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Disease and Democracy: Understanding the Impact of Disease Burden on Civil Liberties and Civil Society in sub-Saharan Africa

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DISEASE AND DEMOCRACY: UNDERSTANDING THE IMPACT OF DISEASE BURDEN ON CIVIL LIBERTIES AND CIVIL SOCIETY IN SUB-SAHARAN AFRICA

by

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Abstract

What is the impact of disease burden on democracy in sub-Saharan Africa? Despite increasing interest in the implications of health crises for state stability, there has been a dearth of literature exploring the relationship between disease burden more generally and democracy specifically. This thesis takes a comprehensive approach to bridge this gap in the literature. Using quantitative and qualitative methods, it draws on data from the Global Burden of Disease database and the Varieties of Democracy (V-Dem) dataset to analyze this relationship. The diseases studied are categorized as long-wave (e.g., HIV/AIDS and tuberculosis), short-wave (e.g., Ebola and lower respiratory infections), or endemic (e.g., malaria and an aggregate of other infectious diseases). In terms of democracy, this thesis focuses on civil liberties and civil society. Having utilized a linear regression, controlling for economic variables, this study found a positive and significant relationship between long-wave diseases and both civil liberties and civil society; a negative and significant relationship between Ebola and both civil liberties and civil society; a positive and significant relationship between lower respiratory infections and both civil liberties and civil society; and, finally, a positive and significant relationship between the other infectious disease aggregate and civil society. Ultimately, there was no significant relationship between the other diseases studied and the democratic variables. By identifying past relationships between particular kinds of diseases and manifestations of democracy, we can establish a baseline from

which to project our expectations about how emerging diseases like COVID-19 will impact the practice of democracy.

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Chapter I: Introduction

Sub-Saharan Africa has long carried the largest infectious disease burden of any region across the globe (Mboussou et al. 2019). The region faces both novel outbreaks of disease, including human immunodeficiency virus (HIV) and Ebola, and outbreaks of re-emerging or endemic infectious diseases, such as cholera, measles, and tuberculosis (Price-Smith 2002). Scholars suggest that there is a "reciprocal spiral dynamic" between the proliferation of infectious disease and state capacity, meaning that weak states can serve as breeding grounds for infectious disease and said infectious diseases may have a negative impact on state capacity (Patrick 2011: 207). In addition to facing a heightened disease burden, African democracies have struggled since their independence to become fully consolidated (Ng'oma 2016). Thus, young African democracies are still taking shape and may be more susceptible to external shocks than their fully consolidated counterparts. The intersection of disease prevalence and developing democratic regimes in this region gives rise to a pertinent question: what is the impact of disease burden on democracy in sub-Saharan Africa? Despite increasing interest in the implications of health crises for state stability, there has been a dearth of literature exploring the relationship between disease burden more generally and democracy specifically. This thesis seeks to bridge the aforementioned gap in the literature and explore the effects of disease burden on civil liberties and civil society, two core aspects of democracy, in sub-Saharan African nations.

Though frequently explored, the concept of democracy is elusive and difficult to define. The Varieties of Democracy (V-Dem) dataset has identified a handful of core indices of democracy, which include "electoral, liberal, majoritarian, consensual, participatory, deliberative, and egalitarian" (Coppedge et al. 2020c: 4). Each principle independently explores a specific facet of "rule by the people" (Coppedge et al. 2020c: 4). The electoral principle is fundamental to the understanding of democracy and examines a prominent value enshrined by democracy – ensuring that governments are held accountable to the citizenry through recurring elections (Coppedge et al. 2020c). However, the electoral principle alone is not an accurate indicator of democracy, as many electoral autocracies exist both across the African continent and around the world. Thus, this measure must be taken in conjunction with the other six principles examined in the V-Dem data in order to have a comprehensive understanding of what is required for a government to be a democracy. The liberal value emphasizes the protection of individual and minority rights from government tyranny or state repression (Coppedge et al. 2020c). The participatory value associated with democracy calls for direct, active participation on the part of citizens across various political processes (Coppedge et al. 2020c). The deliberative facet of democracy requires that decisions made in the public interest should be informed by intentional, respectful, and rational dialogue at all societal levels (Coppedge et al. 2020c). V-Dem's egalitarian principle embodies the ideal that all individuals should wield the same political influence and hold the same rights and liberties (Coppedge et al. 2020c). The majoritarian principle

requires that a majority of the citizens be able to govern and impose their will via policy (Coppedge et al. 2020c). Lastly, the consensual principle places value on the voices of political minorities in recognition that diverse perspectives and interests should all be represented and valued (Coppedge et al. 2020c). When considered together, these seven principles provide a holistic conception of democracy as it is understood today (Coppedge et al. 2020c).

More important for the purposes of this study are the lower-level indices, as they flesh out the elements commonly associated with democracy, including efficacy of local government, equality before the law, fairness of elections, and equal access and distribution of resources (Coppedge et al. 2020c). This thesis assesses two lower-level indices of democracy measured by the V-Dem dataset: civil liberties and civil society. In considering civil liberties, V-Dem focuses on *de facto*, or actual, practices instead of *de jure* rights enshrined by law or the constitution (Coppedge et al. 2020b). V-Dem's data for civil society focus on civil society organizations, namely interest groups, civic-focused religious groups, labor unions, social movements, professional organizations, and non-governmental organizations (Coppedge et al. 2020b). This definition specifically excludes businesses, political parties, spiritually-focused religious organizations, and government agencies (Coppedge et al. 2020b).

An increased disease burden, particularly with regard to communicable diseases, is expected to impact the strength of a democratic regime, but these implications may vary depending on the type of disease. In his book *Weak Links: Fragile states, global threats, and international security*, Stewart Patrick lays out

three types of disease outbreaks, which will be used in this thesis to classify the various diseases analyzed. These categories include long-wave pandemics, short-wave pandemics, and endemic diseases (Patrick 2011). While some of the diseases studied in this thesis do not reach the threshold of "pandemic," this framework can still be useful in categorizing and understanding these different diseases and a government's response to them. Long-wave diseases will refer to the spread of a particular disease over an extended period of time. These long-wave diseases could potentially have higher mortality rates due to their longevity (Patrick 2011). This thesis will focus on the two most prominent long-wave diseases facing sub-Saharan Africa – HIV/AIDS and tuberculosis. A short-wave disease will be defined as the outbreak of a rapid-onset disease with a high transmissibility and mortality rate (Patrick 2011). The short-wave diseases analyzed in this thesis will include Ebola and lower respiratory infections like influenza. Finally, if a disease is endemic, its prevalence rate is constant within a particular geographic area or population (Center for Disease Control, hereafter CDC, 2012). Also included in this category would be spikes in diseases endemic to an area. For the purposes of this study, that would include diseases such as measles and malaria. By using these disease classifications, we will obtain a more nuanced understanding of how different facets of the disease burden may influence the two selected manifestations of democracy – civil liberties and civil society.

Ultimately, this thesis finds that there is a positive and significant relationship between long-wave diseases and both civil liberties and civil society; a

negative and significant relationship between Ebola and both civil liberties and civil society; a positive and significant relationship between lower respiratory infections and both civil liberties and civil society; and, finally, a positive and significant relationship between the other infectious disease aggregate and civil society.

Chapter II: Literature Review

Securitization of Disease

To understand the relationship between disease and democracy, it is essential to identify the variety of ways that governments may choose to respond to crisis-like situations. According to Stefan Elbe (2006), there are two main ways in which governments respond, either by politicizing a crisis or securitizing a crisis. Politicization occurs when an issue is brought to light through public debate or is incorporated into public policy, necessitating a public decision (Elbe 2006). Securitization goes further, where the government frames the issue as an existential threat to the nation and its residents; this framing may require emergency measures and justify government actions which generally fall outside of the purview of political institutions (Elbe 2006).

A securitization response can have serious implications for both civil liberties and civil society. The emergency measures taken by the government can be leveraged to infringe on civil liberties (Elbe 2006). Furthermore, securitization of a disease like HIV/AIDS can remove agency from civil society organizations in favor of less transparent methods of handling the disease, such as through military or intelligence avenues (Elbe 2006). Thus, securitizing a disease such as HIV/AIDS or Ebola could lead governmental leaders and institutions to take actions that will affect the role of the people vis-à-vis the government. Government actions, such as imposing lockdowns or curfews, may impede the work of civil society organizations

and affect various other aspects of democracy, including participatory engagement, fundamental rights, and impartial administration.

Expanding upon this securitization perspective, Andrew Price-Smith (2002) analyzes the ways in which communicable diseases can pose a threat to security in a section of his book *The Health of Nations*. Early on, Price-Smith takes a quantitative look at the relationship between infant mortality and state capability in 20 states — including Botswana, Brazil, Colombia, Ethiopia, Haiti, Iceland, India, Italy, Japan, Kenya, Malawi, Netherlands, Norway, Peru, Rwanda, Saudi Arabia, South Africa, Tanzania, Thailand, and Uganda; he ultimately finds a significant, negative relationship between the two variables (Price-Smith 2002).

More interesting for this thesis, however, is Price-Smith's analysis of the disease-security relationship. He bases his predictions, which are primarily theoretical, upon his quantitative findings. Price-Smith argues that, in the interest of maintaining state stability, ruling elites might crack down on political and social opposition and introduce increasingly authoritarian measures (Price-Smith 2002). These actions are more likely to result if the government adopts a securitization framework, as they capitalize on this framework to justify responses that generally fall outside the purview of political institutions (Elbe 2006). Some restrictions on personal freedom may be deemed necessary to contain a disease, such as lockdowns or bans on large social gatherings. However, when opportunistic politicians take advantage of the situation, problems will arise.

Additionally, Price-Smith argues that declining rates of productivity, economic prosperity, and overall well-being caused by disease proliferation can lead to intra-societal competition and thus turbulence within a state (Price-Smith 2002). This intra-societal competition, in addition to the reduced civic space caused by a government's response to the health crisis, may negatively impact the development and engagement of civil society (Price-Smith 2002). The proliferation of infectious disease, according to Price-Smith, would then threaten or destabilize developing democracies that are still working to consolidate their democratic practices and institutions.

State Fragility & Disease

In contrast to Price-Smith, Stewart Patrick (2011) argues that there is little evidence that infectious disease may be a cause of political instability or state fragility. Patrick focuses his discussion about infectious disease and state fragility/failure on HIV/AIDS. This argument comes at a time when analysts began to realize that their early predictions that HIV would significantly, and negatively, impact governments remained unfulfilled. However, he still notes a handful of possible causal pathways through which HIV/AIDS could increase state fragility or risk of failure in weak states (Patrick 2011). The first is through economic stagnancy and the impact of HIV/AIDS on labor and productivity (Patrick 2011). According to Patrick, AIDS has also led to a decrease in foreign direct investment because of reduced economic growth and productivity (Patrick 2011). Another

pathway for HIV/AIDS to lead to state fragility is through heightened instability and violence (Patrick 2011). AIDS-affected nations have seen a shift in demographics, with high child mortality, a large number of youths, and a minute population of older adults (Patrick 2011). According to Patrick, these demographic changes are likely to heighten instability, as a large population of youth is correlated with societal upheaval (Patrick 2011). However, it should be noted that youth-heavy demographics are more pronounced in West Africa, where the HIV prevalence rate is much lower than that of Southern African nations, so this predicted mechanism may not be completely accurate. The final pathway identified by analysts was that, in highly affected countries, HIV/AIDS could cause governments to lose political legitimacy, as HIV/AIDS has been a burden on national budgets and eroded state capabilities (Patrick 2011). Despite these disheartening trends, there is little empirical evidence that ties HIV/AIDS directly to state failure. Patrick argues that, due to the long-wave nature of HIV/AIDS, adaptation and the adoption of preventative measures against HIV/AIDS have been possible, allowing states to avoid the consequences of the disease outlined above (Patrick 2011). In addition, billions of dollars in foreign assistance, far more than has been seen for any other disease or social challenge, have likely had an impact on various nations' ability to adapt and adopt these measures.

In the same vein, Celina Menzel (2017) explores the outbreak of infectious diseases and their impact on political stability. In her study, Menzel compares the effects of Ebola, tuberculosis, and influenza on political stability. After employing

both quantitative and qualitative methods, Menzel found that each disease had a different effect on political stability. The measure of political instability Menzel uses is an aggregate which considers violent protests, seizing power through extraconstitutional avenues, armed conflict, terrorism, social unrest, ethnic conflict, and/or international tension (Menzel 2017). Ultimately, influenza was found to have a small, but highly significant, negative correlation with political stability, while tuberculosis was found to have no effect on political stability (Menzel 2017). Ebola had the most interesting results, showing a small, but highly significant, positive correlation with political stability (Menzel 2017).

Menzel provides a few speculative explanations for this relationship. She argues that this positive relationship could be explained by the "conflict-cohesion thesis," under which external threats to security, like Ebola, increase in-group cohesiveness – uniting society against a common external threat (Menzel 2017). Another explanation for this relationship could be the securitization of the international global health response (Menzel 2017). The securitization narrative surrounding the international response to the Ebola outbreak in West Africa influenced national government responses to the crisis, creating an emphasis on rapid action in terms of containment and surveillance (Menzel 2017).

Menzel's study illuminates interesting findings regarding health crises and political stability, but it does not shed light on the effect a health crisis may have on a particular regime type or form of governance (e.g., democracy). The West African Ebola outbreak, which Menzel focuses on, did lead to periods of political instability

throughout the crisis; however, these unstable periods may not have been reflected quantitatively in fragility indexes, though they may have been significant at the time. Regimes may respond to health crises like Ebola by adopting more authoritarian measures, such as cracking down on dissent, as indicated by Price-Smith (2002). The adoption of authoritarian measures may not affect political stability, but it will affect the relationship between a government and its people.

HIV/AIDS Pandemic & Civil Society

Although understanding the relationship between health crises and political stability is useful for this investigation, it is essential to deepen this exploration and delineate the array of consequences disease burdens may have for particular regimes or government types. Two key actors in disease response, in addition to a nation's government, are the international community and civil society organizations; both of these actors can play an influential role in maintaining, improving, or worsening democratic performance. Kim Yi Dionne (2018) explores the role of principal-agent relationships in the efficacy of foreign aid, focusing primarily on AIDS in Eastern and Southern Africa. Dionne argues that there is a fundamental disconnect between both international and national responses to AIDS and the actual priorities of individuals living in AIDS-affected nations (Dionne 2018).

From her findings, she concludes that international interventions, which generally provide earmarked foreign aid to African governments, are undemocratic,

as they tend to ignore the priorities of the nation's citizens (Dionne 2018). Further, Dionne argues that this runs counter to the West's efforts to promote democratic consolidation in the region because it creates a bureaucracy that is unresponsive to the priorities and needs of its citizens (Dionne 2018). Regardless, this aid could still allow governments to invest in programs that align more closely with the citizens' needs. One should also consider the impact preexisting foreign aid programs may have had on these outcomes. For example, in Malawi, the country Dionne focuses on, new HIV infections annually have declined significantly – from about 115,000 to 40,000 between about 1993 and 2020 – largely as a result of foreign aid programs such as the US President's Emergency Plan for AIDS Relief, contributing about 49% of the total resources available to fight AIDS in the country (PEPFAR) (PEPFAR 2020a).

Scholar Henry Wambuii (2006) takes a different approach to understanding AIDS response by looking at the role played by civil society, focusing specifically on Kenya. He argues that AIDS has furthered the process of democratization in Kenya because it has reconfigured the relationship between the state and civil society from one that is adversarial in nature to one that is cooperative, thereby increasing participatory engagement and increasing government responsiveness to its people (Wambuii 2006). Wambuii views external shocks, such as infectious disease, as mechanisms for, rather than impediments to, democratization (Wambuii 2006). This view is similar to Menzel's (2017) in that it is grounded in the assumption that an external shock like infectious disease (in Menzel's case, Ebola, and Wambuii's

case, AIDS) will unite the public with the government against a common adversary, rather than pushing the government to adopt more authoritarian measures to suppress the public.

In comparison to Wambuii's perspective, scholars Robert Mattes and Ryann Manning (2003) theorize that HIV/AIDS may have a damaging effect on civil society engagement. They argue that because of the demographic scope of individuals that generally participate in civil society organizations, these individuals may be more susceptible to contracting HIV (Mattes & Manning 2003). For instance, many individuals involved with civil society organizations tend to be younger and travel far more frequently to do extension work (Mattes & Manning 2003). These effects have been exacerbated, as many individuals within civil society organizations who contract HIV have skills that take years to hone (Mattes & Manning 2003). In addition to these projections regarding civil society, Mattes and Manning also explore the importance of democratic consolidation in predicting a democracy's resilience to endogenous and exogenous shocks. They argue that the increasingly common turnover in government positions due to HIV/AIDS-related circumstances prevents effective institutionalization required for democratic consolidation (Mattes & Manning 2003). This not only decreases the efficiency of political institutions, but it also makes it difficult to pass the skills necessary to serve in these government positions on to future generations (Mattes & Manning 2003). This theoretical argument, however, contradicts Wambuii's argument that HIV/AIDS serves as a catalyst for democratization (2006). These contradictory theoretical arguments may

be due to the fact that these scholars are intersecting with the pandemic at different stages of its development.

Though the impact of specific health crises, particularly HIV/AIDS and Ebola, on political stability has received attention within the discipline, the effect of disease burdens in general on democracy has been rather superficially explored. While the works explored here may serve as a guiding post for this research endeavor, they either approach the question theoretically (Price-Smith 2002; Mattes & Manning 2003) or only through a specific instance of the phenomena (Dionne 2018; Wambuii 2006). This project seeks to build upon this existing literature to develop a more comprehensive and in-depth analysis of the influence of disease burden on civil liberties and civil society.

Chapter III: Expected Outcomes

This section explores my hypotheses going into the quantitative and qualitative analyses of these relationships. The diseases are categorized in this way because governments are likely to respond differently to diseases developing over varied time periods; I anticipate that these governments would respond most distinctly to short-wave crises because of the shock they can pose to political, social, and economic institutions.

Long-Wave Diseases

Civil Liberties

I anticipate that long-wave diseases will have a negative impact on civil liberties, particularly the social group bias indicator. Those living with HIV/AIDS are often stigmatized, and, as a result, I expect this specific indicator to decrease as the HIV rate increases. I anticipate that an increasing HIV rate will have no effect on the other civil liberties indicators, including freedom from torture, transparency and predictability of law enforcement, reverence for law by government officials, and freedom of movement, mostly because of the way the disease is transmitted.

Civil Society

I anticipate that a long-wave disease like HIV/AIDS will lead to increased civil society participation. Diseases like HIV/AIDS and tuberculosis are pervasive, touching the lives of most citizens in one way or another. If political leaders do not work effectively to address these pervasive issues, they are unlikely to maintain the

support of the electorate or "selectorate" required for them to remain in office. Additionally, government leaders are not sheltered from the effects of these diseases, unlike with some of the other disease types, and, thus, are more likely to be personally invested in efforts to combat the proliferation of the disease and prevent further loss of life. For these reasons, government leaders may be more inclined to engage community actors to find methods to address the disease burden.

Short-Wave Diseases

Civil Liberties

Out of all the civil liberties indicators, I expect that short-wave diseases, like Ebola and influenza, may have the most significant influence on freedom of movement. The nature of the short-wave diseases is likely to elicit a different response from both the government and the populace as compared to long-wave and endemic diseases. Because of the perceived transmissibility of these diseases, the government may be inclined to impose lockdown measures. While these lockdowns may be justified given the nature of the diseases, we should look at the temporal and sociopolitical context to determine whether political leaders may have had an ulterior motive in imposing lockdown measures. These motives could include stifling opposition groups, limiting voting and/or campaigning opportunities during an election period, and more. Furthermore, I think that an increasing rate of one of these communicable diseases may create stigmatization around those associated with the disease, including healthcare workers, current patients, and survivors,

which would affect the impartial enforcement variables, particularly enjoyment of civil liberties by specific social groups.

Civil Society

In considering the reviewed literature, I expect that short-wave epidemics will have a positive impact on the development of civil society. In her article, Menzel argued that health crises like Ebola provide a common enemy that citizens and governments must work together to defeat (2017). I predict that this motivation or "common enemy" outlook may increase citizen participation in and government consultation of civil society organizations while also reducing civil society repression.

Endemic Diseases

Civil Liberties

I do not expect endemic diseases like malaria and measles to have a significant impact on civil liberties. While they can occasionally flare up, endemic disease rates generally remain constant. Thus, in the short term, I believe they do not threaten a shock significant enough to the political system that would affect civil liberties.

Civil Society

I predict that increasing rates or even persistence of endemic diseases will lead to increased civil society engagement and citizen participation in civil society organizations. Treatments and preventative methods for endemic diseases like malaria and measles are available, though they can still be expensive. Due to the

availability of these treatments and the prevalence of these diseases in many sub-Saharan nations, I anticipate that the government will be more likely to consult with civil society to decrease the disease burden.

Chapter IV: Methodology

This project seeks to combine qualitative and quantitative methods to obtain a comprehensive picture of the interaction between disease burden and democracy. It draws on two datasets: The Global Burden of Disease (GBD) dataset (Global Burden of Disease Collaborative Network 2020) and the Varieties of Democracy (V-Dem) dataset (Coppedge et al. 2020b). The GBD dataset provides a holistic and quantifiable picture of health loss resulting from hundreds of diseases, injuries, and risk factors (IHME 2019). GBD uses a variety of measures to assess health loss, but this study will focus solely on the prevalence of each disease (IHME: 2019). GBD defines prevalence as "the total number of cases of a given disease in a specified population at a designated time" (IHME 2021). These measures are quantified using three metrics: rate, number, and percent (IHME 2019). For the purposes of this study, I will focus on the prevalence rate of a handful of causes identified by GBD: HIV/AIDS, tuberculosis, Ebola, lower respiratory infections, malaria, and an aggregate of other infectious diseases (including measles, tetanus, diphtheria, whooping cough, varicella, encephalitis, and meningitis).

The GBD dataset will be used in conjunction with the V-Dem dataset. The V-Dem dataset looks at a handful of democratic indices, each measured by specific indicators (Coppedge et al. 2020b). The data gathered and incorporated into V-Dem has been coded by a variety of individuals, including research assistants, project managers, country coordinators, and country experts (Coppedge et al. 2020b). The ordinal data coded by these experts is aggregated by the measurement model to

create an interval measure useful for purposes of analysis (Coppedge et al. 2020b). For the purposes of this study, I will focus on two measures of democracy: civil liberties and civil society. Civil liberties are measured by personal integrity rights (freedom from torture and freedom from political killings), impartial enforcement (transparent laws with predictable enforcement, rigorous and impartial public administration, social class equality in regard for civil liberties, social group equality in regard for civil liberties, stronger civil liberties characteristics, weaker civil liberties characteristics), and private and political liberties (freedom of discussion, freedom of academic and cultural expression, freedom of religion, freedom of foreign movement, and freedom of domestic movement) (Coppedge et al. 2020b). In considering the role of civil society, V-Dem looks at civil society organizations' (CSOs) ease of entry and exit, CSO repression, CSO consultation, CSO participatory environment, CSO structure, religious organization repression, and religious organization consultation (Coppedge et al. 2020b).

This study utilizes a linear regression to analyze the relationship between the dependent variables (civil liberties and civil society) and the independent variable (change in one of the following disease variables – HIV rate, tuberculosis rate, Ebola rate, lower respiratory infection rate, malaria rate, and other infectious disease rate), while controlling for the effects of GDP per capita (using logarithmic transformation), GDP growth, and natural resource rents. I look at a sample of 46 countries from sub-Saharan Africa between 1990 and 2019 for each disease, except malaria, which looks at only 43 countries during this time period (see appendix A).

Additional analyses have been run using the random-effects and fixed effects models (see appendices B and C). These models control for variation driven by intra-country changes, which is useful for this analysis given the broad range of histories, cultures, and political structures of states in sub-Saharan Africa. Furthermore, the variables used in the regression indicate the change in the variable over one year and have been calculated by dividing the rate of the original variable by a version of the variable with a one-year lag. The table below contains descriptive summaries of the variables studied.

Table 1: Descriptive Summaries of Variables

	Observations	Mean	Standard Deviation	Range	Interquartile Range
Independent Variables					
HIV Rate	1449	0.0286409	0.0403614	0.1980438	0.0293477
Tuberculosis Rate	1449	0.2981586	0.0676156	0.3624357	0.1003342
Ebola Rate	1449	4.01E-06	0.0020184	0.0018468	0
Lower Respiratory Infection Rate	1445	0.0020184	0.0004432	0.0022097	0.0005958
Malaria Rate	1449	0.1710046	0.1515945	0.5432985	0.2831307
Other Infectious Disease Rate	1449	0.0231253	0.0061298	0.0333034	0.0079365
Dependent Variables					
Civil Liberties	1479	0.5897106	0.2290039	0.914	0.362
Civil Society	1479	0.6480527	0.2106809	0.93	0.299
Control Variables					
GDP per capita (ln)	1242	7.677614	0.9333673	5.852	1.02
GDP Growth	1242	0.0200145	0.1018818	1.557	0.082
Total Natural Resource Rents	1334	11.69926	11.68061	84.22876	12.56929

In addition to identifying any quantitative relationship between the two variables, this project seeks to delve deeper into the numerical data by examining a handful of case studies using a process-tracing method. In process-tracing, I will

rely on periodicals, news articles, publications by non-governmental organizations (NGOs), government publications, and academic publications to tease out the mechanisms through which disease burdens influence the aforementioned democracy indicators, if any such mechanisms exist.

Chapter V: Long-Wave Diseases

Background

HIV/AIDS

The first cases of HIV/AIDS were diagnosed in the early 1970s in the United States (Kagaayi & Serwadda 2016). At this time, many believed HIV/AIDS was a disease that only affected four different groups of people: hemophiliacs, homosexuals, intravenous drug users, and Haitians, as some early cases had been discovered in a Haitian community in Miami (Kagaayi & Serwadda 2016). A little over a decade later, the first clue that HIV cases also existed in Africa was uncovered in Belgium (Kagaayi & Serwadda 2016). A handful of Congolese immigrants sought medical assistance from a local hospital and were eventually diagnosed with the disease (Kagaayi & Serwadda 2016). Cases like these began to pop up among African populations across Europe, leading medical scientists to begin investigating the prevalence and transmission of HIV/AIDS across Africa (Kagaayi & Serwadda 2016). A majority of this research in Africa was conducted in an effort to prove that the disease originated on the African continent; since HIV/AIDS was so stigmatized in the West, this research influenced the way in which some African governments responded to the epidemic, as they did not want the high prevalence of disease to negatively impact their burgeoning economies, largely based on tourism (Kagaayi & Serwadda 2016).

This stigmatization, along with existing sociopolitical attitudes in many African nations, played a role in delaying the response to the HIV/AIDS epidemic,

with most governments denying such a problem even existed (Kagaayi & Serwadda 2016). Uganda, under President Yoweri Musuveni, was the first African nation to establish an AIDS Control Program (ACP) in 1986, which was followed by the Uganda AIDS Commission (UAC) in 1990 (Kagaayi & Serwadda 2016). The ACP and UAC worked closely with a variety of stakeholders – including politicians, religious leaders, and other community-based organizations (Kagaayi & Serwadda 2016). Each affected African nation recognized and responded to the epidemic on its own timeline, largely moved by the incredibly high morbidity and mortality rates caused by HIV/AIDS in particular regions (Kagaayi & Serwadda 2016). In the early 1990s, over 50% of adult mortality could be attributed to HIV infection; not only was the adult mortality rate high, but increased HIV prevalence and mortality also increased the rate of orphanhood and child-headed households in the hardest-struck communities (Kagaayi & Serwadda 2016).

The introduction of early antiretroviral therapies in 1996, and their continued development throughout the early 2000s, offered a glimmer of hope to AIDS patients around the world (Kagaayi & Serwadda 2016). However, because of their tremendous annual costs, these early medications could not be distributed in many low- and middle-income countries (Kagaayi & Serwadda 2016). As these treatments further developed, and funds became available through international programs such as the President's Emergency Plan for AIDS Relief (PEPFAR) and the Global Fund to Fight AIDS, Tuberculosis and Malaria, the number of AIDS patients receiving treatment increased dramatically, from only 100,000 in 2002 to

10.7 million in 2014 (Kagaayi & Serwadda 2016). According to the World Health Organization (WHO), Africa still carries the largest HIV/AIDS burden in the world, accounting for two-thirds of new HIV infections globally (WHO Regional Office for Africa 2021a).

Tuberculosis

Even above HIV/AIDS, tuberculosis is the leading cause of death worldwide from a sole infectious agent according to the WHO (WHO 2020). In 2019 alone, the disease killed 1.4 million people (WHO 2020). Africa carries 29% of global tuberculosis cases and 34% of tuberculosis-related deaths (Chaisson & Martinson 2008). Furthermore, autopsies have shown that between 30 and 40% of adults infected with HIV die from tuberculosis, demonstrating the interconnectedness of the impact of these two diseases (Chaisson & Martinson 2008). Tuberculosis is caused by the bacteria *Mycobacterium tuberculosis* and spreads within the human population by inhaling air that has been infected with tuberculosis through coughs, sneezes, or spit from someone infected with the disease (Chatterjee & Pramanik 2015; Africa Centres for Disease Control and Prevention [Africa CDC] 2021). The disease infects approximately one third of the world's population (Chatterjee & Pramanik 2015). While this infection rate is high, only 5-10% of those infected develop clinical tuberculosis two years following initial infection (Chatterjee & Pramanik 2015). In recent years, tuberculosis prevalence has been increasing, partially due to the rapid proliferation of HIV as well as increased bacterial resistance to medications within the population (Chatterjee & Pramanik 2015).

What makes this disease all the more concerning is the emergence of several drug-resistant strains of tuberculosis (Chaisson & Martinson 2008). Medications to treat tuberculosis have been available for decades, but when these treatments are used incorrectly, drug resistance emerges (WHO 2020). Multi-drug resistant tuberculosis (MDR-TB) is a form of tuberculosis that is resistant to two of the commonly-used drugs to treat tuberculosis – isoniazid and rifampicin (WHO 2020). Currently, only about 57% of patients with MDR-TB are effectively treated (WHO 2020).

Further efforts have been undertaken on both the national and international level to combat tuberculosis and its multitude of drug-resistant strains. In 2003, the European Parliament established the European & Developing countries Clinical Trials Partnership (EDCTP) to support the advancement of local research, training, and capacity development to effectively lessen the tuberculosis burden (Zumla et al. 2015). African health ministers promised an expeditious response to fight the disease in 2005, declaring a "TB Emergency" (Chaisson & Martinson 2008). Currently, the WHO works closely with partners in government and civil society to enhance the global response to tuberculosis, with the hopes of ending the epidemic by 2030 (WHO 2020).

Quantitative Analysis

Civil Liberties

The results from the linear regression for the relationship between long-wave diseases and civil liberties are shown below in Table 2. The regression results show a positive and highly significant relationship between the change in the HIV rate

over one year and a change in civil liberties over one year. Additionally, we can see a positive and significant relationship between a change in the rate of tuberculosis over one year and a change in civil liberties over one year. I also ran random and fixed effects models to control for intra-country variation (see appendices B and C). The random effects model confirms these results. However, the fixed effects model finds a significant relationship between the tuberculosis rate from the year prior and a change in civil liberties for that year, rather than the change in the tuberculosis rate over one year. These findings do not align with the expected outcomes laid out in Chapter III and will be further explored through process-tracing in a following section.

Table 2: Long-Wave Diseases and Civil Liberties

VARIABLES	Change in Civil Liberties	
HIV Rate (1-year lag)	0.027	—
	(0.111)	—
HIV Rate Change	0.160***	—
	(0.057)	—
Tuberculosis Rate (1-year lag)	—	0.110
	—	(0.120)
Tuberculosis Rate Change	—	1.208*
	—	(0.661)
GDP per capita (ln)	-0.014**	-0.013*
	(0.006)	(0.007)
GDP Growth	0.070	0.066
	(0.080)	(0.082)
Total Natural Resource Rents (% of GDP)	0.000	-0.000
	(0.000)	(0.000)
Constant	0.953***	-0.101
	(0.060)	(0.582)
Observations	1,173	1,173
R-squared	0.038	0.022

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Civil Society

The regression results analyzing the relationship between long-wave diseases and civil society participation are listed below in Table 3. From the table, we can identify a positive and significant relationship between a change in the HIV rate over one year and a change in civil society participation. We can also see a positive and significant relationship between a change in the rate of tuberculosis over one year and a change in the rate of civil society participation over one year. The random and fixed effects models also corroborate these results (see appendices B and C). These findings align with the expected outcomes from Chapter III, supporting the qualitative findings of Wambuii's study of HIV/AIDS and civil society in Kenya. Further, these results seem to refute the theoretical postulations laid out by Mattes and Manning in their prediction of a negative relationship between HIV/AIDS and civil society participation.

Table 3: Long-Wave Diseases and Civil Society Participation

VARIABLES	Change in Civil Society Participation	
HIV Rate (1-year lag)	0.111	—
	(0.161)	—
HIV Rate Change	0.213***	—
	(0.062)	—
Tuberculosis Rate (1-year lag)	—	-0.077
	—	(0.154)
Tuberculosis Rate Change	—	2.475**
	—	(1.154)
GDP per capita (ln)	-0.020**	-0.022**
	(0.009)	(0.010)
GDP Growth	0.129	0.131
	(0.112)	(0.121)
Total Natural Resource Rents (% of GDP)	0.000	-0.000
	(0.000)	(0.000)
Constant	0.945***	-1.216
	(0.065)	(1.030)
Observations	1,173	1,173

R-squared	0.035	0.024

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Case Study: HIV/AIDS Response in Tanzania

Since Tanzania reported its first three cases of HIV/AIDS in 1983, the disease has spread to both urban and rural areas of the country (Ndimbwa, Emanuel, & Mushi 2013). The Tanzanian government initiated its first institutionalized response to the disease in 1985 with its National AIDS Control Program (Ndimbwa, Emanuel, & Mushi 2013). In December 2000, then-President Benjamin William Mkapa announced the creation of the Tanzania Commission for AIDS (TACAIDS) (TACAIDS 2021). According to a 2017-2018 TACAIDS report, the annual number of new HIV infections occurring in the country has declined by half since the first cases of AIDS reported in 1983 (TACAIDS 2018).

In the 2017 TACAIDS report, the commission identifies "key and vulnerable populations" in which the epidemic is concentrated, namely men who have sex with men (MSM), people who inject drugs (PWID), sex workers, and clients of sex workers (TACAIDS 2018). However, early on in the report, the commission identifies that the social groups constituting the largest percent of HIV transmission are heterosexual couples in stable relationships (38.8%) and heterosexual couples who engage in casual sex (28.9%) (TACAIDS 2018: 1). The key and vulnerable populations emphasized early on in the report only accounted for 15.5% of transmissions, with all data coming from the Modes of HIV Transmission study from 2014 (TACAIDS 2018). This discrepancy could be due to a lack of data

caused by the stigma and discrimination encountered by being part of one of the aforementioned vulnerable social groups in Tanzania (TACAIDS 2018).

Several human rights groups have reported violations of civil liberties within these groups, including the 2016 ban on HIV/AIDS outreach and services to MSM by the Magufuli administration (Allinder 2018). In Tanzania, sodomy is illegal and holds a 30-year prison sentence, making MSM reluctant to pursue health services and treatment for HIV (Allinder 2018). Additionally, according to Human Rights Watch, the Tanzanian government banned health and rights organizations serving LGBT communities, including CHESA, Kazi Busara na Hekima, and AHA Development Organisation in Tanzania, for violating "Tanzanian law, ethics, and culture" (Human Rights Watch 2020). These policies specifically impact the indicator measuring social group equality in respect for civil liberties, which is aggregated into the civil liberties indicator used in this study.

Figure one (below) identifies how respect for civil liberties in Tanzania has changed between 1990 and 2019, demonstrating a distinct downward trend in recent years. (Civil liberties is measured on a scale of 0-1, with 0 representing no respect for civil liberties and 1 representing the utmost respect for civil liberties [Coppedge 2020b]). While at first this may seem to contradict the findings from the regression, it may actually support them. Figure two shows the change in the HIV rate between 1990 and 2019, illustrating a declining HIV prevalence rate from 1997 onward. This case study thus illustrates that a decrease in the HIV rate may correlate with a decrease in respect for civil liberties, which would still appear as a

positive coefficient in the regression. This study mainly considers how *increases* in disease prevalence rates may influence civil liberties and civil society, rather than how a *decrease* in disease prevalence might influence these variables, a question this case study brings to light. It is important to keep in mind that these results demonstrate a correlation between these two variables – not a causal relationship – and that the mechanisms through which this converse relationship operates require further qualitative investigation.

Figure 1: Civil Liberties in Tanzania 1990-2019

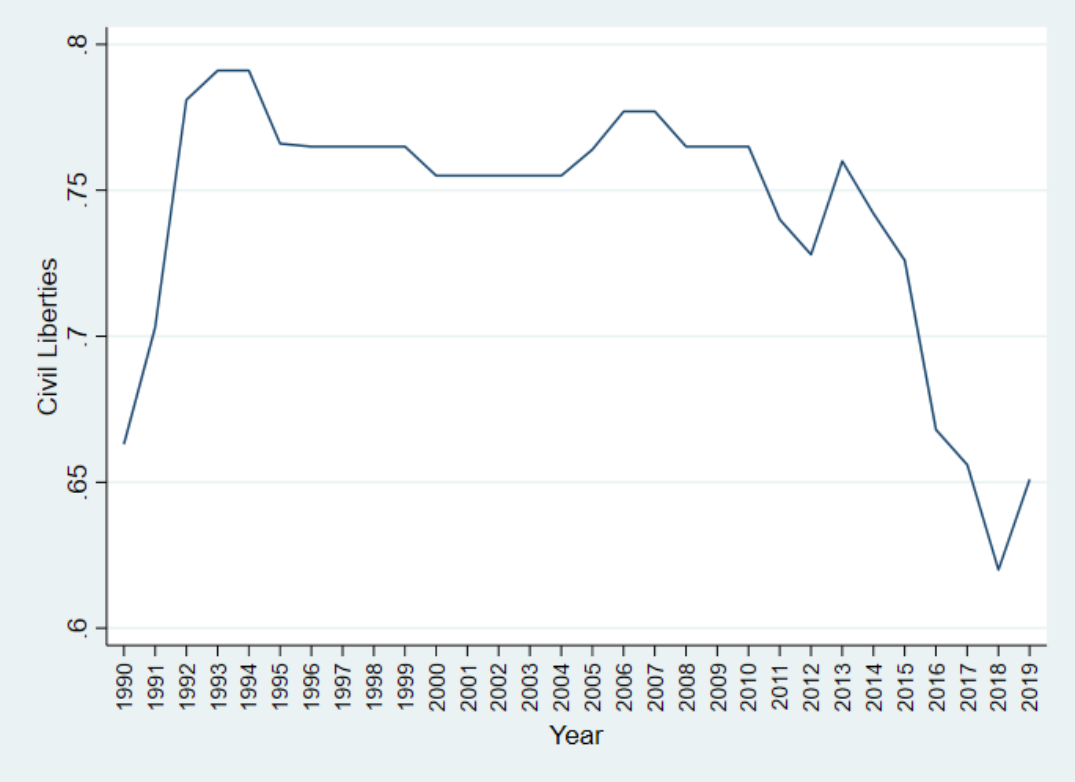
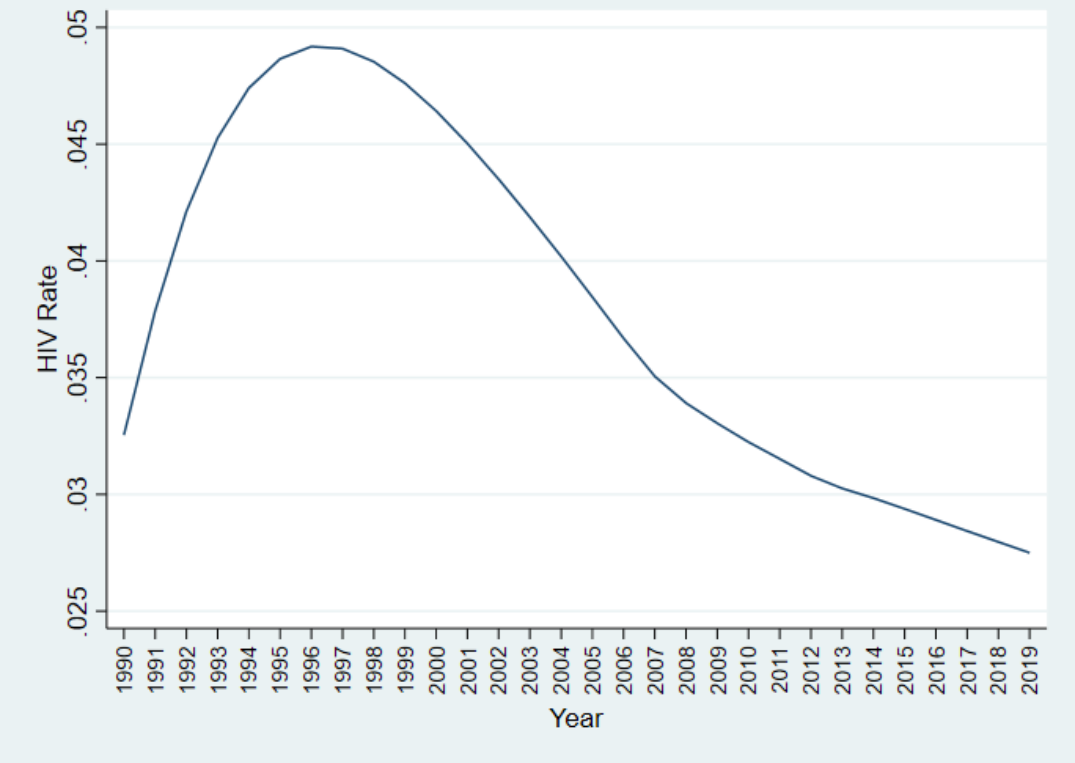


Figure 2: HIV Rate in Tanzania 1990-2019



Tanzania saw increased growth in civil society participation in the 1990's, when HIV/AIDS was beginning to be recognized as both a social and medical problem (Ndimbwa, Emanuel, & Mushi 2013). Though the Tanzanian government has made significant efforts to slow the spread of the disease, its initial approach was relatively inefficient (Ndimbwa, Emanuel, & Mushi 2013). The government is bureaucratic in nature and tends to focus on process, whereas civil society organizations are more democratic in nature and focus on outcomes (Ndimbwa, Emanuel, & Mushi 2013). Therefore, civil society organizations have largely risen to the task of providing support for those living with HIV as well as educational programs to spread information about the disease (Ndimbwa, Emanuel, & Mushi 2013). According to the PEPFAR Tanzania Country Operational Plan published in

2020, these civil society organizations have continued to expand their role and hold a prominent position in reaching target populations and reducing the stigma surrounding HIV (PEPFAR 2020b).

The Tanzanian National Policy on HIV/AIDS report published in 2001 demonstrates that, early on in the pandemic, the Tanzanian government recognized the imperative role played by community-based organizations in providing support to individuals, families, and communities affected by HIV/AIDS, including the provision of home-based care and financial support for patients and their families (The United Republic of Tanzania Prime Minister's Office 2001). Two of the most prominent civil society organizations in Tanzania, WAMATA and PASADA, developed in response to the HIV/AIDS crisis in order to provide those living with HIV and their loved ones with social support, particularly counseling, care, and community-building programs (Ndimbwa, Emanuel, & Mushi 2013). In a survey, a sample of 47 individuals living with HIV/AIDS identified the main services provided by PASADA and WAMATA (Ndimbwa, Emanuel, & Mushi 2013). PASADA provided services such as spiritual counseling, orphan support, social assistance, voluntary counseling and testing, home-based care, community education, and support for elders (Ndimbwa, Emanuel, & Mushi 2013). WAMATA provided services, including counseling, training, spreading awareness, supporting orphans, providing material support, HIV education, and prevention of mother-to-child transmission (Ndimbwa, Emanuel, & Mushi 2013). Furthermore, members of WAMATA contribute funds and food for AIDS-affected families in dire need as well

as supporting these families with home repairs and delivery of medical supplies (Mutangadura, Mukurazita, & Jackson 1999). Both NGOs provided free medical care to individuals living with HIV and worked to reduce the stigma surrounding the disease within their communities (Ndimbwa, Emanuel, & Mushi 2013).

Additionally, according to a report from UNAIDS, indigenous organizations played an essential part in providing financial support to those affected by HIV/AIDS early on in the pandemic (Mutangadura, Mukurazita, & Jackson 1999). In the Kagera region of Tanzania, as well as in communities in Zimbabwe and Zambia, indigenous savings clubs, such as rotating savings and credit associations (ROSCAs) and conventional savings clubs, assisted households in coping with the impact of HIV/AIDS (Mutangadura, Mukurazita, & Jackson 1999). ROSCAs have been an important aspect of community life in many African countries for a long time (Mutangadura, Mukurazita, & Jackson 1999). A ROSCA refers to a group of individuals who have agreed to contribute to a savings fund given in turn either partially or in whole to each of the contributors, where each member contributes the same amount (Mutangadura, Mukurazita, & Jackson 1999). These ROSCAs were essential to community-based HIV/AIDS responses, as they provide insurance that can be drawn on in an emergency, giving each member access to an amount of money larger than they could have accumulated on their own (Mutangadura, Mukurazita, & Jackson 1999).

However, a more recent study found that HIV/AIDS has actually impacted households' abilities to participate in ROSCAs, as they may withhold funds that

could be used to address individual household crises (Foster 2007). More recent studies have shown that philanthropic groups have been effective in supporting HIV affected individuals in families financially (Foster 2007). In mutual assistance groups, Tanzanian villagers contribute money or participate in labor-sharing during times of need, including sickness and death, within their communities (Foster 2007). Women in particular played a large role in assisting families affected by AIDS (Foster 2007). This study also amply demonstrates the role that community-based organizations have played in responding to the HIV/AIDS pandemic in Tanzania. Both the UNAIDS study and that of Ndimbwa, Emanuel, and Mushi illustrate the positive, significant relationship between a change in the prevalence rate of HIV/AIDS and a change in civil society participation established by the quantitative results.

Chapter VI: Short-Wave Diseases

Background

Ebola

The Ebola virus disease (EVD), colloquially known as Ebola, first emerged in 1976 in areas of what is now the Democratic Republic of the Congo (formerly Zaire) and Sudan (Baseler et al. 2017). Early on, scientists assumed that both outbreaks were one single event, where a traveler had brought the virus from one location to another (Baseler et al. 2017). Upon further investigation, scientists found that the epidemics were caused by two ebolaviruses which were genetically distinct yet phylogenetically related (Baseler et al. 2017). EVD, like yellow fever and dengue fever, is a viral hemorrhagic fever (Baseler et al. 2017). Within the human population, EVD spreads through direct contact with bodily fluids of an infected person (e.g., blood, secretions, organs, etc.) or with contaminated surfaces and materials (e.g., clothes, bedding, etc.) (WHO 2021a).

From 2013 to 2016, West Africa faced what is considered to be the most severe Ebola outbreak since the disease was first observed (Gillespie et al. 2016). Initially, local governments and the international community underestimated the scope of the outbreak, leading to a slow start in Ebola response initiatives (Gillespie et al. 2016). This initial response focused on containing the spread of the virus and establishing effective mechanisms for surveillance, logistics for treatment, and burials for those who lost loved ones (Gillespie et al. 2016). However, because this primary response did not work within community structures or community coping

mechanisms, the response led to further misinformation and misconceptions, as the community did not trust the messaging from formal sources (Gillespie et al. 2016). As case numbers continued to increase, officials observed the shortcomings of the initial response and focused on increasing community engagement and social mobilization during the second approach to containing the outbreak (Gillespie et al. 2016). Eventually, this second response provided a clear role for community-based solutions in spreading veracious information about the outbreak. By the time the outbreak was declared over, the virus had killed 11,310 people and left 23,588 children without one or both parents (Gillespie et al. 2016).

The second largest Ebola outbreak, and the first to occur in a conflict region, occurred in the eastern region of the Democratic Republic of the Congo (DRC) in 2018 (Congressional Research Service 2020). This outbreak ultimately killed almost 2,300 individuals in a region with few recent outbreaks (Congressional Research Service 2020). The fact that this outbreak occurred in a conflict zone further complicated efforts to contain the virus (Congressional Research Service 2020). The framework for responding to an Ebola outbreak requires infection prevention within health facilities, isolation of patients, rapid diagnosis using fever surveillance, contact-tracing, and community awareness (Congressional Research Service 2020). Due to a lack of accessibility and insecurity in the region, these approaches had to be modified in order to contain the outbreak and ensure the safety of healthcare personnel (Congressional Research Service 2020). In terms of community response, a focus group study exploring social resistance during the eastern DRC outbreak

revealed eyewitness narratives of aggressive resistance to efforts to contain the virus, including what were perceived as inadequate response efforts, mistrust of the motives of government and other actors, and disrespect for cultural burial traditions (Claude, Underschultz, & Hawkes 2019). The study concludes that this social resistance could be due to deeply seated political and historical mistrust (Claude, Underschultz, & Hawkes 2019).

Since the West Africa outbreak (2013-2016), there have been six additional outbreaks of Ebola, all but one of which have occurred in the Democratic Republic of the Congo; the other, most recent outbreak is currently ongoing in Guinea (2021) (WHO 2021a).

Lower Respiratory Infections

Lower respiratory infections include pneumonia, bronchiolitis, respiratory syncytial virus, and influenza-like diseases (IHME 2021). The nature of influenza viruses is more likely to cause shocks to social and political systems and, thus, will be the focus of this study. According to the WHO, influenza viruses come in one of four types: A, B, C, and D (WHO 2018a). Viruses of the Type A variety can infect both animals and humans; most influenza pandemics can be attributed to the emergence of novel, diverse influenza A strains that can infect humans with sustained human-to-human transmission (WHO 2018a). B-type influenza is responsible for seasonal influenza epidemics (WHO 2018a). Influenza type C can infect humans, but infections tend to be minor and are not often reported (WHO 2018a). Lastly, influenza D is not known to infect humans (WHO 2018a).

Since most influenza pandemics are caused by influenza A types, we will focus on the subtypes of influenza A (WHO 2018a). Influenza A viruses can be classified based on the animal that originally hosted the virus – avian influenza, swine influenza, or other animal-based influenza viruses (WHO 2018a). These different influenza infections can manifest themselves differently in humans – causing anything from a mild upper respiratory infection to severe pneumonia or acute respiratory distress syndrome (WHO 2018a). Out of the two named influenza A types (avian and swine), the avian influenza tends to be more aggressive (WHO 2018a).

Since the year 1580, there have been 31 suspected outbreaks of influenza (Sambala et al. 2018). After experiencing devastating losses due to pandemic influenza in 1957 and 1968 (two to three million deaths in Africa alone) and in anticipation of a future pandemic, the WHO asked member states to develop a pandemic preparedness plan so that, if and when the time came, each nation state could effectively respond to and mitigate the health crisis (Sambala et al. 2018). In a study by Evanson Sambala and his colleagues in 2018, the quality of these plans was evaluated for nations in the WHO African region (Sambala et al. 2018). Of the 35 countries surveyed, 24 plans engaged local people and medical personnel, 22 nations had a communication strategy for spreading information about the outbreak, 26 countries had plans for non-pharmaceutical interventions, like isolation, shutting down schools, or using personal protective equipment, and 17 plans neglected surveillance and reporting methods for accurate data collection

(considered to be one of the most essential aspects of pandemic response) (Sambala et al. 2018). The study found that 74% of the surveyed plans were inadequate in terms of efficacy in mitigating a potential pandemic (Sambala et al. 2018). These plans have important ramifications not only in the sphere of healthcare provision but also in mitigation of the shock a short-wave crisis can pose to an established social and political system, as demonstrated by the outbreak of COVID-19.

Quantitative Analysis

Civil Liberties

The results of the regression analyzing the relationship between short-wave diseases and civil liberties are listed below in Table 4. We can identify a significant, negative relationship between the Ebola rate with a one-year lag and a change in civil liberties over one year. Because the Ebola rate for many nations in sub-Saharan Africa is generally zero, the change in Ebola rate could not be calculated. Furthermore, Ebola is highly specific to two particular regions, Western and Central Africa. Thus, when using the random and fixed effects models to control for intra-country variation, the models do not identify a significant relationship between Ebola and a change in civil liberties. The linear regression identifies a positive and highly significant relationship between the lower respiratory infection rate (one-year lag) and a change in civil liberties. These findings are supported by both the random and fixed effects models (see appendices B and C) and seem to oppose the predictions in Chapter III. In a following section, I will use qualitative methods to explore the variation in results for the Ebola models.

Table 4: Short-Wave Diseases and Civil Liberties

VARIABLES	Change in Civil Liberties	
Ebola Rate (1-year lag)	-17.195**	—
	(7.769)	—
Lower Respiratory Infection Rate (1-year lag)	—	47.998***
	—	(14.071)
Lower Respiratory Infection Rate Change	—	0.615*
	—	(0.328)
GDP per capita (ln)	-0.011**	-0.003
	(0.005)	(0.005)
GDP Growth	0.043	0.066
	(0.084)	(0.081)
Total Natural Resource Rents (% of GDP)	0.000	0.000
	(0.000)	(0.000)
Constant	1.107***	0.339
	(0.040)	(0.328)
Observations	1,173	1,169
R-squared	0.006	0.029

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Civil Society

The table below (Table 5) contains the results for the regression analyzing the relationship between short-wave diseases and civil society participation. Contrary to what was predicted in the expected outcomes section, there is a significant, negative relationship between the Ebola rate (with a one-year lag) and a change in civil society participation over one year. Again, because of the regional specificity of the disease, the change in Ebola rate over one year could not be calculated. Similar to the results from the prior civil liberties analysis, the random and fixed effects models did not identify a significant relationship between the Ebola rate and a change in civil society participation. The linear regression also identifies a positive and highly significant relationship between the lower respiratory infection rate (one-year lag) and a change in civil society participation.

These findings are confirmed by both the random and fixed effects models (see appendices B and C). The results for lower respiratory infections align with the predictions laid out in Chapter III. However, the discrepancy in the Ebola outcomes warrant further exploration through qualitative work.

Table 5: Short-Wave Diseases and Civil Society Participation

VARIABLES	Change in Civil Society Participation	
Ebola Rate (1-year lag)	-23.135***	—
	(7.432)	—
Lower Respiratory Infection Rate (1-year lag)	—	53.832***
	—	(17.708)
Lower Respiratory Infection Rate Change	—	0.691
	—	(0.449)
GDP per capita (ln)	-0.016**	-0.007
	(0.006)	(0.007)
GDP Growth	0.093	0.119
	(0.111)	(0.115)
Total Natural Resource Rents (% of GDP)	-0.000	-0.000
	(0.000)	(0.000)
Constant	1.148***	0.285
	(0.052)	(0.433)
Observations	1,173	1,169
R-squared	0.006	0.021

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Case Study: Liberia's Response to Ebola

The first Ebola epidemic in West Africa mainly affected three nations – Guinea, Liberia, and Sierra Leone (Nyenswah et al. 2014). Guinea's Ministry of Health first reported the outbreak on March 21, 2014, citing symptoms such as fever, diarrhea, and vomiting as well as a high fatality rate (Nyenswah et al. 2014). Nine months later, Liberia had documented the largest number of deaths and cases from the disease, with 6,525 cases and 2,697 deaths (Nyenswah et al. 2014). Not only was Liberia fighting this tremendous epidemic, but the country was also

recovering from the effects of a relatively recent civil war, beginning in 1999 and ending in 2003 (Onishi 2014). The relative newness of the administration, among other factors, fostered distrust between the people and the government, even causing suspicion that the government had fabricated the Ebola crisis in order to receive increased foreign aid (Onishi 2014). The following section seeks to understand how these factors interacted to produce the Liberian government's response to the Ebola epidemic, particularly in terms of this response's effects on civil liberties and civil society.

Early on in the crisis, Liberian President Ellen Johnson Sirleaf declared a state of emergency, imposing a lockdown on the country for a period of 90 days (BBC 2014). According to reports from the BBC, President Sirleaf declared that "some civil liberties might have to be suspended" to contain the outbreak (BBC 2014). Furthermore, she stated that Liberia needed "extraordinary measures for the very survival of our state and for the protection of the lives of our people" (BBC 2014). These measures included restrictions on freedom of domestic movement, particularly a military blockade barring individuals from travelling from Ebola-heavy regions in western Liberia into the capital, Monrovia (BBC 2014). Because of the sudden onset of the disease and the swift imposition of lockdown measures, people were not given sufficient time to prepare, leading to shortages in food staples (BBC 2014). Additionally, there were many preexisting, inherent problems with the Liberian health system, including a lack of health care facilities, equipment, and personnel, which were sharply illuminated during the crisis (BBC 2014).

Two to three weeks after the government imposed the lockdown, there were clashes between police officers and protestors of the lockdown measures in Monrovia (Onishi 2014). The police officers and soldiers, armed with riot gear, barricaded the roads; the coast guard also barred Monrovians from leaving the area via canoes (Onishi 2014). In an attempt to get through the barricades and escape the quarantined area, protesters threw rocks and charged the police officers and soldiers barricading the road (Onishi 2014). The soldiers responded by firing live rounds at the crowd, though the army's brigade commander Colonel Prince Johnson claimed that the soldiers had only fired into the air, driving the protestors away (Onishi 2014).

The measures taken by the Liberian government can clearly be tied back to the theory of securitization expounded by Elbe (2006) and Andrew Price-Smith (2002), as Ebola is painted as a threat to the very existence of the state itself, rather than a political or policy issue. In fact, a state of emergency as defined by the Liberian Constitution requires "civil unrest affecting the existence, security and well-being of the Republic amounting to a clear and present danger," meaning that the securitization of disease was necessary to satisfy the "clear and present danger" requirement fundamental to the existence of a state of emergency (Al-bakri Nyei 2016). These events clearly illustrate and support the negative relationship between the Ebola rate and the change in civil liberties identified by the quantitative results. We should also note, however, that these events did not occur in a vacuum;

the international hysteria surrounding the disease likely played a role in the Liberian response – both of the government and the populace – to the crisis.

The lockdown also had ramifications for civil society organizations within Liberia (Al-bakri Nyei 2016). The state of emergency, and the restrictions on fundamental freedoms it entailed, which President Sirleaf had declared in early August expired in October, and, when she attempted to renew to measures to continue to mitigate the spread of Ebola, the legislature rejected the proposal (Al-bakri Nyei 2016). Many Liberians felt that these restrictions on civil liberties were an attempt to silence the opposition and suppress civil society (Al-bakri Nyei 2016). In the years leading up to the Ebola crisis, Liberia invested heavily in military development, as the country was rebuilding itself after the end of the 1999-2003 civil war (Al-bakri Nyei 2016). While military development may have been necessary, the post-war development seemed to have neglected social infrastructure, such as healthcare and education (Al-bakri Nyei 2016). Rather than looking to civil society for support in mitigating the crisis, the Liberian government, as well as international actors such as the United States, France, and the UK, employed the military in response to Ebola (Al-bakri Nyei 2016). Both national and international responses to Ebola therefore heightened tensions between the Liberian government and civil society actors as well as opposition groups, negatively impacting Liberia's security and stability (Al-bakri Nyei 2016). These actions seem to be reflected in the regression results from the previous section,

demonstrating a negative relationship between the prevalence of Ebola and civil society participation.

While the Liberian government may not have looked to civil society for support, both community-based and faith-based organizations played a critical role in the behavior changes essential to preventing the spread of the virus. In her study of the West African Ebola outbreak, Gillepsie recognizes that "… the formal response at that time paid little attention to working within community structures and did not acknowledge traditional community coping strategies and influences on behavior" (Gillespie et al. 2016: 627). Community-based responses initiated by non-governmental organizations were key to social mobilization in harmonizing respect for traditional funerary practices with health and safety guidelines, allowing for safe, yet dignified burials for loved ones (Park 2020). The role of civil society in facilitating this change signals an increase in civil society participation, contrary to the results of the quantitative analysis.

Chapter VII: Endemic Diseases

Background

Malaria

Malaria is a parasitic disease transmitted through the bites of infected female *Anopheles* mosquitos (WHO 2021b). Of the five different parasite species that can cause malaria in humans, two pose the largest threat – *P. falciparum* and *P. vivax* (WHO 2021b). Based on data from 2018, *P. falciparum* is the leading cause of malaria in the WHO African Region, responsible for 99.7% of malaria cases (WHO 2021b). Furthermore, the WHO African Region accounts for 94% of the global malaria burden (WHO 2021b).

With such a tremendous disease burden, international efforts aimed at eradicating malaria have been profuse. In 1998, the WHO launched Roll Back Malaria (RBM), which aims to strengthen health systems and reduce the disease burden caused by malaria through providing people from all socioeconomic levels access to antimalaria interventions (Sambo et al. 2011). The Global Malaria Action Plan was developed in 2008, providing a strategy to increase cost-effective interventions against malaria (Sambo et al. 2011). In 2009, the African Leaders Malaria Alliance was established as a part of the 64th Session of the United Nations General Assembly (Sambo et al. 2011). This alliance seeks to provide a forum for African leaders to share tools and practices for effective malaria control and to make sure that malaria is a high priority on the global agenda (Sambo et al. 2011). Not only have malaria responses been established through international

organizations, but a myriad of non-governmental organizations (NGOs) have also become involved in the international response to malaria. By far, the largest of these NGO responses has been the Bill & Melinda Gates Foundation, which contributes a little less than 5% of the $4.3 billion annually invested to fight malaria (Bill & Melinda Gates Foundation 2021). Organizations like the Bill & Melinda Gates Foundation, the President's Malaria Initiative, the Global Fund to Fight AIDS, Tuberculosis, and Malaria, and the aforementioned international organizations, seek to mitigate or even eliminate the disease burden caused by malaria, as, with advancements in modern medicine, the disease is both preventable and treatable (WHO 2021b; Bill & Melinda Gates Foundation 2021).

Other Infectious Diseases

This study utilizes an aggregate of other infectious diseases to study the relationship between endemic diseases and the two democratic variables. This aggregate includes measles, tetanus, diphtheria, whooping cough, varicella, encephalitis, and meningitis. On their own, any one of these diseases may not have a tremendous influence on the practice of democracy. However, if one considers their cumulative effects, there may be more tangible or identifiable outcomes to study.

Measles is an extremely contagious, viral illness caused by Morbillivirus (WHO Regional Office for Africa 2021b). The disease spreads quickly among the unvaccinated population, transmitted by droplets emitted from the nose, mouth, or throat of someone who has been infected with the disease (WHO Regional Office for

Africa 2021b). Despite the existence of an effective vaccine, measles is still a leading cause of death among children around the world (WHO Regional Office for Africa 2021b). Like malaria, the international community seems to have mobilized to mitigate or eradicate measles. Established in 2001, the Measles and Rubella Initiative seeks to end child deaths caused by measles and to ensure that children are no longer born with congenital rubella syndrome (WHO Regional Office for Africa 2021b).

Tetanus is contracted when the bacterium *Clostridium Tetani* infects a wound (WHO Regional Office for Africa 2021c). Tetanus infections can be prevented through vaccines containing tetanus-toxoid (WHO Regional Office for Africa 2021c). More worrisome, and mostly fatal, are neonatal tetanus infections, which generally occur in more rural areas where babies are delivered in a non-sterile environment (WHO Regional Office for Africa 2021c). The United Nations Children's Fund (UNICEF) has partnered with WHO and the United Nations Population Fund (UNFPA) in the Maternal and Neonatal Tetanus Initiative to revitalize the pursuit of MNT elimination (WHO Regional Office for Africa 2021c).

Caused by the bacterium *Corynebacterium diphtheria*, diphtheria infects the throat and upper airways, secreting a toxin that can impact other organs (WHO 2018b). Infected individuals mainly transmit the disease through sneezes and coughs that leave droplets in the air, thereby infecting those that breathe in the infected air (WHO 2018b). Diphtheria also has a vaccine available, which has dramatically reduced the disease's mortality and morbidity rates (WHO 2018b).

However, in low-income and developing countries, this vaccine is less easily distributed. Though diphtheria is endemic in some places, we have not seen the same kind of international mobilization against diphtheria as we have for malaria and measles, likely because its death toll is lower than that of these other diseases.

Whooping cough, also known as pertussis, is caused by the *Bordetella pertussis* bacterium (WHO 2021c). This disease is also spread through air infected with droplets produced by coughs and sneezes (WHO 2021c). Often times, individuals who contract pertussis go on to develop pneumonia (WHO 2021c). Like measles, tetanus, and diphtheria, there is also a vaccination for pertussis (WHO 2021c).

Varicella zoster virus (VZV), also known as the chickenpox, is an acute, extremely contagious illness that generally occurs before an individual reaches ten years of age (WHO 2021d). This disease is transmitted through aerosol, droplets, direct contact, or indirect contact through contaminated items (WHO 2021d).

The final two endemic diseases aggregated in the "other infectious disease rate" are encephalitis and meningitis, both affecting the brain. Meningitis refers to inflammation of the meninges, which are membranes surrounding the brain and spinal cord, whereas encephalitis refers to the inflammation of the brain itself (National Institute of Neurological Disorders and Stroke [NINDS] 2020). Some forms of meningitis and encephalitis can be spread by exposure to saliva or other bodily fluids (generally through kissing, coughing, or sharing eating utensils) (NINDS 2020).

There is large variation among the infectious diseases studied here, each of them considered endemic. Some of these diseases, like measles and tetanus, are surrounded by extensive international mobilization, as they are rarely seen in the developed world. However, others like varicella, meningitis, and encephalitis are not geographically specific and affect both high- and low-income countries.

Qualitative Analysis

Civil Liberties

The table below (Table 6) exhibits the results from the regression analyzing the relationship between endemic diseases and civil liberties. The linear regression does not identify any significant relationships between either malaria or the other infectious disease aggregate and civil liberties. The random effects model supports these results, seeming to corroborate the outcomes predicted in Chapter III. However, in running the fixed effects models (see appendix C), I found significant and positive relationships between both the malaria rate (one-year lag) and change in civil liberties as well as the other infectious disease aggregate rate (one-year lag) and change in civil liberties.

Table 6: Endemic Diseases and Civil Liberties

VARIABLES	Change in Civil Liberties	
Malaria Rate (1-year lag)	0.021	—
	(0.032)	—
Malaria Rate Change	0.001	—
	(0.020)	—
Other Infectious Disease Rate (1-year lag)	—	0.914
	—	(1.100)
Other Infectious Disease Rate Change	—	0.466

	—	(0.334)
GDP per capita (ln)	-0.010	-0.006
	(0.007)	(0.006)
GDP Growth	0.044	0.051
	(0.088)	(0.082)
Total Natural Resource Rents (% of GDP)	-0.000	-0.000
	(0.000)	(0.000)
Constant	1.095***	0.588*
	(0.053)	(0.319)
Observations	1,095	1,173
R-squared	0.005	0.008

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Civil Society

Table 7 below displays the results of the linear regression assessing the relationship between endemic diseases and civil society participation. The regression does not indicate any significant relationship between malaria and civil society participation. However, there seems to be a slightly significant, positive relationship between the other infectious disease aggregate rate (one-year lag) and a change in civil society participation. These findings are confirmed by the fixed effects model (see appendix C) but are not supported by the random effects model (see appendix B). The results from the regression and fixed effects model seem to partially support the expected outcomes laid out in Chapter III and will be further explored through qualitative work in the following section.

Table 7: Endemic Diseases and Civil Society Participation

VARIABLES	Change in Civil Society Participation	
Malaria Rate (1-year lag)	0.005	—
	(0.035)	—
Malaria Rate Change	0.002	—
	(0.015)	—

Other Infectious Disease Rate (1-year lag)	—	0.920
	—	(1.113)
Other Infectious Disease Rate Change	—	0.912*
	—	(0.506)
GDP per capita (ln)	-0.018**	-0.010
	(0.008)	(0.007)
GDP Growth	0.092	0.108
	(0.116)	(0.114)
Total Natural Resource Rents (% of GDP)	-0.000	-0.000
	(0.000)	(0.000)
Constant	1.162***	0.180
	(0.064)	(0.482)
Observations	1,095	1,173
R-squared	0.007	0.009

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Case Study: Measles Outbreak in Madagascar

Madagascar's national reference laboratory declared an official measles outbreak on October 4, 2018, starting in the capital city of Antananarivo and spreading to the other 22 regions in Madagascar (Sodjinou et al. 2020). As of April 2019, only 58% of individuals from the main island had received a measles vaccine (Bezain 2019). To prevent an outbreak of measles, vaccination rates need to reach 90-95% due to the highly infectious nature of the disease (Bezain 2019). Between September 2018 and May 2019, Madagascar saw 146,277 reported cases of measles (Sodjinou et al. 2020). The WHO initiated a reinvigorated vaccination campaign after the outbreak, but, according to WHO epidemiologist Dr. Vincent Dossou Sodjinou, these immunization campaigns are not enough – communities are still in need of care, effective case surveillance, and social mobilization (Bezain 2019).

While there is definitely a place for civil society in response to a crisis like a measles outbreak, the roles civil society organizations are permitted to take on in

response to a crisis are limited by the Malagasy government (Makoni 2019). According to an anonymous NGO representative, criticizing the government's response to the outbreak could pose a threat to an NGOs existence, as NGO registration could be terminated and international civil society activists, including missionaries, could have their visas revoked (Makoni 2019). Additionally, according to Munyaradzi Makoni's report for *The Lancet*, corruption is a huge barrier to effective social services (Makoni 2019). Thus, making more space for civil society would be essential for effective response to health security issues, such as the 2018-2019 measles outbreak.

While civil society organizations may be limited in their ability to criticize government preparedness and responsiveness to the crisis, they still played a significant role in overcoming the deadly 2018 measles outbreak (WHO 2019). Community mobilization played a large part in Madagascar's public health response to the outbreak (WHO 2019). The Ministry of Public Health worked closely with UNICEF and USAID, alongside local partners, to spread veracious information about the disease as well as mobilize the measles vaccination campaign (WHO 2019). The measles outbreak in Madagascar seems to have had mixed effects within civil society. On the one hand, there are reports of civil society repression with the silencing of government criticism (Makoni 2019). However, it seems that the Madagascar Ministry of Health did look to civil society for assistance in information and vaccination campaigns during the outbreak. The latter could explain the

positive relationship reported by the quantitative results, but the reports of civil society repression clearly contradict these results.

Chapter VIII: Discussion & Key Comparisons

The variation both among and within each type of disease in terms of their impacts on civil liberties and civil society elicits an interesting line of discussion. As demonstrated by the regression results, there was a positive and significant relationship between both long-wave diseases (HIV and tuberculosis) and both democracy variables (civil liberties and civil society). These are the most consistent results drawn from the regressions, as they are both supported by the fixed and random effects models and reveal a similar relationship between both long-wave diseases and the democracy variables. Moreover, these results are supported by the qualitative case study in Kenya, carried out by Wambuii, which clearly demonstrates that the HIV/AIDS pandemic has been a catalyst for, rather than an impediment to, civil society development.

In contrast, the results for both the short-wave and endemic diseases vary within each category. For example, the significant negative relationship identified between Ebola and both civil society and civil liberties is precisely the opposite of the findings for lower respiratory infections, which identify a positive and significant relationship with both civil liberties and civil society. We also obtain inconsistent results from the analysis of endemic diseases in their relation to civil society. Both malaria and the infectious disease aggregate demonstrate no significant relationship with civil liberties. However, the infectious disease aggregate demonstrates a positive and significant relationship with civil society, whereas malaria does not have any significant relationship.

This variation in results within two of the three categories can be explained in a few ways. In terms of the short-wave diseases, the urgency to respond to each kind of crisis was likely quite different. A study conducted by James Shultz and his colleagues (2016) studied fear-related behaviors in the context of the West African Ebola outbreak. A few of the fear-arousing elements of the Ebola outbreak are relevant to this discussion – including fear-arousing symptoms of the disease, fear-arousing healthcare environment, and fear-arousing government response (Shultz et al. 2016). The symptoms of disease most likely to instill fear in the populace were Ebola's hemorrhagic manifestations; however, the silent and seemingly indetectable spread of the virus from person to person could also be responsible for sparking a fear-based response (Shultz et al. 2016). Furthermore, during the West African outbreak, many communities distrusted healthcare workers and facilities, as illustrated by the storming and raiding of the primary school converted to Ebola clinic in the West Point community in Monrovia (Onishi 2014). Finally, the lockdown imposed by the government sparked fear in the population, particularly due to the effect it had on the economy. This lockdown led to an increase in prices of necessary goods and inhibited people from going to work (Onishi 2014). This aligns with the securitization of disease, or the framing of a health crisis as a threat to national security, illustrated in the Elbe and Price-Smith analysis in the literature review. Thus, the securitization of the Ebola outbreak could have been a key factor in evoking a fear-based response within the populace. The securitization of Ebola

itself could be deemed a fear-based response on the part of the government and its leaders.

Conversely, lower respiratory infections are arguably less likely to cause this heightened panic and elicit a securitization response. The symptoms for more highly communicable respiratory infections are generally the same as those for seasonal influenza. This familiarity would likely lead to a less panicked response on the part of both the populace and the government. Thus, the fear-arousing aspect of Ebola may have been a key factor in producing the quantitatively identified differences in the effects of Ebola and lower respiratory infections on civil liberties and civil society.

In terms of the differences in results between malaria and the infectious disease aggregate, the reasons behind this variation are less clear. The most fundamental difference between the two categories is their mode of transmission. Malaria is transmitted through the bites of female mosquitoes, whereas infectious diseases require person-to-person transmission. Thus, the infectious diseases may take on more qualities of a short-wave disease when prevalence spikes in the population. In contrast, malaria is more of a chronic problem in particular areas and cannot be spread through person-to-person contact. These differences likely elicit different responses from the government.

Chapter IX: Conclusion

The influence of health on governance has often been overlooked in the discipline of political science, despite the vast amount of data available to study these intersections. This study seeks to contribute a novel perspective on the intersection of health and governance and provide a direction for future research on this health-governance relationship.

Scope & Limitations

Due to the limited scope of this particular study, further research is required to understand how disease burden may influence other aspects of democracy, such as different branches of government, elections, media integrity, political equality, and much more. Limitations in the data also impose a significant difficulty. The data used did not include local-level analyses, which would have been helpful, particularly for the endemic diseases and less widespread Ebola epidemics. Additionally, data on prevalence rates tends to be overestimated, largely because it may be extrapolated from smaller, antenatal and maternity clinic data. While this data has become more reliable in recent years (2000-2010), data from the earlier years of the pandemic may have been impacted.

In terms of control variables, this study did not control for the effects of existing diseases and health crises. These diseases do not exist independently of one another. For example, civil liberties and civil society may already be influenced by an existing disease burden (e.g., HIV) when another health crisis strikes (e.g., measles). Thus, isolating these variables for analysis may have impacted the

results. Additionally, future studies would benefit from using foreign assistance as a control variable, as aid programs may have had an impact on the democratic variables studied. Finally, more case studies and qualitative analysis could be used to further flesh-out these relationships and explain the trends in the quantitative results.

Recommendations for Further Study

This study has evoked further questions regarding the nature of the relationship between disease burden and both civil liberties and civil society. First, how do impacts on civil liberties and civil society change as medical technology develops? As vaccines and treatments become increasingly accessible, will this impact these health-governance relationships? Second, as both physical infrastructure (hospitals, personnel, equipment, etc.) and preparedness infrastructure (response plan, international health regulations, etc.) further develop, will health crises and heightened disease burdens hold different implications for civil liberties and civil society? Analyzing the various Ebola outbreaks in West and Central Africa, and how government responses to them have changed over time, might be a good place to start in answering this question.

Obviously, the outbreak of COVID-19 and its impact on democracy and democratization will be an essential area of research as the international community continues to fight this disease. COVID-19 has likely had ramifications in terms of civil liberties and civil society, but it is too soon to determine what exactly this disease's long-term impact will be. Moreover, many nations across sub-

Saharan Africa have held elections during the COVID-19 pandemic or plan to have elections in the near future. Analyzing how these elections and election cycles have been impacted will be imperative in understanding COVID's short-term and potential long-term impact on democratization. However, as noted in the introduction, evaluating democracy within African nations based on an electoral measure has inherent problems due to the various electoral autocracies in power across the continent.

In light of the COVID-19 pandemic, it has become increasingly important to understand the potential impact of health crises and disease burdens (and a government's response to them) on the state of democracy around the world. By identifying past relationships between particular kinds of diseases and manifestations of democracy, we can establish a baseline from which to project our expectations about the ways in which emerging diseases like COVID-19 will impact the practice of democracy.

Appendix A: Country Samples

Appendix A: Country Samples

Countries sampled for regression analysis

Cape Verde (402)	Democratic Republic of the Congo (490)
Sao Tome and Principe (403)	Uganda (500)
Guinea-Bissau (404)	Kenya (501)
Equatorial Guinea (411)	Tanzania (510)
The Gambia (420)	Burundi (516)
Mali (432)	Rwanda (517)
Senegal (433)	Djibouti (522)
Benin (434)	Ethiopia (530)
Mauritania (435)	Angola (540)
Niger (436)	Mozambique (541)
Ivory Coast (437)	Zambia (551)
Guinea (438)	Zimbabwe (552)
Burkina Faso (439)	Malawi (553)
Liberia (450)	South Africa (560)
Sierra Leone (451)	Namibia (565)
Ghana (452)	Lesotho (570)*
Togo (461)	Botswana (571)
Cameroon (471)	Eswatini (572)
Nigeria (475)	Madagascar (580)
Gabon (481)	Comoros (581)
Central African Republic (482)	Mauritius (590)*
Chad (483)	Seychelles (591)*
Republic of the Congo (484)	Sudan (625)

*Not included for malaria analysis
Country code (ccode) included in parentheses

Appendix B: Random Effects Models

Appendix B: Random Effects Models

Civil Liberties

VARIABLES	Change in Civil Liberties					
HIV Rate (lag)	0.020	—	—	—	—	—
	(0.118)	—	—	—	—	—
HIV Rate Change	0.165***	—	—	—	—	—
	(0.026)	—	—	—	—	—
GDP per capita (ln)	-0.014***	-0.010*	-0.012**	-0.013***	-0.006	-0.003
	(0.005)	(0.006)	(0.005)	(0.005)	(0.006)	(0.005)
GDP Growth	0.070	0.043	0.042	0.065	0.051	0.064
	(0.044)	(0.047)	(0.044)	(0.044)	(0.045)	(0.044)
Total Natural Resource Rents (% of GDP)	0.000	-0.000	-0.000	-0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Malaria Rate (lag)	—	0.030	—	—	—	—
	—	(0.036)	—	—	—	—
Malaria Rate Change	—	0.001	—	—	—	—
	—	(0.027)	—	—	—	—
Ebola Rate (lag)	—	—	-19.957	—	—	—
	—	—	(51.540)	—	—	—
Tuberculosis Rate (lag)	—	—	—	0.122	—	—
	—	—	—	(0.078)	—	—
Tuberculosis Rate Change	—	—	—	1.197***	—	—
	—	—	—	(0.413)	—	—
Other Infectious Disease Rate (lag)	—	—	—	—	1.176	—
	—	—	—	—	(0.958)	—
Other Infectious Disease Rate Change	—	—	—	—	0.520	—
	—	—	—	—	(0.451)	—
Lower Respiratory Infection Rate (lag)	—	—	—	—	—	51.852***
	—	—	—	—	—	(11.084)
Lower Respiratory Infection Rate (change)	—	—	—	—	—	0.657**
	—	—	—	—	—	(0.302)
Constant	0.952***	1.097***	1.113***	-0.093	0.525	0.287
	(0.046)	(0.057)	(0.038)	(0.388)	(0.452)	(0.297)
Observations	1,173	1,095	1,173	1,173	1,173	1,169
Number of ccode	46	43	46	46	46	46

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Civil Society

VARIABLES	Change in Civil Society Participation					
HIV Rate (lag)	0.111	—	—	—	—	—
	(0.152)	—	—	—	—	—
HIV Rate Change	0.213***	—	—	—	—	—
	(0.036)	—	—	—	—	—
GDP per capita (ln)	-0.020***	-0.018**	-0.016**	-0.022***	-0.010	-0.007
	(0.007)	(0.008)	(0.006)	(0.007)	(0.008)	(0.007)
GDP Growth	0.129**	0.092	0.093	0.131**	0.108*	0.119*
	(0.062)	(0.066)	(0.062)	(0.062)	(0.063)	(0.063)
Total Natural Resource Rents (% of GDP)	0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)
Malaria Rate (lag)	—	0.005	—	—	—	—
	—	(0.046)	—	—	—	—
Malaria Rate Change	—	0.002	—	—	—	—
	—	(0.038)	—	—	—	—
Ebola Rate (lag)	—	—	-23.135	—	—	—
	—	—	(72.496)	—	—	—
Tuberculosis Rate (lag)	—	—	—	-0.077	—	—
	—	—	—	(0.105)	—	—
Tuberculosis Rate Change	—	—	—	2.475***	—	—
	—	—	—	(0.567)	—	—
Other Infectious Disease Rate (lag)	—	—	—	—	0.920	—
	—	—	—	—	(1.265)	—
Other Infectious Disease Rate Change	—	—	—	—	0.912	—
	—	—	—	—	(0.630)	—
Lower Respiratory Infection Rate (lag)	—	—	—	—	—	53.832***
	—	—	—	—	—	(14.883)
Lower Respiratory Infection Rate (change)	—	—	—	—	—	0.691
	—	—	—	—	—	(0.422)
Constant	0.945***	1.162***	1.148***	-1.216**	0.180	0.285
	(0.060)	(0.075)	(0.050)	(0.532)	(0.631)	(0.413)
Observations	1,173	1,095	1,173	1,173	1,173	1,169
Number of ccode	46	43	46	46	46	46

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix C: Fixed Effects Models

Appendix C: Fixed Effects Models

Civil Liberties

VARIABLES	Change in Civil Liberties					
HIV Rate (lag)	-0.020	—	—	—	—	—
	(0.268)	—	—	—	—	—
HIV Rate Change	0.185***	—	—	—	—	—
	(0.033)	—	—	—	—	—
GDP per capita (ln)	-0.014	-0.025	-0.038***	-0.001	0.029	0.034*
	(0.014)	(0.016)	(0.014)	(0.017)	(0.018)	(0.019)
GDP Growth	0.078*	0.050	0.052	0.054	0.056	0.059
	(0.045)	(0.048)	(0.045)	(0.045)	(0.045)	(0.045)
Total Natural Resource Rents (% of GDP)	-0.001*	-0.001**	-0.002**	-0.001*	-0.001*	-0.001*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Malaria Rate (lag)	—	0.223**	—	—	—	—
	—	(0.090)	—	—	—	—
Malaria Rate Change	—	-0.001	—	—	—	—
	—	(0.027)	—	—	—	—
Ebola Rate (lag)	—	—	-42.772	—	—	—
	—	—	(53.217)	—	—	—
Tuberculosis Rate (lag)	—	—	—	0.454***	—	—
	—	—	—	(0.157)	—	—
Tuberculosis Rate Change	—	—	—	0.646	—	—
	—	—	—	(0.579)	—	—
Other Infectious Disease Rate (lag)	—	—	—	—	15.405***	—
	—	—	—	—	(2.768)	—
Other Infectious Disease Rate Change	—	—	—	—	0.685	—
	—	—	—	—	(0.484)	—
Lower Respiratory Infection Rate (lag)	—	—	—	—	—	98.730***
	—	—	—	—	—	(18.128)
Lower Respiratory Infection Rate Change	—	—	—	—	—	0.863***
	—	—	—	—	—	(0.327)
Constant	0.945***	1.188***	1.336***	0.270	-0.221	-0.277
	(0.124)	(0.126)	(0.108)	(0.563)	(0.504)	(0.360)
Observations	1,173	1,095	1,173	1,173	1,173	1,169
R-squared	0.048	0.017	0.013	0.027	0.042	0.046
Number of ccode	46	43	46	46	46	46

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Civil Society

VARIABLES	Change in Civil Society Participation					
HIV Rate (lag)	0.754**	—	—	—	—	—
	(0.382)	—	—	—	—	—
HIV Rate Change	0.299***	—	—	—	—	—
	(0.048)	—	—	—	—	—
GDP per capita (ln)	-0.013	-0.030	-0.043**	0.000	0.031	0.054**
	(0.021)	(0.022)	(0.020)	(0.024)	(0.026)	(0.027)
GDP Growth	0.153**	0.105	0.111*	0.121*	0.117*	0.116*
	(0.064)	(0.068)	(0.065)	(0.064)	(0.064)	(0.064)
Total Natural Resource Rents (% of GDP)	-0.001	-0.002*	-0.002*	-0.001	-0.002	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Malaria Rate (lag)	—	0.209	—	—	—	—
	—	(0.127)	—	—	—	—
Malaria Rate Change	—	-0.004	—	—	—	—
	—	(0.039)	—	—	—	—
Ebola Rate (lag)	—	—	-18.729	—	—	—
	—	—	(75.668)	—	—	—
Tuberculosis Rate (lag)	—	—	—	0.343	—	—
	—	—	—	(0.223)	—	—
Tuberculosis Rate Change	—	—	—	2.407***	—	—
	—	—	—	(0.822)	—	—
Other Infectious Disease Rate (lag)	—	—	—	—	16.972***	—
	—	—	—	—	(3.955)	—
Other Infectious Disease Rate Change	—	—	—	—	1.138	—
	—	—	—	—	(0.692)	—
Lower Respiratory Infection Rate (lag)	—	—	—	—	—	133.829***
	—	—	—	—	—	(25.828)
Lower Respiratory Infection Rate Change	—	—	—	—	—	1.048**
	—	—	—	—	—	(0.466)
Constant	0.802***	1.235***	1.379***	-1.440*	-0.722	-0.682
	(0.176)	(0.179)	(0.154)	(0.798)	(0.720)	(0.513)
Observations	1,173	1,095	1,173	1,173	1,173	1,169
R-squared	0.044	0.011	0.009	0.027	0.029	0.039
Number of ccode	46	43	46	46	46	46

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

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