallet tiers from private individuals, public servants, corporations,
and other organizations each with a various degree of privacy on the public ledger, etc). Some of
these liberties are already enjoyed in certain parts of the world, but the Cryptostate would seem
like an enticing prospect to those with corrupt, non-transparent governments. At this stage,
citizens and corporations have been introduced into the Cryptostate. The new Crypto-Dollar will
either slowly proliferate across the world, or the government has reached the boundaries of those
truly affected by its actions.
Policy Prescriptions

While the focus for any host State should be on transitioning to the Cryptostate, it would have a much easier time doing so should it adopt certain policy prescriptions to ease any potential turmoil created during the transition phase. These prescriptions are primarily targeted at providing stability for the working class, reforming certain aspects of civic culture, or laying the foundations for the success of the institutions introduced after the transition.

Wealth Distribution Protocols:

Wealth Distribution is a necessary aspect of any modern society, and its primary function is to appease a societal desire for equity. Thus, it is imperative that any wealth distribution paradigm have the consistent support of the majority of the population. Because the Cryptostate features a high degree of local autonomy, wealth redistribution programs can be divided into tiers for their respective jurisdictions. At the global level the protocol could be very minimalist, only guaranteeing basic necessities such as food, shelter, communication, and education. Then, on the Continental level citizens can choose to implement further programs. These could be further expanded on—if desired—on the Regional, and then Provincial levels. This flexibility is characteristic of the Cryptostate’s governance style, and should appease those who have a strong disdain for wealth redistribution (as they can hope to maintain some control over their jurisdiction).

Social Programs: & the Job Guarantee:

In the age of automation meaningful work is becoming a scarcity, and this trend will only continue as the link between labor and productivity is severed. Yet, meaningful employment is an important part of many peoples lives. There are those of us capable of not working a day in our
lives, but there are also many who relish the meaning gleaned from a profession. A job is not only an economic activity, for many it serves a social function. In order to accommodate such individuals, the Cryptostate could implement a Job Guarantee program. The government would not necessarily employ citizens directly, rather they would offer for education, training, and apprenticeships in sectors of the labor market that is underperforming. This would function as a buffer-stock for unemployment, and as a monetary tool to address market shock for the government. The Job Guarantee would ideally be accompanied by an amalgam of social programs aimed at alleviating material poverty.

**Government & Education Salaries:**

One of the most important roles in the Cryptostate is that of government officials. It is imperative that civil servants receive a considerable salary in exchange for their invaluable service. This is especially important to prevent any incentive for corruption, and to encourage citizens to view civil service as a lucrative career. The potential prestige and earnings of a career path has direct ramifications on children or teenagers as they enter the workforce, and in our current system many important jobs—namely that of educators—are neglected both with regards to prestige, and monetary compensation. Once the Cryptostate is created, public servants and educators will be integral to the day to day functioning of society. Thus, it would be very beneficial for the host State to begin a shift towards prioritizing relevant professions while in the process of creating the Cryptostate.

**A Hope for our Future**

At heart I am a humanist and I believe that there is no compelling argument justifying the undemocratic, exploitative state of our current institutions. All the issues faced by laypeople due
to structural deficiencies with the Nation-State, the International-State, and our global economy, are addressed in the Cryptostate. Rampant wealth inequality facilitated by the global accumulation of capital is addressed by wealth redistribution protocols. A lack of a voice in economic policy is addressed by the distributed ledger technology at the heart of the Cryptostate’s economic system, and the incredibly democratic structure of its government institutions. The loss of well paying to the forces of automation and globalization are directly addressed by the Job Guarantee, and extensive social programs. The Cryptostate’s framework is designed to be flexible. Its governance structure can be adjusted to accommodate a population of a small country—such as my native Bangladesh—or it could become a global federation. A State must assume responsibility for all those affected by its actions, and in today’s world, such a state would inevitable consist of large parts of the world. In an ideal world, a government modeled on the Cryptostate would come to span the entire planet, as our current system benefits few outside specific interest groups that can leverage the fractured nature of present international landscape. The Cryptostate offers a new path to utopia. Never before in human history has it been technologically feasible to create an entity capable of addressing these issues but in this thesis, we have shown that not only can such a state exist, but that in the face of our ongoing technological and global revolution, it must.
Appendices

A. The Westphalian Myth

The Peace of Westphalia is considered by many—especially in the field of International Relations—to have established a set of principles that lay the foundations for our contemporary International System. The idea that a concrete system had governed relationships between European states since the 17th century rose to prominence following the First World War, alongside the academic discipline of International Relations. While some academics maintain that such a system continues to underpin international relations today, modern scholarship has cast doubt on the historicity of such a system. As Andreas Oslander convincingly argued in Sovereignty, International Relations, and the Westphalian Myth, “Westphalia”— shorthand for a narrative purportedly about the seventeenth century—is really a product of the nineteenth—and

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The twentieth-century fixation on the concept of sovereignty.” The reductionist historical origin of the Westphalian System naturally raises concern over its legitimacy as a theoretical framework, both when applied to modern times as well as the nineteenth century. In this appendix I will use the actors and events surrounding the Crimean War as an example of the clear limitations of the Westphalian System even in a contemporaneous context. In doing so I will distinguish between the Westphalian System as an ideal, and as a practice. An argument for the existence of the Westphalian System can be made purely by citing the beliefs of statesmen and philosophers of the period. When arguing that the Westphalian System had a very limited impact, I will be referring to the adoption and application of Westphalian principles in practice.

The Westphalian Ideal

The Peace of Westphalia (1648), apart from being a namesake, had very little in common with the Westphalian Ideal. Outside of territorial exchanges and the outlaw of privateering, the Peace of Westphalia exclusively addressed issues within the Holy Roman Empire. Any mention of sovereignty was largely made with regard to the princes in relation to the Emperor, specifically over the guarantee of religious freedom (but only for three branches of Christianity: Catholicism, Lutheranism, and Calvinism). In contrast, the fundamental principles in the Westphalian Ideal were sovereignty, self-determination, non-intervention, and the legal equality of states. To elaborate, the government of a state was completely autonomous, and not subject to any other political entity. Each state had the right to deal with internal matters without forced interference.

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from a foreign state. Every state, no matter how large or small, had the same degree of sovereignty in the eyes of the international system.

The ideals manifest in the Westphalian System didn’t develop until almost a century after the Peace of Westphalia. As Oslander mentions, “the concept of sovereignty itself was honed and given its present key role (both interpretive and normative) by the great nineteenth- and twentieth-century international lawyers.”188 Despite this, the roots of Westphalian Ideals of non-intervention and equal sovereignty rose to prevalence in the eighteenth century, after Emir de Vattel published *The Law of Nations* which stated, “Every nation that governs itself, under what form soever, without dependence on any foreign power, is a sovereign state. Its rights are naturally the same as those of any other state.”189

The principle of inter-state cooperation was also fostered after the Napoleonic Wars by the Congress System. Born out of the Congress of Vienna in 1814, the Congress System was created to allow the great powers of Europe to address grievances without resorting to war, and to create a balance of powers that would deter further conflict.190 The members of each Congress were respected as sovereign and considered equal on a global stage. However, autonomy over the internal affairs of member states was enforced by conservative leaders because they “regarded the European alliance as the most powerful weapon in his [Metternich’s] arsenal for defeating the revolutionaries.”191 For around ten years, the Congress system gave the

188 Osander, 281


191 Ibid., 357
great powers involved a limited taste of the Westphalian Ideal; however, due to increasing economic competition and differing political philosophies among its members, this ‘Concert of Europe’ was abandoned by 1823.

Another contributing factor to the development of the Westphalian Ideal was the rising tide of nationalism. Writing in the 1700’s, Vattel defined a State as a “body politic, societies of men united together for the purpose of promoting their mutual safety and advantaged by their combined strength.” There was no mention of language, ethnicity, or religion in his definition yet, by the nineteenth century the idea of ethnicity as a basis of nations had already dug its roots in the minds of intellectuals and revolutionaries. Throughout the nineteenth century separatist movements plagued the multi-ethnic Hapsburg and Ottoman Empires, while revolutionaries made constant efforts to unite the fractured regions of Germany and Italy. The Ottoman Empire was especially hindered by separatist movements in the Balkans, as their failure in suppressing the Greek revolt of 1821 exposed their weakened state to the rest of Europe.

The Prelude to War

The Crimean War was one of the few nineteenth century conflicts among European powers; however, in describing the climate leading up to the war one may notice a distinct lack of anything ‘Westphalian’ in the interactions between polities. The two-year-long conflict pitted the Russian Empire against the Ottomans, French, and British, and culminated in a underwhelming peace that managed to leave all parties discontented. The conflict further weakened the Ottoman Empire, which had been in decline since the seventeenth century. By the nineteenth

192 Vattel, 67

193 Hugh Small, The Crimean War: Europe’s Conflict with Russia (Stroud, UK: The History Press)

194 Ibid.,
century the pitiful state of Ottoman power had become common knowledge among the States of Europe, and raised serious concern over the balance of power in the region. Under the pretext of protecting Orthodox minorities, the Russian Tsar issued an ultimatum to the Sultan that “would strengthen Russia’s right to occupy Turkish territory almost at will.”\footnote{Ibid.,} This was a demand for extraterritoriality, and in violation of the principle of sovereignty aspired to in the Westphalian System, but was symptomatic of European imperialism. In fact, the French Empire had recently asserted themselves on the Ottoman Empire over the same issue, and the Russian ultimatum was a response to the French imposition. Thus, even before the outbreak of war, the Turks found their sovereignty undermined by two separate Empires. The demand to cede sovereignty over a minority population within an Empire also violated the principle of legal equality between states, as well as the principle of non-intervention. In short, there is ample evidence that the Westphalian System was nonexistent in relations leading up to the Crimean War. This observation can be extended further to include the practice of establishing European colonial empires. Imperial expansion, whether through indirect economic or direct militaristic means, inherently disregarded every tenant of the Westphalian System. Such an observation would be predicated on the notion that Imperial powers recognized the sovereignty of the present political entities preceding their Colonial acquisitions, which was certainly not always the case but of which there is still ample evidence.\footnote{Cassel, Par Kristoffer. Grounds of Judgment: Extraterritoriality and Imperial Power in Nineteenth-century China and Japan. Oxford: Oxford University Press, 2012. 182} This discrepancy could be addressed by adding an addition principle to the Westphalian Ideal; the ethnic makeup of a Sovereign state needs to be primarily Caucasian (even then events such as the Great Hunger in Ireland would strain that definition).
In 1853, the Ottoman Turks found themselves stuck between the French, who wholeheartedly intended to maintain the privileges that they had recently received, and the Russians, who believed the Sultan had actively sought to undermine their influence. This dispute between France and Russia over the right to Christian minorities in the Ottoman Empire garnered international attention. Despite being a member of the Tsar’s Holy Alliance, the Austrian Empire was weary of Russian expansion in the Balkans and refused to support their ally in Moscow. Despite this, they did invade and occupy Ottoman territories on the Hungarian border, largely to prevent the Russians from establishing a presence in the region. The British were initially neutral on the issue; but, forced by public opinion, found themselves nudged into supporting the Ottomans. British backing of the Ottomans was not inspired by some moral stance in support of Westphalian sovereignty. The conservative leadership in Britain viewed the entire debacle as a product of Turkish miscalculation; however, at the outbreak of war public opinion was rife with anti-Russian sentiment. A series of military miscommunications culminated in a disastrous Ottoman naval defeat in the Black Sea during which “British Newspapers called Sinope [the battle] a ‘massacre’ and pilloried the government for having sent the [British] fleet to Constantinople without instructions to intervene.”\textsuperscript{197} Alas, due to factors contrary to the spirit of ‘Westphalia’, by 1854 both Britain and France found themselves at war with Russia.

The War and its Aftermath

The events of the war itself do not pertain to the Westphalian System in any way, but a brief summary will help contextualize the resulting Treaty of Paris (1856). If there was one word to characterize the Crimean War it would be shambolic. The deadliest enemy in the war was

\textsuperscript{197} Hugh.,
disease, claiming over half the casualties (around 350,000 for the Russians alone)\textsuperscript{198} on both sides. The war was slow and indecisive, with both parties failing to make inroads toward anything resembling a victory. To make matters more complicated, the Ottomans, French, and British all had different war goals. In the case of France and Britain, even different factions within the government had different war goals. All parties wanted to eliminate the Russian military presence in the Black Sea. The Austrians and British wanted to open the Danube region to free trade. Finally, the Turkish and British wanted to liberate Crimea and the Caucasus from Russian suzerainty. A major breakthrough for the Allies came in 1855, when the French captured the strategic city of Sebastopol. Following the victory, the British wanted to press on and liberate all of Crimea but the French refused to expand their war goals, as they had already suffered far greater casualties, and desired peace.

After some shrewd diplomatic maneuvering, Emperor Napoleon III managed to convinced Prussia and Sweden of potentially joining the war. The Russian Tsar reluctantly accepted the French demand for peace to avoid a catastrophic multi-front invasion.\textsuperscript{199} At this stage the allied powers were divided into two camps; the British and the Ottomans, who wanted to extract as many concessions out of the Russians as possible, and the French and Austrians, who prioritized ending the hostilities with much more lenient terms. The factional divide was significant enough for the British Representative “to meet the Emperor [Napoleon] alone and tell him that if he let Britain down on the Black Sea issue, [demilitarization] and accepted terms the


\textsuperscript{199}Hugh,
Allies had agreed to reject in Spring, Palmerston [British Prime Minister] would have to reveal in England that France had broken their agreement and he might have to continue the war.”

To further complicate matters the Russian delegation, believing that the state of the war was in their favor, “knew that [Russia] could give a sharp check to British demands even before the negotiations began.” The likelihood of any successful compromise seemed slim; however, against the odds, by March of 1856 all parties had acquiesced to terms. The resulting Treaty of Paris had several points worth analyzing with the Westphalian Ideal in mind. The first of these is Article IX.

[H]is Imperial Majesty the Sultan having, in his constant solicitude for the welfare of his subjects, issued a Firman, which, while ameliorating their condition without distinction of Religion or of Race, records his generous intentions towards the Christian population of his Empire, and wishing to give a further proof of his sentiments in that respect, has resolved to communicate to the Contracting Parties the said Firman, emanating spontaneously from his Sovereign will.

The Contracting Powers recognize the high value of this communication. It is clearly understood that it cannot, in any case, give to the said Powers the right to interfere, either collectively or separately, in the relations of His Majesty the Sultan with his subjects, nor in the Internal Administration of his Empire.

In this article it appears that the Ottoman Sultan is recognized as a sovereign and, in an embracement of Westphalian ideals, it is asserted that the Sultan’s relations with his subjects is not to be interfered with by foreign powers. However, as mentioned previously, in reality this assertion was as realistic as the opening article in the treaty which supposedly guaranteed peace for all parties “as well as between their heirs and successors, their respective dominions and

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200 Ibid,


subjects, in perpetuity.” The treaty also announced that for the first time, the Ottoman Empire would be “admitted to participate in the advantages of the Public Law and System (Concert) of Europe.” With the hindsight of history we know that the Congress system was already past its prime; however, the inclusion of Turkey in the congress is still symbolically significant. Members of the Concert of Europe were recognized as equals which meant that the Imperialist powers of Europe had a legal obligation to “respect the Independence and the Territorial Integrity of the Ottoman Empire.” Somewhat paradoxically, later articles in the treaty directly undermine their territorial integrity. One such example is article twenty-eight: “If the Internal tranquillity of the [Vassal] Principalities should be menaced or compromised, the Sublime Porte shall come to an understanding with the other Contracting Powers in regard to the measures to be taken for maintaining or re-establishing legal order.” If a Westphalian System were truly used to guide great power relations then it appears that a contradiction, between this article and the earlier guarantee of territorial integrity, was overlooked by all parties. The autonomy provided to certain Ottoman domains, by articles such as twenty-eight, made the ‘sick man of Europe’ even more susceptible to nationalist revolts and accelerated their decline. In fact, it was nationalism in these pseudo-autonomous regions that would trigger the Russo-Turkish War at the tail end of the century.

Another critique of the treaty is that its significance is undermined by events later in the nineteenth century. For example, the equal status provided to the Turks through the Treaty of Paris was blatantly disregarded during the Constantinople Conference (1876). Despite being held

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203 Ibid, Article I
204 Ibid, Article VII
205 Ibid, Article VII
206 Ibid, Article XXVIII
in the Ottoman Capital, the Sultan’s representatives were not allowed to participate during the
drafting sessions of the final agreement. Additionally, when the Russian Empire invaded the
Ottoman Empire in 1877, neither Britain nor France delivered on their guarantees to protect
Ottoman territorial integrity.

While certain elements of the Westphalian System were certainly present throughout the
nineteenth century, the system was far from a norm. As the example of the Ottoman Empire
shows, even if a power enjoyed certain Westphalian privileges through the congress system, it
could find its ‘rights’ stripped at any moment. At the end of the day, power politics and
pragmatism won over any romantic notions of sovereignty. Fundamental principles of the
Westphalian System were casually disregarded from the start of the Crimean War all the way
through its end. It can be concluded that the Westphalian System was born out of historical
revisionism, and only managed to accurately describe the patterns governing relations between
nations in very selective cases during the nineteenth century. To draw an analogy, the claim that
transnational relations during the century were governed by a Westphalian System would be akin
to claiming that the Ancient Athenian society was democratic. Technically correct, but only if the
rights of Athenian men are only ones considered. Even today, the degree to which Westphalia
presents an accurate picture of International Relations is a highly contested subject. Yet,
somehow this fantasy phenomenon continues to play an important role in the IR discipline, as
well as in the minds of the general public.

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B. Productivity and the Person

The surprise victory of United States President, Donald Trump, during the 2016 Presidential Election was attributed to many factors, chief among which was his ‘support’ of working class Americans. During his election campaign Trump was highly critical of the increasing unemployment rate, especially among factory workers, and made ambitious promises to reverse what appeared to be a dire trend. Since entering office, Trump has made serious efforts to fulfill his promises via a slew of executive orders and incentive programs; however, most of his efforts have been directed at reducing the rate at which U.S based corporations outsource their labour.\textsuperscript{208, 209} The U.S Government has made it clear that they view the increasing


\textsuperscript{209} “Trade is one of Strimbu’s big issues and it’s an area where he says Republicans and Democrats deserve equal blame. Half the trucks he buys now are produced in Mexico. He has seen China ‘destroy our steel industry, our rubber industry, our textile industry, our electronic industries. They put the American manufacturers out of business with low costs, and then they take control of the market share. Then the pricing goes right back up, because there’s no competition any more. We allowed them to do it.’ Trump has pledged to end ‘unfair trade deals’. See: Rushe, Dominic. "Youngstown, Ohio: Why Voters Are Supporting Trump in a Bellwether City." The Guardian. November 05, 2016. Accessed June 04, 2018. https://www.theguardian.com/us-news/2016/nov/05/swing-state-voters-donald-trump-youngstown-ohio."
unemployment rate as a product of globalization, and to a certain extent they are correct.\textsuperscript{210, 211}

It is difficult to determine the exact factors behind the high unemployment rate in the United States; however, it is important to note that other developed nations, and even rapidly developing economies such as India are facing a similar trend.\textsuperscript{212} Unfortunately for the President, the reduction in the unemployment rate achieved during his first term is unsustainable. Even if every instance of outsourced labour was brought back into the United States the unemployment apocalypse would only be halted temporarily.\textsuperscript{213} The real ‘killer of jobs’ is not lucrative cheap labour in the third world, but automation.

\textsuperscript{210} “The US unemployment rate fell to 3.8 percent in May 2018 from 3.9 percent in the previous month, and below market expectations of 3.9 percent. It was the lowest rate since April 2000, as the number of unemployed decreased by 281 thousand to 6.07 million and employment rose by 293 thousand to 155.47 million.” See: Ferreira, Joana. "United States Unemployment Rate - 1948-2018." Trading Economics, January 6, 2018. Accessed June 04, 2018. https://tradingeconomics.com/united-states/unemployment-rate.

\textsuperscript{211} “It is projected that the number of unemployed persons in India is expected to rise from 18.3 million in 2017 to 18.6 million in 2018 and 18.9 million by 2019. At the same time, unemployment rate is expected to remain static at 3.5 per cent during the same period.” See: PTI. "ILO Projects Unemployment Rate at 3.5% in 2018." The Economic Times. March 07, 2018. Accessed June 04, 2018. https://economictimes.indiatimes.com/news/economy/indicators/ilo-projects-unemployment-rate-at-3-5-in-2018-government/articleshow/63202592.cms.


\textsuperscript{213} “One of the worries Keynes admitted was a ‘new disease’: technological unemployment...due to our discovery of means of economising the use of labour outrunning the pace at which we can find new uses for labour. His readers might not have heard of the problem, he suggested—but they were certain to hear a lot more about it in the years to come... In America the real wage has hardly budged over the past four decades. Even in places like Britain and Germany, where employment is touching new highs, wages have been flat for a decade. Recent research suggests that this is because substituting capital for labour through automation is increasingly attractive; as a result owners of capital have captured ever more of the world’s income since the 1980s, while the share going to labour has fallen. At the same time, even in relatively egalitarian places like Sweden, inequality among the employed has risen sharply, with the share going to the highest earners soaring. For those not in the elite, argues David Graeber, an anthropologist at the London School of Economics, much of modern labour consists of stultifying “bullshit jobs”—low- and mid-level screen-sitting that serves simply to occupy workers for whom the economy no longer has much use.” See: “The Onrushing Wave.” The Economist. January 18, 2014. Accessed June 04, 2018. https://www.economist.com/briefing/2014/01/18/the-onrushing-wave.
The Relentless March of Progress

In 2013, two researches from Oxford University published *The Future of Employment: How Susceptible Are Jobs to Computerisation*? The study made a minor impact on mainstream media, only appearing on a few notable publications such as Foreign Affairs and The Economist; however, since then the findings have become much more important. According to Frey et al. (2013) 47% of jobs in the United States are capable of being automated. Similar studies conducted by the World Bank determined that India, China, and Ethiopia are at risk of having 69%, 77%, and 85% of their jobs automated respectively. These studies are not predictions of the future, and merely point out that technology has reached a point where an algorithm can effectively do the same task as a human. The financial costs of developing the infrastructure necessary for replacing human labour would be large; however, investing in such developments are lucrative to corporations since an algorithm is much more productive and cheap than a human. Since the article was published in 2013, investments in machine learning has skyrocketed. The International Data Corporation predicted that worldwide spending on cognitive and artificial intelligence research and development will rise 54.2% to $19.1 billion in

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215 “Over the course of the 20th century, peak manufacturing employment has steadily declined in emerging economies. In Britain, the first country to industrialize, manufacturing employment peaked at 45 per cent before the first world war. By contrast, Mr Rodrik suggests manufacturing employment in Brazil, India and China has already peaked below 15 per cent. This is in part because manufacturing processes are more automated. China in particular is not only the fastest-growing market for industrial robotics, it has replaced the US as the biggest market for automation… In emerging middle-income countries, as well as low-cost destinations, labour will struggle to compete with ever cheaper technologies. In the absence of industrialization as a path towards economic development, countries will need to discover new growth models.” See: Frey, Carl Benedict. "Cheap Automation Raises Risk of 'premature Deindustrialisation'." Financial Times. September 30, 2015. Accessed June 04, 2018. https://www.ft.com/content/de07e776-2172-11e5-ab0f-6bb9974f25d0#axzz4Bgbh9U00.
2018, and to $52.2 billion by 2021. During this time, the capabilities of A.I algorithms have
grown as well. For those carefully monitoring these developments, any attempt at reducing the
unemployment rate without acknowledging the impact of automation is a futile endeavor. A
possible pessimistic reaction to hearing news of this ‘A.I takeover’ of our workforce would be to
develop a luddite-esque apprehension to technological developments; however, that is an
unfruitful recourse which will ultimately hurt the protesters the most. Another, more productive
reaction would be to focus on the benefits of automation. If production in vital economic sectors
such as agriculture and manufacturing can be automated—a phenomena that is already
happening—it would allow people to pursue goals other than sustenance and basic needs.

216 “On a geographic basis, the United States will deliver more than three quarters of all spending on cognitive/AI
systems in 2018, led by the retail and banking industries. Western Europe will be the second largest region in 2018,
led by retail, discrete manufacturing and banking. The strongest spending growth over the five-year forecast will be
in Japan (73.5%) and Asia/Pacific (excluding Japan and China) (72.9%). China will also experience strong spending
growth throughout the forecast (68.2%).” See: “Worldwide Spending on Cognitive and Artificial Intelligence Systems

217 “Deloitte Global predicts that in 2018, large and medium-sized enterprises will intensify their use of machine
learning. The number of implementations and pilot projects using the technology will double compared with 2017,
and they will have doubled again by 2020. Further, with enabling technologies such as ML application program
interfaces (APIs) and specialized hardware available in the cloud, these advances will be generally available to small

“Edd Gent in New Scientist reports that the team has been working on machine learning and have trained their system
to identify sarcasm on Twitter by looking at a user's past tweets. Gent reported that the system predicts sarcasm with
an accuracy of 87 per cent. Gent said that is slightly better than existing approaches. Accuracy rate aside, a
distinguishing feature about their research efforts is that it cuts through looking at a lot of external information. ‘The
key innovation is realizing you can build a model of the user merely based on what they have said in the past,’ Amir
said in the New Scientist article.” See: Gent, Edd. “AI Reads Your Tweets and Spots When You’re Being Sarcastic.”
your-tweets-and-spots-when-youre-being-sarcastic/.

218 “On the farm, technology is changing the way farmers manage farmland and farm animals — such as the use of
satellite driven geo-positioning systems and sensors that detect nutrients and water in soil. This technology is
enabling tractors, harvesters and planters to make decisions about what to plant, when to fertilize, and how much to
irrigate. As this technology progresses, equipment will ultimately be able to tailor decisions on a meter-by-meter
basis.” See: Charlebois, Evan Fraser and Sylvain. “Automated Farming: Good News for Food Security, Bad News for
A development of this nature would signal a paradigm shift in human history on the same scale as the Neolithic Revolution—which enabled our ancestors to shift from a nomadic lifestyle to an agrarian one, creating civilization as we know it. However, there are major pitfalls that governments across the world need to avoid in order to realize this utopia.


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