young perspectives

THE IMPACT OF OUTBREAKS OF INFECTIOUS DISEASES ON POLITICAL STABILITY:
EXAMINING THE EXAMPLES OF EBOLA, TUBERCULOSIS AND INFLUENZA

CELINA MENZEL

No. 2

Konrad Adenauer Stiftung

KACIRSS

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Foreword

It is a great pleasure to introduce the 2nd edition that we are publishing within the framework of "Young Perspectives". "Young Perspectives" is a publication series of the newly founded "Konrad Adenauer Center for International Relations and Security Studies" (KACIRSS). It gives outstanding young academics from all around the world an opportunity to publish their theses on current topics in the field of international relations and security. Above all, "Young Perspectives" allows experts at the early stages of their career to share their research, ideas, and observations with a broad audience.

While the first publication "The United States' Rapprochement with Cuba: Reasons, Reactions, and Repercussions" by Judith Radtke analyzed the changes in U.S.-Cuban relations, this second publication broadens our perspective from a focus on Latin America and the Carribean to a more global issue of urgency: the impact of outbreaks of infectious diseases on political stability. In the past decade, large-scale outbreaks of ebola, avian flu and swine flu have reminded the world of the dangers that are associated with severe outbreaks of infectious diseases and earned them a more prominent role on international agendas.
Infectious diseases do not only cause human suffering, but they also affect political, economic and societal prospects. I think we all remember too well how the ebola outbreak in Sierra Leone, Liberia and Guinea in 2014-2015 lead to severe economic disruptions, a standstill of public life, the suspension of education, protests in the streets, and a loss of trust in social relationships. Ultimately, the horrendous effects of the outbreaks of infectious diseases may negatively affect political stability and potentially destabilize a country. However, this does not seem to be the case for all infectious diseases: while some show clear destabilizing potential, others seem to be less prone to having such effects.

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Considering that severe political instability can not only hamper development, but ultimately undermine a state's capacity to fulfil its functions, it is crucial to understand the factors at play and address them in the most effective way possible. Thus, a more profound understanding of which infectious diseases are particularly prone to lead to political instability and why they would do so is crucial in order to inform adequate and targeted policy responses. Therefore, Celina Menzel examines whether outbreaks of infectious diseases – namely ebola, tuberculosis and influenza – differ in their impact on political stability, and offers explanations for such differences.

In order to do so, she presents the state of research on the link between infectious diseases and political stability before conducting a quantitative analysis that examines the statistical impact of outbreaks of each of the three diseases on the political stability in afflicted countries all around the world between 1996 and 2014. In order to go beyond statistical correlation, Celina Menzel then proceeds to link the quantitative results to information gained through interviews with public health and medical professionals, academics, and diplomats in West Africa.

The results are somewhat counter-intuitive and surprising. The three diseases differ in their impact on political stability – but why would outbreaks of ebola have a positive impact? Celina Menzel provides an explanation that is based on and backed by a social-constructivist approach by examining more closely the example of the 2014-2015 ebola outbreak in West Africa.

Those readers who know our first publication will see that "The Impact of Outbreaks of Infectious Diseases: Examining the Examples of Ebola, Tuberculosis and Influenza" provides a profoundly distinct read and focus. Thus, with this publication "Young Perspectives" and KACIRSS are broadening their focus, moving from Latin America to West Africa and the rest of the world. This publication gives readers valuable insights on the interconnectedness of political stability and public health, or security and development issues in a broader sense. I sincerely hope that, once again, our readers will enjoy this interesting publication within the framework of Young Perspectives and take away some memorable points.

Prof. Dr. Stefan Jost
Director of the Country Program Mexico and KACIRSS
Konrad Adenauer Foundation
Mexico, November 2017

CHAPTER 1

Introduction

Over the last two decades, outbreaks of severe acute respiratory syndrome (SARS), avian flu, swine flu, and ebola have reminded the world of the risks associated with outbreaks of infectious diseases. Since the 1960s, a growing number of such previously unknown disease agents have emerged. Simultaneously, well-known pathogens like cholera, malaria, and tuberculosis (TB) have re-emerged (Braun 2016: 1, Patrick 2011: 209, Fonkwo 2008: 13). Not only have factors like increased human mobility and migration, global trade and travel, population growth, urbanisation, changing agricultural practices, and ecological disruption have facilitated the emergence and re-emergence of infectious diseases (Patrick 2011: 233-234, WHO 2012: 24, Fonkwo 2008: 14, Gayer et al. 2007: 1625), but new global communication technologies facilitated the rapid spread of information, images, and stories about health crises to a wider audience (McInnes 2016: 384). Numerous health experts warn of growing risks of infectious disease outbreaks, especially with accelerated anti-microbial resistances and increasing non-compliance with vaccination policies (NIAID 2004: 71). This does not only pose a severe risk to human health and well-being, but also affects societal, economic, and political prospects. One aspect of the issue is the effect that infectious disease outbreaks can have on political stability. It is well-established that instability and conflict facilitate the (re-)emergence of infectious diseases, e.g. through destroyed health infrastructure, the disruption of disease control programs, limited access to health services, flight of trained health workers, and population displacements (Gayer et al. 2007: 1625, Patrick 2011: 230-231, McPake et al. 2015: 1-3). Yet, there is growing awareness that severe outbreaks of infectious diseases may also negatively affect political stability in afflicted countries. Although the link may not always be clear and there remains room for debate, many researchers, practitioners, and policymakers today assume that an indirect or direct link exists.

In 2012, the World Health Organisation (WHO) stated that "Infectious diseases have shaped societies, driven conflict and spawned the marginalization of infected individuals and communities throughout history" (WHO 2012: 10). Similarly, the Munich Security Conference (MSC) report from 2016 asserts that "In addition to the human toll, major outbreaks can also have significant impacts on economies and pose a political risk to governments, particularly those in fragile states that fail to control the disease" (MSC 2016: 42). In practice, the most recent 2014-2015 ebola outbreak in West Africa showed clear destabilising potential in the most-affected countries, particularly as unprepared health systems broke down, economies were strongly affected, human development and well-being suffered severely, and fear spread widely. The outbreak sparked unrest, as clinics and health facilities were violently attacked, patients and hospital items removed, and health staff threatened (Murrey 2014). In contrast, high TB rates in the region have not sparked any comparable reaction. For instance, Sierra Leone ranks near the top in TB death rates worldwide, with TB-induced deaths constituting a multiple of the deaths caused by ebola (World Life Expectancy 2016). The cursory observation of this empirical example indicates that some diseases may be more prone than others to affect political stability, although they objectively do not pose a greater risk to human well-being and development. This puzzle informs the following research question: Do outbreaks of different diseases - namely ebola, tuberculosis, and influenza - differ in their impact on the political stability of a country where an outbreak occurs? If that is the case, what can explain these differences? This research question is of interest for several reasons: Although political change is often necessary for positive development and inherent to democracy, frequent (and unconstitutional) political changeovers can pose challenges to effective governance (Steinberg 2012: 261). Therefore, political instability can impair the social, economic, political, and human development of a country and society, e.g. by hampering tax collection, high-quality education, adequate health systems, social programmes, economic productivity and investment, and law enforcement. If political instability is so rampant that it severely undermines the state's capacity to fulfil its functions, the country may become a breeding ground for organised crime, terrorist groups, or militias, operating across borders and regions. Thus, gaining insights on the different factors that affect political stability is crucial. However, resources and political commitment are not inexhaustible, wherefore it is delusive to believe that all diseases can be effectively targeted. Therefore, a better understanding of which infectious diseases are particularly prone to political destabilisation may be helpful to inform policy decisions on targeted responses.

This thesis makes a modest attempt to examine whether ebola, tuberculosis and influenza differ in their impact on political stability and provides possible explanations for such differences. In doing so, the thesis proceeds as follows: First, I present the state of research on the link between infectious diseases, security, and political stability, before providing a brief presentation of the three diseases in question. Subsequently, I give an overview of my quantitative analysis, including the chosen model and variables, descriptive statistics, and regression results for each of the three diseases. In order to go beyond statistical correlations and gain further information about the forces at play, I link the quantitative results to findings from interviews with public health and medical professionals as well as diplomats in West Africa. Finally, I discuss the results through a social-constructivist approach, focusing on the example of the 2014-2015 ebola outbreak in West Africa, before making concluding remarks.

CHAPTER 2

Linking Infectious Diseases and Political Stability

2.1 The State of Research

Although numbers are declining, infectious diseases are still the leading cause of death worldwide, killing more people than all wars and natural disasters combined (Braun 2016: 3, Patrick 2011: 210). In recent years, attention has increasingly shifted to non-communicable diseases (NCDs) as a major cause of morbidity, but many NCDs are linked to prior infection with pathogens (WHO 2012: 17-18). Since the 1960s, a growing number of previously unknown disease agents have emerged, while well-known pathogens like cholera, malaria, and tuberculosis have re-emerged (Braun 2016: 1, Patrick 2011: 209, Fonkwo 2008: 13). The (re-)emergence of infectious diseases has been facilitated by a range of factors, including increased human mobility and migration, global trade and travel, population growth and increased urban density, altered agricultural practices, close contact with livestock, deforestation and ecological disruption, conflict, weak institutions, misuse of anti-microbial drugs, decreased compliance with vaccination policies, and poverty (Patrick 2011: 233-234, WHO 2012: 24, Fonkwo 2008: 14, Gayer et al. 2007: 1625, NIAID 2004: 71). These factors allow pathogens to interact and mutate, spread to and amongst human populations, and to disseminate over large distances. Along with the growing risk of epidemics and pandemics, health issues have attracted attention from national security communities and the notion of 'health security' has become commonplace (Braun 2016: 1). For example, the U.S. National Science and Technology Council (NSTC) identified infectious diseases as a national security threat in 1995. In 2000, the U.S. National Intelligence Council (NIC) released a report stating that (re-)emerging infectious diseases threatened U.S. citizens and armed forces, and exacerbated social and political instability in countries and regions of U.S. interest (Patrick 2011: 209).

More recently, outbreaks of SARS, avian flu, swine flu, and ebola have caught global attention, and in 2016 the MSC put infectious diseases on its agenda, stating: "Because of their threat to human health, to economies, and to the stability of states as a whole, lapses in health security can become issues of international security" (MSC 2016: 42). In the literature, Garrett (1994) pioneered in showing how the proliferation of diseases threatens the national security and global interests of the U.S.. Her work was pivotal for bringing issues of health security to the attention of policymakers (Garrett n.d., Price-Smith 2002: 9). Similarly, Pirages (1995) was among the first to link infectious diseases to state security and foreign policy, suggesting a range of further research avenues (Pirages 1995, Price-Smith 2002: 9). Today, issues of health security and infectious diseases are to an unprecedented extent on the agendas of policymakers and world leaders (NIAID 2004: 72). Nevertheless, the fields of health and security are still characterised by mutual scepticism. While health is regarded a rather 'soft' issue in the security community, health experts fear a 'militarisation' of health, undermining transparency and the political neutrality of humanitarian workers (Braun 2016: 1-2, Davies and Rushton 2016: 429). Both sides have their points. Since civilian capacities in outbreak emergencies are limited, the military or medical and logistical reserves can be rapidly mobilised to fill gaps (Hirschmugl 2015: 107, Braun 2016: 2). Davies and Rushton (2016) examine the role the UN Mission in Liberia (UNMIL) could have played during the 2014-2015 ebola outbreak. They discuss the provision of medical and humanitarian assistance by peacekeeping missions and examine advantages and downfalls, including the undermining of humanitarian neutrality and the dangers of ill-prepared interventions through insufficiently trained soldiers (Davies and Rushton 2016: 429-430). Other concerns over addressing health in security terms include the notion that health issues may become a priority only when the West feels threatened (Roemer-Mahler and Rushton 2016: 375, Abeysinghe 2016). Finally, Anderson and Beresford (2015) criticise that viewing health as a security issue entails security-driven, reactive responses, overlooking the underlying structural, socio-economic and political underpinnings of health crises. Clearly, the securitisation of health should not be promoted mindlessly. Nevertheless, health security includes a range of important issues to be considered. One is the link between infectious diseases, political stability, and state capacity.

Relying on largely anecdotal evidence, historians have examined the effects of infectious diseases on societies and their role in the downfall of empires and civilisations (Price-Smith 2002: 10). Watts (1997) examines the destructive impact the bubonic plague had on Venice, its economic power and international role in the 14th century. Based on anthropological evidence, McNeill (1976) declares that debilitating pathogens may have played an important role in the expansion and collapse of various societies throughout history. For instance, the plague that struck Athens during the Peloponnesian War fatally affected Athenian war efforts and governance, and thus contributed to the fall of Athens. He also attributes decreases in power of the Byzantine Roman Empire in the 6th century to plague outbreaks. Finally, he shows that the collapse of feudalism may be linked to repeated waves of pneumonic and bubonic plague that struck Europe in the 14th and 15th century. These recurrent episodes of mass mortality likely undermined the legitimacy of authority structures like the Roman Catholic Church and resulted in labour shortages that allowed bondsmen to claim more rights. Initiated by these events, the Protestant rebellion ultimately resulted in the Thirty Year's War (McNeill 1976, Price-Smith 2002: 11).

Focusing on contemporary times, Patrick (2011) describes the reciprocal spiral dynamic between the spread of infectious diseases and weak state capacity. He argues that weak states are not only incapable of adequately preventing and addressing disease outbreaks, but that outbreaks can further weaken fragile states, exacerbate poverty and instability, and undermine resilience to exogenous shocks (Patrick 2011: 207-209). He argues that high disease prevalence can increase the risk of violence and instability by undermining traditional coping mechanisms of households, impairing economic productivity, increasing the risk of food shortages, and leading to population age structures with large youth cohorts, all of which reinforce a country's propensity to turmoil. Moreover, rampant outbreaks could induce a loss of political legitimacy when national budgets, the provision of services, and state capacity erode. However, he also stresses that the empirical link between infectious diseases, state capacity, and violence is less clear than often claimed (Patrick 2011: 236). In contrast, Price-Smith (2002) provides quantitative empirical evidence for the existence of a significant negative correlation between infectious disease rates and state capacity. This association holds across regions and considerable time periods (Price-Smith 2002: 49-66). He argues that higher levels of infectious diseases act as stressors on state capacity by generating political, social and economic instability, and eroding governmental capacities (Price-Smith 2002: 22). The combination of increased demand on the government, mounting pathogen-induced deprivation, and declining government capacity can then lead to political destabilisation and intra-state violence (Price-Smith 2002: 15, 171-172). More specifically, high levels of infectious diseases can destabilise national economies, decrease per capita income and living standards,

deplete work forces, affect productivity, reduce fiscal resources and government revenue, divert government expenditure, affect tourism and trade, and reinforce perceived and real income inequalities (Price-Smith 2002: 115-116, WHO 2012: 13-14, Fonkwo 2008: 15-16). According to the state weakness hypothesis in the security and conflict literature, the corresponding resource scarcity and poverty can act as stressor variables that create opportunities and incentives for citizens to participate in collective violence against the status quo. Moreover, in a situation of shrinking resource availability, political elites enter into competition for their share, political polarisation increases, and intra-elite violence (e.g. a coup d'état) becomes more likely (Price-Smith 2002: 124, Fonkwo 2008: 15). In addition, the disease poses a threat to the well-being of the population as guaranteed by the state. If the state is incapable of providing adequate protection of its citizens against the impact of pathogens, the citizen-state contract is shaken and legitimacy is weakened. Thus, debilitation and death do not only lead to psychological stress among the population, but also undermine the legitimacy of the ruling elites and authority structures, increase anti-governmental activities, aggravate institutional fragility, and impede effective governance (Price-Smith 2002: 124-130).
Following a slightly different focus, Cervellati et al. (2011) examine whether a high and persistent exposure to infectious diseases increases a country's risk of civil conflict. For their analysis, they use a new measure of disease prevalence to circumvent endogenous factors linked to economic development and socio-economic conditions (e.g. the quality of health infrastructure, education, and general health conditions). For this purpose, they use data on the geographic distribution of infectious disease pathogens that are endemic to a country to construct exogenous indices of extrinsic disease richness or disease environment for each country (Cervellati et al. 2011: 3). They find that large disease richness has a statistically robust and quantitatively relevant effect on the risk of civil conflict. Presumably, exposure to harsh disease environments, poor health, and high mortality rates reduce opportunity costs of engaging in violent activities (Cervellati et al. 2011: 2).

In sum, the existing literature on health security provides detailed accounts of the link between infectious diseases and political stability or state capacity. However, little attention has been paid to whether certain infectious diseases are more likely to affect political stability than others. That is surprising because a better understanding of which diseases are prone to destabilisation would be useful to develop more targeted responses. In the following sections, I make an attempt to examine whether ebola, tuberculosis, and influenza differ in their impact on political stability.

2.2 The Diseases in Question: Ebola, Tuberculosis and Influenza

Patrick (2011) distinguishes among pathogens and their expected threat to security and stability based on four factors: lethality of the disease, economic impact of an outbreak, ease and rate of transmission, and the potential geographic scope (Patrick 2011: 210). This distinction is beneficial in guiding choices of diseases to be examined and compared. I choose to look at ebola, tuberculosis, and influenza as they differ in a number of aspects, but remain comparable. When it comes to lethality and the number of disease-induced deaths, the three diseases differ substantially. Tuberculosis is one of the leading causes of death worldwide. In 2014, about 6.6 million people contracted tuberculosis and 1.5 million died, with global case-fatality rates ranging between 7-35% (WHO 2015a: 1, Lin et al. 2014: 1). Influenza affects considerable parts of the global population and kills about 500,000 people annually, with case fatality rates varying strongly between years and circulating subtypes; nonetheless, a severe influenza pandemic could lead to substantial death rates (World Bank 2013, Fan et al. 2016: 5, RKI 2015: 18). In contrast, an estimated 11,200 people died of ebola during the 2014-2015 outbreak. Although case fatality rates for ebola are high (50-90%), the total number of deaths is relatively low (Muyembe-Tamfum et al. 2012: 7, Fan et al. 2016: 3). Comparing the actual economic cost of each disease is hardly feasible due to stark differences in the scope of outbreaks, but all three diseases potentially induce severe economic costs on the international, national, household and individual level, varying with the gravity of the outbreak and the country's economic resilience. The World Bank estimates that a severe influenza pandemic could result in a 4-5% loss of global gross national income (GNI) (Fan et al. 2016: 2). Guinea, Sierra Leone, and Liberia lost an estimated $2.2 billion in their gross domestic products (GDP) to ebola in 2015 (CDC 2016a). According to estimates by the WHO, tuberculosis results in an annual loss of $12 billion of the global economy (Kim et al. n.d.). Concerning the ease of transmission, airborne diseases like influenza and tuberculosis spread very easily and rapidly. The lack of clear symptoms during their contagious periods exacerbates the potential for far-reaching spread and complicates containment efforts (Patrick 2011: 210, Interviewee4 2016, personal interview[1]).

[1] Personal interview with Interviewee4 on infectious diseases and political stability, Würzburg/ Washington DC, 16 September 2016.

Although highly contagious, ebola is less easily transmitted as transmission requires direct contact with bodily fluids or contaminated objects (Patrick 2011: 217, Muyembe-Tamfum et al. 2012: 1). The incubation period lasts 2-21 days with symptoms showing throughout the contagious period, which theoretically allows isolating patients early-on. However, symptoms initially are unspecific, which often leads to confusion with other diseases and delays an adequate response (Muyembe-Tamfum et al. 2012: 2). While ebola outbreaks so far have been limited to parts of Sub-Saharan Africa (Map A.1, Annex A), individual cases have also taken place in some middle- and high-income countries (CDC 2016b). As Map A.2 (Annex A) shows, tuberculosis rates are particularly high in Sub-Saharan Africa and South-East Asia. Low-income countries are predominantly affected. Nevertheless, tuberculosis is making a steady comeback in high-income countries, especially in Canada and the U.S. (Price-Smith 2002: 7). Finally, yearly influenza outbreaks typically spread to most regions of the world, affecting developing and developed countries alike (WHO 2014b). Another noteworthy factor is the manner in which the three diseases hit a society. Influenza usually occurs in recurring rapid-onset, short-wave epidemics, whereas tuberculosis tends to be chronically present over extended periods of time (WHO 2014b, Van Helden 2003: 24). Ebola outbreaks also spread quickly and are usually limited to rather short time spans, but to date do not recur as regularly as influenza.

In sum, ebola, tuberculosis, and influenza differ in a number of aspects (e.g. morbidity and mortality rates, ease and rate of transmission), but remain comparable in their potential for geographic dissemination and economic harm, which makes them suitable for this analysis. Furthermore, all three diseases are of significance: Ebola has reminded the international community of the devastating consequences a virulent infectious disease outbreak can have, tuberculosis is one of the leading causes of death worldwide, and influenza is probably the most underestimated disease with considerable pandemic potential. Document B.1 (Annex B) includes a more detailed account of the diseases.

CHAPTER 3

Quantitative Analysis

3.1 Model and Variables

In my analyses, I hypothesise that the case numbers of ebola, tuberculosis, or influenza significantly correlate with the level of political stability in affected countries in a given year. Naturally, the null-hypothesis is that there is no significant correlation. Moreover, I expect the correlation strength to differ between diseases.

The presence of unobserved time-invariant, country-specific effects calls for the use of a fixed-effects or random-effects model in order to limit omitted variables bias (Wooldridge 2013: 460). Factors like local culture, customs, or a country's history hardly vary over relatively short time spans (as covered in this analysis), but they may affect political stability. For example, a country's history may impact its propensity to challenge the government, and some societies differ in the way they react to threats and danger. Consequently, time-invariant differences between countries likely have an effect on the dependent variable.[2] Employing a fixed-effects or random-effects model allows to control for such time-invariant, country-specific effects. However, a Hausmann-test shows that the random-effects correlate with the residuals, which can lead to inconsistent and biased results in the analysis. Therefore, I opt for the fixed-effects model. More specifically, I will use a cluster model that partials out fixed-effects and is robust to group-level shocks or serial correlation of residuals in order to address any remaining within-group correlation (Nichols and Schaffer 2007: 3-5). In doing so, I assume that there are unobservables that correlate over time within a given country, resulting in serial correlation of error terms. [3]

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[2] An F-test confirms my assumption that the time-invariant, country-specific effects are not jointly zero. Therefore, I cannot use Ordinary Least Squares (OLS), but have to revert to a fixed-effects or random-effects model.

[3] This is verified by the Wooldridge test for auto-correlation or time-correlation.

However, I also assume that random error terms of one country do not correlate with those of another country (Nichols and Schaffer 2007: 5). For example, the error term of Uganda in 2003 should correlate with the error term of Uganda in 2004 because a number of unobserved factors in Uganda are related to the same factors in previous years. However, the error term of Uganda in 2003 is unlikely to correlate with the error term of Germany in 2003 because the two countries have very different conditions. This kind of cluster model is standard in the panel or serial correlation literature (Nichols and Schaffer 2007: 6). In addition to increasing the efficiency of point estimates in regressions, it can also help to correctly model the variance of estimates and compute effect sizes (Nichols and Schaffer 2007: 9). At the same time, specifying clusters does not inflict costs if my assumptions are not satisfied because the standard error estimates would roughly equal those obtained without cluster specification (Nichols and Schaffer 2007: 19).
Furthermore, I employ year-fixed effects in order to control for temporal variation in political stability (e.g. due to unobserved events or other year characteristics) that are not adequately captured by my explanatory variables, and to capture the influence of aggregate trends in time-series that may cause variables to be spuriously related (Woodridge 2013: 363-364). My analysis is limited to the period of 1996-2014 because the political stability indicator is available only for that timeframe. Moreover, most countries only have sufficient data on disease prevalence starting in the mid-1990s. Considering that the analysis includes over 120 countries over a time span of 18 years, the number of observations will be sufficient to obtain meaningful results.

The dependent variable of this analysis is political stability, as captured by the Political Stability and Absence of Violence (PV) indicator provided by the Worldwide Governance Indicators (WGI) project of the World Bank. The PV indicator captures perceptions on the likelihood of a destabilisation of government or disorderly transfer of government power through unconstitutional means, including violent protest, armed conflict, social unrest, terrorism, ethnic clashes, or international tension (Kaufmann et al. 2010: 4, WGI n.d.b).[4]

[4] See Table B.1 (Annex B) for a more detailed description of the indicator.

It is well-known and combines information from a variety of sources. The indicator is available for 1996, 1998, 2000 and 2002-2014 and its scale ranges from 2.5 (strong political stability) to -2.5 (weak political stability) on a standard normal distribution (Chao 2015: 8). However, extreme cases with higher scores occur (WGI n.d.b).

The three independent variables of main interest are the three disease variables representing the estimated number of cases of ebola, tuberculosis or influenza per 100,000 inhabitants in a country in a given year. Unlike Cervellati et al. (2011) or Acemoglu et al. (2001), I employ data on actual cases instead of considering the disease environment of endemic pathogens. While their indicator provides time-invariant measures of extrinsic exposure to infectious pathogens (Cervellati et al. 2011: 5), my analysis requires time-variant information on the actual case prevalence in different countries. Considering that tuberculosis and influenza pathogens are endemic to most countries, using time-invariant information would not allow for sufficient differences between countries, while impeding the use of country-fixed effects (Cervellati et al. 2011: 14). The data are taken from the U.S. Center for Disease Control (CDC), the WHO, and the World Bank. Expressing the number of cases in terms of 100,000 inhabitants allows comparing countries with different population sizes. Furthermore, several interview partners expressed the view that it is not the total number of cases, but the share of the population affected that is decisive in impacting political stability *[Interviewee1 2016, personal interview[5]; Interviewee2 2016, personal interview[6]; Interviewee3 2016, personal interview[7]]* For example, 2,000 cases potentially have a stronger impact in a rather small country than in a large country with a population of 100 million.

Other independent variables include socio-economic variables such as GDP per capita and population growth as well as politico-historical variables like government effectiveness and history of instability. GDP per capita is taken from the World Bank database and serves as a proxy for economic development (Dreher et al. 2009: 9). In this analysis, using infant mortality (which is frequently used as a development proxy) would cause severe problems due to strong correlations between the prevalence of diseases and mortality rates.

[5] Personal interview with Interviewee1 on infectious diseases and political stability, Washington DC/Bonn, 21 April 2016.

[6] Personal interview with Interviewee2 on infectious diseases and political stability, Washington DC, 6 May 2016.

[7] Personal interview with Interviewee3 on infectious diseases and political stability, Berlin, 5 July 2016.

GDP per capita (in terms of Purchasing Power Parity, PPP) reflects the average income per person, allowing conclusions about the average standard of living, the population's economic hardship, and the availability of state resources for public and social services (Cervellati et al. 2011: 13). Countries with low income and grave economic hardship may be more likely to experience political instability because the population may feel urged to take action against a government that is unable or unwilling to ensure decent living standards as well as adequate public and social services for its people (Gebremedhin and Mavisakalyan, n.d.: 6). Moreover, the opportunity costs of quitting a legal source of income are low, which has been found to make engagement in subversive activities or militias more likely (Collier and Hoeffler 2004: 569).

Population growth reflects elements of socio-economic development in a country. Frequently, population growth is considerably higher in low-income countries than in high-income countries because it is linked to factors such as income opportunities, access to education, and human health (Soubbotina and Sheram 2000: 17). Furthermore, high population growth may affect political stability by increasing population pressure and competition for land and resources. Finally, highly populated countries are expected to have greater heterogeneity and socio-economic challenges, which may have destabilising effects (Gebremedhin and Mavisakalyan, n.d.: 11, Cervellati et al. 2011: 13). Data on population growth are provided by the World Bank.

Government effectiveness reflects the overall quality of government. The binary dummy variable used in this analysis is based on the Government Effectiveness indicator by the World Bank's WGI project. Said indicator reflects "perceptions of the quality of public services, the quality of the civil service and the degree of independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies" (WGI n.d.a: 1). Like the PV indicator, it includes a variety of individual variables and ranges from -2.5 (weak) to 2.5 (strong). The binary dummy variable in this analysis takes on the value one, when government effectiveness is perceived as weak, i.e. the WGI Government Effectiveness indicator is smaller than zero. It takes on the value zero in all other cases.[8]

[8] See Table B.1 (Annex B) for a more detailed description of the underlying indicator.

I employ a dummy variable because I am less interested in the implications of fine gradations of government effectiveness, than in those of generally weak government effectiveness. Government effectiveness strongly affects the people's satisfaction with their government: In countries where the perceived quality of public services and the public sector is low, the government is likely to lose legitimacy and popular support, to raise resentment in the population, and to give ground to opposing political forces (Magalhaes 2014: 78). [9]

A history of conflict or instability in a country increases the likelihood of continuation or relapse into conflict and instability (EIU 2009). Therefore, the history variable reflects the occurrence of unconstitutional regime change/ coups d'état or violent conflict in the previous twenty years, as recorded by the Political Instability Task Force (PITF) (PITF 2015). It is a categorical variable taking on the value zero, if no coup or conflict has been recorded by PITF in the previous twenty years. Otherwise, it takes on the values one (one coup/conflict recorded), two (two or more coups or conflicts recorded), or three (a current coup or conflict within that same year). I do not differentiate between types of conflict or unconstitutional regime change because the decisive fact is that such event has occurred. Moreover, I limit the timeframe to twenty years because post-conflict periods usually last between five and twenty years and are characterised by slowly decreasing likelihood of relapse into conflict or instability (Roberts et al. 2012, Gebremedhin and Mavisakalyan, n.d.: 11). In doing so, I exclude events that have occurred in the far past. For instance, an unconstitutional regime change in the 1950s is unlikely to affect political stability today.

[9] Furthermore, government effectiveness also affects the state's capacity to deal with crises or challenges, such as epidemiological outbreaks. For example the quality of medical infrastructure or the effectiveness of counter-measures like quarantines or access to medical treatment, disease surveillance, and rapid response are important elements in successful outbreak control. A government that is incapable of effectively addressing such challenges is more likely to lose support and be challenged by its population *[Interviewee1 2016; Interviewee2 2016; Interviewee3 2016]*. Such effect of disease outbreaks coupled with weak government effectiveness could be further explored through interaction effects. My own analysis of such interaction effects did not reveal any significant correlation between political stability and the combination of disease outbreaks and weak government effectiveness. That does not mean that it does not exist. Possibly, my model was inappropriate or the data I employ are unsuited to reveal such links.

Besides this primary set of variables, various factors may also affect a country's political stability. For example, the PITF uses a model to predict political instability based on infant mortality rates, the status of minorities, a country's neighbourhood, and regime type (EIU 2009). As mentioned, using infant mortality in this analysis would cause severe problems due to strong correlations between the prevalence of diseases and mortality rates. The status of minorities reflects economic or political discrimination against minority groups. The greater discrimination, the more likely are uprisings and social unrest (EIU 2009). The data are provided by the Minorities at Risk (MAR) project. Unfortunately, they only date to 2006, which does not allow including the variable in my analysis, especially because a number of countries do not have influenza data available before 2005. Ethnic fractionalisation is another important variable, with high fractionalisation increasing the likelihood of social conflict, unrest, and political struggle (Alesina et al. 2003, Gebremedhin and Mavisakalyan, n.d.: 2, Cervellati et al. 2011: 13). However, there are no reliable time-series data on ethnic fractionalisation available. By using indicators that capture fractionalisation at a single point of time, I would not only incorrectly assume a constant degree of fractionalisation over time (Chao 2015: 13-14), but the indicator would also fall under the time-invariant country-specific effects that are excluded from the regression by the fixed-effects model. Regime type is another factor that is often expected to affect political stability (Chao 2015: 5). Usually, highly autocratic regimes and long-established democracies are the most stable regimes, whereas non-consolidated democracies and hybrid regimes are more prone to instability (Steinberg 2012: 263, EIU 2009, Hussan 2014). The data for such classifications come from the polity2 index of democracy by the PolityIV project (PolityIV 2015). In preliminary analyses, I did not find any significant correlation between regime type and political stability. However, the data are unbalanced and the number of observations is too small to obtain meaningful results. Therefore, I do not include regime type as a control variable in my analysis. The EIU (2009) also points to the role of unemployment: In the face of significant unemployment, dissatisfaction with the government may lead to protest and political turmoil. However, data on unemployment rates are rather patchy, causing distortions. Similarly, societal inequality may have implications for political instability by causing resentment among disadvantaged groups, escalation of social fragmentation, and regime destabilisation (Gebremedhin and Mavisakalyan, n.d.: 7). However, data on the Gini coefficient or comparable measures of inequality are too fragmented so their inclusion would lead to a heavily unbalanced dataset. Finally, corruption is often expected to increase political instability by causing dissatisfaction with authorities and civil unrest (Chao 2015: 6, 12, EUID 2009). Nonetheless, I exclude corruption measures from the analysis as estimation of the variance inflation factor (VIF) indicates multicollinearity with government effectiveness. Perceptions on the quality of public services also reflect perceptions on corruption, while including broader information on the state of public services.

For robustness checks, I include a variable reflecting the neighbourhood of a country. Countries that border on states facing instability, coups or violent conflict are expected to be more likely to experience instability themselves due to spill-over effects (EIU 2009). Recent examples include the destabilising effects that spilled over during the so-called Arab Spring, when political turmoil originating in Tunisia swept the Middle East and North Africa (MENA) region (El-Katiri et al. 2014: 4). Similarly, the Syrian civil war has destabilising effects on Lebanon, where fragile political balances increasingly come under pressure (Shafi 2013). The neighbourhood variable is based on data from the PITF database. It is a categorical variable taking on the values zero (if there was no coup or violent conflict recorded for a neighbouring state that same year), one (one neighbour had a coup/conflict), or two (two or more neighbours had coups/ conflicts). At last, I limit the analysis to non-OECD members, excluding all formal OECD members from the regression (based on a binary dummy variable for OECD-membership). Since most OECD members are industrialised countries with high income, strong development, commitment to democratic principles, and fairly strong healthcare systems, the impact of infectious diseases on political stability may be considerably weaker than in other countries. Excluding them from the analysis allows to have a closer view on non-OECD members with different conditions.

3.2 Descriptive Statistics

As Table 1 shows, there are 2,614 observations for political stability.[10] The mean of the PV index is -0.08. As a measure of variability, the standard deviation of the actual data points from the mean is 0.97. The minimum score is -3.18 in Iraq in 2004, whereas the maximum is 1.67 achieved by the Netherlands in 2000. In 2014, the politically least stable countries were generally located in Sub-Saharan and Northern Africa and the Middle East, with the addition of Ukraine. They were closely followed by Central-American countries, Russia and a range of South-Asian countries. In contrast, the highest PV scores were reached by Canada, Northern and Central Europe, as well as New Zealand and Australia (Map A.3, Annex A).

[10] These numbers depend on the regression model, as indicated in Table 1. The descriptive statistics analysis is based on the regression models that were considered the most reliable.

Cases of tuberculosis per 100,000 inhabitants include 2,449 observations. The mean equals 144.82 TB cases per 100,000 inhabitants, which is more than one-thousand times the average for ebola. This stark contrast clearly depicts how small the total number of ebola cases is compared to other diseases like tuberculosis, which receive less attention but affect considerably more people all over the world. The standard deviation is 208.08, implying that the data points are widely spread out with some countries having almost no tuberculosis cases whereas others have very high TB rates. The minimum is zero, as was the case in Monaco in the 1990s and in Bermuda. The maximum is 1,662 cases per 100,000 inhabitants in Namibia in 2002. As Map A.2 (Annex A) shows, tuberculosis rates are particularly high in Sub-Saharan Africa and South-East Asia, whereas rates are generally low in Central, Northern and Western Europe, North America, and Australia. Low-income and developing countries are predominantly affected.

Table 1: Descriptive Statistics

	Observations	Mean	Standard Deviation	Minimum	Maximum	Share of Categories
Political Stability[1)]	2614	-0.08	0.97	-3.18	1.67	
Ebola per 100,000[1)]	2614	0.14	4.64	0	182.37	
Tuberculosis per 100,000[2)]	2449	144.82	208.08	0	1662	
Influenza per 100,000[3)]	1446	8.6	46.83	0	1397.18	
GDP per capita[1)]	2614	15,933.30	19,021.18	261.74	139,456.8	
Population growth[1)]	2614	1.5	1.5	-3.82	17.62	
Government Effectiveness[1)]	2614	0.59		0	1	0: 41% 1: 59%
History[1)]	2614	0.73		0	3	0: 57% 1: 25% 2: 4% 3: 14%
Neighbourhood[4)]	2613	0.58		0	2	0: 59% 1: 24% 2: 17%
OECD[5)]	2614	0.18		0	1	0: 82% 1: 18%

[1)] Based on regression Ebola 3, [2)] based on regression Tuberculosis 3, [3)] based on regression Influenza 3, [4)] based on regression Ebola 5, [5)] based on regression Ebola 6.

The number of observations for influenza per 100,000 inhabitants is considerably lower than for ebola and tuberculosis (1,446 observations) because many countries only started reporting cases to the WHO from the early 2000s on. The mean is 8.6 cases per 100,000 inhabitants, which is lower than for tuberculosis, but considerably higher than for ebola. The standard deviation is 46.83, indicating that data points are clearly spread and differences in case numbers are substantial. The minimum is zero in a number of countries that were not affected by the yearly influenza waves. The maximum is 1397.18 cases per 100,000 inhabitants in Ireland in 2009.

With 2,614 observations, the mean for GDP per capita is US$15,933.3. The standard deviation from the mean is US$19,021.18, i.e. the data points are broadly spread and deviate strongly from the mean, implying that there are striking differences in income per capita between countries. This is unsurprising, given that I include countries of diverse stages of development and economic power. The minimum is US$261.74 per person in Liberia in 1996, whereas the maximum is US$139,456.8 per capita in Qatar in 2014.

With 2,614 observations, the mean population growth equals 1.5% with a standard deviation of 1.5, thus most countries have relatively similar population growth rates. The minimum population growth is -3.82% in Croatia in 1996, while the maximum is 17.62% in Qatar in 2007.

There are 1,614 observations for government effectiveness. The mean is 0.59 implying that a slight majority of observations (59%) included weak government effectiveness. This can be deduced because, since government effectiveness is a binary dummy variable, the maximum value is one for all countries with weak government effectiveness, and the minimum is zero for all others.

For the history of instability variable, there are 2,614 observations and the mean is 0.73, indicating that for the majority of observations, there had been no or few instances of violent conflict or coups in the recent past: In 57% of cases, no coup or conflict had occurred in the previous twenty years. One coup/conflict had taken place in 25% of cases, whereas only 4% featured two or more episodes of violent conflict or coups. In 14% of the observations, coups or conflicts had taken place in the same year.

With 2,613 observations, the mean for the neighbourhood variable is 0.58, indicating that the majority of countries was located in rather stable neighbourhoods for most of the time: In 59% of the observations, no neighbouring countries experienced significant instability. One unstable neighbour was faced in 24% of cases, and only 17% included a neighbourhood of two or more unstable countries.

For OECD membership, there are 2,614 observations and the mean is 0.18, reflecting that most countries are non-OECD members.

3.3 Results

For each of the diseases, I run separate sets of regressions starting with the main independent variable of interest (the disease) and subsequently adding socio-economic and politico-historical control variables. Finally, I conduct robustness checks to ensure that the results are robust to adding further variables that might affect political stability. All regression equations are found in Document C.1 (Annex C).
In the following analysis, I deliberately speak of correlations instead of causality because I cannot be certain of any causal direction. While a range of literature and my interview partners lay out the effect that a high disease burden can have on state capacity and political stability, infectious diseases may also be endogenous and facilitated by political instability (Price-Smith 2002: 38-39). For example, political instability or conflict can increase the prevalence of diseases when it results in destroyed health infrastructure, the disruption of disease control programs, inadequate surveillance and response systems, limited access to health services, flight of trained health workers, population displacements, and poor nutrition and sanitation (Gayer et al. 2007: 1625, Patrick 2011: 230-231, McPake et al. 2015: 1-3). Similarly, my control variables, such as GDP per capita and government effectiveness, might be affected by the level of political stability in a country. Thus, I might encounter a situation of reverse causality between my dependent and independent variables. Therefore, there is need to further explore the relationship through qualitative methods, such as interviews, as done in subsequent sections.

3.3.1 Ebola

Column 1 (Table 2) shows the results for regressing political stability on ebola per 100,000 without including control variables. The regression features 3,052 observations for 194 countries of various characteristics and development stages, and includes most years of 1996-2014, implying that the results do not merely reflect a specific group of countries or certain years.

[11] These numbers depend on the regression model, as indicated in Table 1. The descriptive statistics analysis is based on the regression models that were considered the most reliable.

Including no control variables, ebola per 100,000 positively correlates with political stability. The correlation is highly significant, with a p-value of 0.000 indicating that there is almost no risk of falsely deducing a correlation that is not present (type-I error). The coefficient of 0.0038 implies that ceteris paribus, every additional ebola case per 100,000 inhabitants is related to a 0.0038-point increase in the PV indicator. That is, with a standard deviation of 0.97 for political stability, 0.39% of that standard deviation is linked to ebola per 100,000. Although the coefficient is small, it is worth bearing in mind that it reflects the change in political stability linked to a single ebola case per 100,000 inhabitants. In practice, case numbers can be much higher, i.e. the impact adds up. For instance, an increase of 100 ebola cases per 100,000 would be associated with a PV score increase of 0.38 points, which is already considerable for an indicator with a -2.5 to 2.5 scale. Importantly, the positive correlation is surprising, regarding the wide-spread expectation that ebola outbreaks would destabilise a country (Chonghaile 2014, Brima 2015, Interviewee1 2016, Interviewee2 2016, Interviewee3 2016, Interviewee5 2016, personal interview[12]). I will discuss possible explanations at a later point because a well-founded discussion beyond mere speculation will require more background information as provided by the interviews, literature, and theoretical approaches.

Subsequently, I regress political stability on ebola per 100,000 including GDP per capita and population growth as control variables (Column 2, Table 2). The regression features 2,840 observations for 183 countries of various characteristics and includes most years in the chosen timeframe. Including these control variables, ebola per 100,000 remains positively correlated with political stability, the correlation is highly significant, and the coefficient is practically unaltered. GDP per capita is positively related to political stability, yet only at a 10%-level, implying a 10%-chance that this relationship does not actually exist. In line with most statistical analyses, I refuse to take a 10%-chance of committing a type-I error and set my threshold for statistical significance at the 5%-level (Wooldridge 2013: 123-124).

Accordingly, I find no statistically significant relationship between GDP per capita and political stability. This result is further substantiated by the findings from other specifications, as seen below. Similarly, I find no statistically significant correlation between population growth and political stability.

[12] Personal interview with Interviewee5 on infectious diseases and political stability, Washington DC, 16 September 2016.

That is surprising considering the importance attributed to these variables by Price-Smith (2002), Chao (2015), and Cervellati et al. (2011) in their analyses of state capacity, political instability, and civil conflict. Potentially, the impact of population growth only manifests over time or political stability is less related to socio-economic factors than to common perceptions on government effectiveness or recurrent instances of upheaval.

Table 2: Ebola Regression Results

	(1)	(2)	(3)	(4)	(5)	(6)
Political Stability						
Ebola per 100,000	0.00375***	0.00382***	0.00273***		0.00264***	0.00264***
	0.000	0.000	0.000		0.000	0.000
GDP per capita		0.00001*	0.00001	0.00001	0.00001	0.00001
		-0.064	-0.121	-0.120	-0.110	-0.124
Population growth		0.03643*	0.03581*	0.02845	0.03553*	0.03443*
		-0.081	-0.060	-0.117	-0.061	-0.081
Government effectiveness			-0.19626***	-0.20225***	-0.19520***	-0.19087***
			0.000	0.000	0.000	0.000
History 1			-0.01086	-0.04886	-0.01377	-0.04681
			-0.891	-0.573	-0.86	-0.587
History 2			-0.32754**	-0.40538***	-0.32234**	-0.36944***
			-0.012	-0.003	-0.012	-0.006
History 3			-0.67834***	-0.76638***	-0.67672***	-0.72059***
			0.000	0.000	0.000	0.000
Lagged ebola per 100,000				-0.01696		
				-0.139		
Neighbourhood 1					0.00169	
					-0.977	
Neighbourhood 2					-0.06558	
					-0.444	
Constant	-0.05062	-0.18799***	0.05571	0.06488	0.06960	-0.08043
	-0.105	-0.001	-0.525	-0.489	-0.449	-0.407
Observations	3052	2840	2614	2452	2613	2151
Number of countries	194	183	181	181	181	152
Observations per country:						
min.	6	1	1	1	1	1
max.	16	16	15	14	15	15
avg.	15.7	15.5	14.4	13.5	14.4	14.2
Country-fixed effects	yes	yes	yes	yes	yes	yes
Time-fixed effects	yes	yes	yes	yes	yes	yes

Note: * for p<0.10, ** for p<0.05, *** for p<0.01. Values in parantheses indicate p-values.

Column 3 (Table 2) shows the results for regressing political stability on ebola per 100,000 including GDP per capita, population growth, government effectiveness, and history of instability. The regression features 2,614 observations for 181 countries and includes most years of 1996-2014. Including additional control variables, ebola per 100,000 remains positively correlated with political stability. The correlation remains highly significant, but the coefficient decreases to 0.0027 as some of the newly included control variables display a significant relationship with political stability. Ceteris paribus, every additional case of ebola per 100,000 correlates with a 0.0027-point increase in the PV indicator. Thus, 0.28% of the standard deviation of political stability are linked to ebola. Again, I find no significant relationship between political stability and GDP per capita or population growth. By contrast, there is a highly significant negative correlation between weak government effectiveness and political stability: Countries with weak government effectiveness tend to have a PV indicator that is on average 0.1963 points lower than that of countries with strong government effectiveness. Thus, a considerable 20% of the standard deviation of political stability are associated with weak government effectiveness. This correlation works in either direction: Political instability impedes a government from functioning effectively, while weak government effectiveness raises people's dissatisfaction with the government leading to actions, such as protests and riots that ultimately destabilise the government.

Turning to a history of instability, I find no significant correlation between political stability and the occurrence of one coup or conflict in the previous twenty years. However, political stability significantly correlates with the occurrence of two or more coups/conflicts in the past. Ceteris paribus, countries with two or more past coups or conflicts score on average 0.3275 points lower in political stability than countries with only one coup/conflict. That is, a striking 34% of the standard deviation of political stability is related to several coups/conflicts in the past. Apparently, repeated instances of instability increase the likelihood of future destabilisation as unconstitutional regime change or violent conflict become common means of addressing challenges. Even more pronounced is the highly significant negative correlation between political stability and a coup or conflict in the same year. Countries that currently experience such challenges score on average 0.6783 points lower in political stability than their counterparts with several coups or conflicts in the past. Thus, 70% of the standard deviation of political stability is linked to aforesaid events in the same year. However, the magnitude of the coefficient is unsurprising considering that the perceived risk of political instability in a country will strongly increase if coups or conflicts are recorded for that same year.

In addition, I rerun the primary regression from Column 3, replacing the ebola variable with its own one-year-lag in order to examine whether the relationship between the number of ebola cases per 100,000 in one year and the PV indicator in the following year differs from their immediate link within the same year (Column 4, Table 2). This allows capturing time-delays in the relationship. For example, an ebola outbreak might influence political stability in the following year by affecting long-term income prospects and fuelling resentment. The regression features 2,452 observations for 181 countries of various characteristics and includes most years in the chosen timeframe (besides those eliminated from the analysis). I find no significant correlation between political stability and the number of ebola cases per 100,000 in the previous year. Possibly, the time-delay neutralises such relationship as the outbreak loses its salience. The effects of the control variables remain mostly unchanged. The somewhat altered coefficient sizes for government effectiveness and history of instability are likely due to the smaller number of observations.

Subsequently, I conduct robustness checks by including neighbourhood as an additional control variable to the primary regression from Column 3 (Column 5, Table 2). The regression features 2,613 observations for 181 countries of various characteristics and includes most years of 1996-2014. The results are robust to including neighbourhood: The correlation between ebola per 100,000 and political stability remains highly significant and positive with a practically unchanged coefficient size. As before, I find no significant correlation between political stability and GDP per capita or population growth, and the results for government effectiveness and history of instability remain essentially unaltered. Furthermore, there is no significant link between political stability and unstable neighbourhoods. This diverges from the example of the MENA region, where instability has spilled over to neighbours in the past (El-Katiri et al. 2014). Statistically, the neighbourhood indicator I employ in this analysis does not show such results. Plausibly, such spill-over phenomena are rather rare on a global scale.

At last, I rerun the primary regression from Column 3 excluding all OECD members from the analysis (Column 6, Table 2). The regression features 2,151 observations for 152 countries of various characteristics (excluding OECD membership) and covers most years of the timeframe. For non-OECD members, the correlation between ebola and political stability remains positive, highly significant, and essentially the same as for the original sample. Similarly, the results for GDP per capita, population growth, government effectiveness, and history of instability remain similar, with some coefficients having slightly changed. Considering that most countries in the original sample are non-OECD members and that major ebola outbreaks took place in that group, these similarities to the results of the primary regression do not surprise.

3.3.2 Tuberculosis

Column 1 (Table 3) shows the results for regressing political stability on tuberculosis per 100,000 without including control variables. The regression features 2,825 observations for 192 countries of various characteristics and development stages and includes most years of the chosen timeframe. I find no significant correlation between tuberculosis per 100,000 and political stability.

Subsequently, I regress political stability on tuberculosis per 100,000 including GDP per capita and population growth as socio-economic control variables (Column 2, Table 3). The regression features 2,672 observations for 183 countries of various characteristics and includes most years. The relationship between tuberculosis per 100,000 and political stability remains statistically insignificant. As before, I find no significant relationship between political stability and GDP per capita or population growth.

The results for regressing political stability on tuberculosis per 100,000 including GDP per capita, population growth, government effectiveness and history of instability are seen in Column 3 (Table 3). The regression features 2,449 observations for 181 countries of various characteristics and most years of 1996-2014. Tuberculosis per 100,000 negatively correlates with political stability, but the correlation is not sufficiently significant to rely on the result. This aligns with statements by most interviewees, who expect tuberculosis to have no significant effect on political stability as the disease tends to be chronically present and medically familiar, to develop slowly, and to affect mostly marginalised groups with little political voice [Interviewee1 2016, Interviewee2 2016, Interviewee4 2016, Interviewee5 2016]. While there is no significant correlation between political stability and GDP per capita or population growth, government effectiveness negatively correlates with political stability. Countries with weak government effectiveness tend to have a PV score that is on average 0.1834 points lower than that of countries with strong government effectiveness, i.e. 19% of the standard deviation of political stability is linked to weak government effectiveness. I find no significant correlation between political stability and the occurrence of one coup or conflict in the previous twenty years. Nonetheless, political stability significantly correlates with the occurrence of two or more coups/conflicts in the past. Ceteris paribus, countries with two or more coups/conflicts, score on average 0.3441 points lower in political stability than countries.

Table 3: Tuberculosis Regression Results

	(1)	(2)	(3)	(4)	(5)	(6)
Political Stability						
TB per 100,000	-0.00017	-0.00012	-0.00264*		-0.00026*	-0.00024*
	-0.478	-0.606	-0.072		-0.080	-0.097
GDP per capita		0.00000	0.00001	0.00001	0.00001	0.00001
		-0.112	-0.143	-0.131	-0.132	-0.145
Population growth		0.03610*	0.03486*	0.02681	0.03481*	0.03305*
		-0.089	-0.072	-0.132	-0.071	-0.098
Government effectiveness			-0.18340***	-0.19890***	-0.18299***	-0.17821***
			-0.001	0.000	-0.001	-0.002
History 1			-0.01715	-0.05527	-0.02019	-0.05644
			-0.830	-0.523	-0.798	-0.514
History 2			-0.34411***	-0.41872***	-0.33971***	-0.39104***
			-0.006	-0.002	-0.007	-0.003
History 3			-0.64107***	-0.76620***	-0.63887***	-0.68550***
			0.000	0.000	0.000	0.000
Lagged TB per 100,000				-0.00029*		
				-0.053		
Neighbourhood 1					-0.01025	
					-0.870	
Neighbourhood 2					-0.06496	
					-0.470	
Constant	-0.03110	-0.14558**	0.10374	0.12562	0.11958	-0.02878
	-0.523	-0.033	-0.258	-0.194	-0.207	-0.783
Observations	2825	2672	2449	2446	2448	2016
Number of countries	192	183	181	181	181	152
Observations per country:						
min.	6	1	1	1	1	1
avg.	14.7	14.6	13.5	13.5	13.5	13.3
max.	15	15	14	14	14	14
Country-fixed effects	yes	yes	yes	yes	yes	yes
Time-fixed effects	yes	yes	yes	yes	yes	yes

Note: * for $p<0.10$, ** for $p<0.05$, *** for $p<0.01$. Values in parantheses indicate p-values.

That show only one such event. That is, a striking 35% of the standard deviation of political stability is related to several such events in the past. Even more pronounced is the highly significant negative correlation between political stability and a coup or conflict in the same year. Countries that currently experience a coup/conflict score on average 0.6411 points lower in political stability than their counterparts with several such events in the past. Thus, 66% of the standard deviation of political stability is linked to coups/conflicts in the same year. For all control variables, the coefficient sizes and significance levels hardly differ from the regression results for ebola per 100,000, implying that the results are reliable.

Additionally, I rerun the primary regression from Column 3 (Table 3), replacing the tuberculosis variable with its own one-year-lag in order to examine whether the relationship between tuberculosis per 100,000 in one year and the PV indicator in the following year differs from their time-immediate link (Column 4, Table 3). The regression features 2,446 observations for 181 countries of various characteristics and most years in 1996-2014 (besides those eliminated). As with ebola, I find no sufficiently significant correlation between political stability and the number of tuberculosis cases per 100,000 in the previous year. The coefficients of the control variables remain mostly unchanged. The slightly altered coefficient sizes for government effectiveness and history of instability can be explained by the smaller number of observations.

Afterwards, I conduct robustness checks by including neighbourhood in the original regression from Column 3 (Column 5, Table 3). The regression features 2,448 observations for 181 countries of various characteristics and most years in the timeframe. The results are robust to including neighbourhood: The correlation between tuberculosis per 100,000 and political stability remains insufficiently significant. Similarly, the results for GDP per capita, population growth, government effectiveness, and history of instability remain practically unaltered. Again, there is no significant link between political stability and an unstable neighbourhood.

Lastly, I rerun the original regression from Column 3 excluding all OECD members from the analysis (Column 6, Table 3). The regression features 2,016 observations for 152 countries of various characteristics (besides OECD membership) and covers most years of the 1996-2014 timeframe. For non-OECD members, the tuberculosis coefficient remains insignificant. GDP per capita and population growth have no significant relationship with political stability, either. Finally, the results for government effectiveness and history of instability remain similar to those of the original sample, with some coefficients having slightly changed. This might be caused by the smaller sample size or actual differences between OECD members and non-OECD countries. The similarities of the results can be explained by the large proportion of non-OECD members in the original sample.

3.3.3 Influenza

As displayed in Column 1 (Table 4), the regression of political stability on influenza per 100,000 features 1,606 observations for 126 countries. Compared to the regressions for ebola and tuberculosis, it includes fewer observations and a lower average of observations per country as many (developing) countries did not report influenza data until the mid-2000s.

Table 4: Influenza Regression Results

	(1)	(2)	(3)	(4)	(5)	(6)
Political Stability						
Influenza per 100,000	-0.00023***	-0.00022**	-0.00027***		-0.00027***	-0.00162**
	-0.002	-0.012	0.000		0.000	-0.014
GDP per capita		0.00002***	0.00002***	0.00003***	0.00002***	0.00003***
		-0.002	0.000	0.000	0.000	-0.005
Population growth		0.02417	0.01619	0.01035	0.01656	0.01845
		-0.496	-0.615	-0.707	-0.612	-0.625
Government effectiveness			-0.23078***	-0.25500***	-0.22325***	-0.22051***
			-0.001	0.000	-0.001	-0.003
History 1			0.08286	0.07168	0.08503	0.00697
			-0.341	-0.442	-0.318	-0.943
History 2			-0.15287	-0.14266	-0.13811	-0.24840*
			-0.234	-0.289	-0.266	-0.069
History 3			-0.60246***	-0.63563***	-0.60203***	-0.71300***
			0.000	0.000	0.000	0.000
Lagged influenza per 100,000				-0.00014**		
				-0.028		
Neighbourhood 1					0.04629	
					-0.399	
Neighbourhood 2					-0.12317	
					-0.139	
Constant	0.05581	-0.25801***	-0.02951	-0.1457	-0.02357	-0.16427
	-0.193	-0.005	-0.783	-0.208	-0.828	-0.230
Observations	1606	1566	1446	1323	1446	987
Number of countries	126	123	123	123	123	94
Observations per country:						
min.	4	4	4	3	4	2
max.	16	16	15	14	15	15
avg.	12.7	12.7	11.8	10.8	11.8	10.5
Country-fixed effects	yes	yes	yes	yes	yes	yes
Time-fixed effects	yes	yes	yes	yes	yes	yes

Note: * for p<0.10, ** for p<0.05, *** for p<0.01. Values in parantheses indicate p-values.

However, limiting the timeframe of the analysis to the years 2005-2014 (for which most countries have influenza data available) would considerably reduce the number of observations. Including as many years as reasonably possible entails a justifiable trade-off between the number of years and number of countries covered in the regression (Chao 2015: 18). Furthermore, testing both options in preliminary analyses did not reveal different results. Therefore, I include the same timeframe as for the other analyses, while keeping in mind that the first decade mostly reflects data from developed countries. Excluding control variables, influenza per 100,000 negatively correlates with political stability, displaying strong statistical significance. Every additional influenza case per 100,000 correlates with a 0.00023-point decrease in the PV indicator, i.e. a mere 0.024% of the standard deviation of political stability is linked to influenza. Although this number is miniscule and even smaller than the correlation between ebola per 100,000 and political stability, it is noteworthy that it also adds up with elevated case numbers, as is often the case with influenza outbreaks.

Subsequently, I regress political stability on influenza per 100,000 including GDP per capita and population growth (Column 2, Table 4). The regression features 1,566 observations for 123 countries, of which many provide influenza data starting in the mid-2000s. The relationship between influenza per 100,000 and political stability remains negative and significant at the 5%-level. Population growth does not significantly correlate with political stability, whereas GDP per capita now displays a highly significant positive correlation. Although the effect size of 0.023% of the standard deviation of political stability is negligible, it is worth bearing in mind that it reflects the change in political stability that is linked to a US$1 change in GDP per capita. In practice, differences in GDP per capita between countries can amount to thousands of US$ and variations are considerable, i.e. the impact quickly adds up. This different result may be due to a larger proportion of developed countries in the sample or the lower number of per-country observations compared to previous regressions.
Column 3 (Table 4) shows the results for regressing political stability on influenza per 100,000 including GDP per capita, population growth, government effectiveness, and history of instability. The regression features 1,446 observations for 123 countries. Compared to Column 2, the highly significant, negative correlation between influenza per 100,000 and political stability is slightly stronger but remains small: Every additional influenza case per 100,000 inhabitants is now related to a 0.00027 point decrease in political stability, i.e. 0.028% of the standard deviation of political stability

on influenza per 100,000 including GDP per capita, population growth, government effectiveness, and history of instability. The regression features 1,446 observations for 123 countries. Compared to Column 2, the highly significant, negative correlation between influenza per 100,000 and political stability is slightly stronger but remains small: Every additional influenza case per 100,000 inhabitants is now related to a 0.00027 point decrease in political stability, i.e. 0.028% of the standard deviation of political stability are linked to influenza. As seen before, there is no significant correlation between population growth and political stability, whereas GDP per capita has a small, yet highly significant, positive coefficient. Again, government effectiveness negatively correlates with political stability: Countries with weak government effectiveness tend to have a PV score that is on average 0.23078 points lower than that of countries with strong government effectiveness. Thus, a considerable 24% of the standard deviation of political stability is associated with weak government effectiveness. Different from previous analyses, political stability does not significantly correlate with neither one nor two or more coups or conflicts in the previous twenty years, which might be due to the slightly different sample. Unsurprisingly, the relationship between political stability and current coups/conflicts remains significant and negative. Countries that experience a coup or conflict that same year score on average 0.60246 points lower in political stability than their counterparts with several such events in the past. That is, a notable 62% of the standard deviation of political stability is connected to a current coup or conflict.

Additionally, I rerun the primary regression from Column 3 (Table 4), replacing the influenza variable with its own one-year-lag to capture differences in effects over time. As Column 4 (Table 4) shows, the regression features 1,323 observations for 123 countries. In contrast to ebola and tuberculosis, I find a significant correlation between political stability and the number of influenza cases per 100,000 in the previous year. Every additional influenza case per 100,000 is correlated with a 0.00014-point decrease of the PV indicator in the following year, accounting for 0.014% of the standard deviation of political stability. Although the correlation size becomes even smaller in the following year, it remains significant. Possibly, influenza outbreaks carry long-term effects that lead to popular dissatisfaction and political struggles in later years. The coefficients of the control variables remain essentially unchanged. The marginally different coefficient sizes for government effectiveness and history of instability are likely due to the smaller number of observations.

Subsequently, I conduct robustness checks by including neighbourhood in the original regression from Column 3 (Column 5, Table 4). The regression features 1,446 observations for 123 countries of which many only provide influenza data starting in the mid-2000s. The results are robust to including neighbourhood: The correlation between influenza per 100,000 and political stability remains unaltered. Similarly, the results for GDP per capita, population growth, government effectiveness, and history of instability are practically unchanged. Again, there is no significant link between political stability and an unstable neighbourhood.
At last, I rerun the primary regression from Column 3 excluding all OECD members from the analysis (Column 6, Table 4). The regression features 987 observations for 94 non-OECD members. For non-OECD members, the significant negative correlation between influenza per 100,000 and political stability is larger than for the original sample: Every additional influenza case per 100,000 is now related to a 0.00162 point decrease in political stability, accounting for 0.17% of the standard deviation of political stability. Possibly, there is an actual difference between OECD members and non-OECD members. Particularly for developing countries, it might be difficult to effectively prevent or manage influenza outbreaks (Patrick 2011: 213-214), especially as influenza generally does not attract much attention and political commitment from external donors. In contrast, the results for GDP per capita, population growth, government effectiveness and history of instability remain similar to those of the original sample, with some coefficients having slightly changed. Again, the results could be explained by actual differences between OECD members and non-OECD countries or the smaller sample size.

3.3.4 Summary and Limitations

In summary, the quantitative analyses imply that the three diseases ebola, tuberculosis, and influenza differ in the manner they correlate with political stability. Surprisingly, ebola per 100,000 displays a small but highly significant, positive correlation with political stability. This finding calls for further examination in subsequent sections. In contrast, there is no significant correlation between tuberculosis per 100,000 and political stability. Finally, influenza per 100,000 and political stability show a small yet highly significant, negative correlation. These results are statistically robust to including additional control variables and limiting the sample to non-OECD members. Of the three diseases, only influenza has a significant, yet negligibly small, effect on political stability in the following year. In the next sections, I will further explore these differences between the three diseases in their relationship to political stability, and offer potential explanations.

As with any quantitative analysis, there are limitations: First, potentially inaccurate measurements for the variables (e.g. due to miscounting in data compilation or tracking issues) may cause inflated standard errors or even bias (Chao 2015: 36). Second, as with most cross-country or panel analyses, sample selection issues may bias the results because many developing countries have not been capable of collecting reliable data, which excludes certain countries from the analysis (Chao 2015: 14). However, the majority of the above analyses include a range of countries from all regions with various stages of development, which reduces the risk of obtaining results that reflect only a certain group of countries and indicates successful randomisation. Third, there remains a risk of omitted variable bias because it is unlikely that I have controlled for all variables that affect political stability. For example, some variables have not been included due to a lack of reliable data. By using country-fixed effects and time-fixed effects, I have controlled for a range of unobservables, and thus limited this source of error (Chao 2015: 38-39). Nevertheless, omitting relevant time-variant variables may still cause bias in my estimators. Of the not-included variables I presented before, discrimination against minorities, infant mortality, and inequality are the most likely to cause such bias. Given that each of these independent variables is positively correlated with either disease and negatively correlated with political stability, I expect a downward bias in the estimators, i.e. the estimated coefficients for the diseases are likely to be underestimated (Wooldridge 2013: 88-91). Therefore, I can be confident that ebola is indeed positively correlates with political stability, whereas the link between influenza and political stability may be even weaker than estimated.

CHAPTER 4

A Closer Look: Qualitative Analysis

In order to gain a better understanding of the relationship between these diseases and political stability, we need to go beyond statistical correlations and make use of qualitative sources of information. Therefore, I conducted interviews and informal background conversations with public health and medical professionals as well as diplomats.[13] They work in various fields, including public policy research, operations management at the World Bank, supervision of the Berlin Charité and the World Health Summit, tropical medicine and ebola response, journalism, and diplomatic relations with West African governments. The interviews were semi-structured, i.e. I used previously prepared interview guides with a list of questions to be covered in a particular order. However, the questions were open-ended and there was room to follow relevant topics that departed from the questions but offered interesting insights. Thus, semi-structured interviews offer comparable qualitative data, while also providing opportunities to identify new ways of understanding a topic (RWJF n.d.b). The interview guide was developed based on questions identified as meaningful through previous informal interviews and extensive research. In order to avoid misinterpretation and context-sensitive meanings, I carefully examined the recordings and transcripts of the interviews (Briggs 1986: 3-4). The interviews helped to redefine questions, identify potential interview partners, and include new insights in the interview guide (RWJF n.d.a).

[13] Formal interview partners will be referred to as 'interviewees', whereas partners for informal background conversations are referred to as 'respondents'. Information provided by interviewees and respondents is off-record.

All interviewees and respondents express the view that certain infectious diseases can affect the political stability of affected countries, especially when coinciding with previously unfavourable conditions, such as weak healthcare systems, unstable political structures, and low levels of trust in the government's ability to effectively respond to outbreaks. However, *Interviewee6 (2016)*[14] and some respondents specifically emphasise that a high level of virulent infectious diseases may even destabilise politically stable and economically strong countries, like European or North-American countries. Furthermore, the interviewees highlight certain characteristics that make certain diseases more likely to affect political stability than others. For instance, acuteness or mortality and morbidity rates of a disease play a vital role: The greater the risk that a large proportion of the population falls ill and pre-maturely dies, the stronger the expected destabilising effect of the disease as the population's perceived (and real) risk increases *[Interviewee1 2016, Interviewee2 2016, Interviewee3 2016, Interviewee4 2016]*. Moreover, high morbidity and mortality may impair public and administrative services, law enforcement, and military capacities (Price-Smith 2002: 13-14). *Interviewee4 (2016)* also emphasises that the ease and mechanisms of transmission play a role in substantiating destabilising effects. Moreover, diseases that are lacking clear scientific or medical knowledge and effective treatment options are also more prone to having a significant negative effect on political stability because the resulting sense of uncertainty and helplessness may act as destabilising. Similarly, failures to communicate such medical uncertainties and factual information in a reasonable way increase the risk of panic and wide-spread fear, as was experienced when a returning physician who had contracted ebola caused chaos in New York City in September 2014, when the Guinean government failed to meet its self-imposed deadlines for ending the outbreak, and when panic among the population in Sierra Leone was fuelled by media reports exaggerating the actual death rate [*Interviewee2 2016, Interviewee3 2016, Interviewee5 2016,* Murrey 2014]. On a related note, Interviewee4 (2016) underlines the propensity of certain diseases for causing panic and media hysteria. Similarly, some respondents emphasise the significance of the way a population assesses an outbreak; this includes aspects of whether people feel helplessly exposed to an invisible virus, conspiracies, and witchcraft, or whether they expect that their own behaviour and precautions can facilitate containment.

[14] Personal interview with Interviewee6 on political stability and infectious diseases, Hamburg/ Washington DC, 19 September 2016.

Perceptions that containment efforts undertaken by authorities are unsuccessful may further contribute to destabilisation [*Interviewee5 2016*]. Finally, *Interviewee2 (2016)* points to the manner in which an outbreak occurs: Diseases that cause short-term and acute outbreaks (like ebola and influenza) are considerably more likely to affect political stability than diseases that are chronically prevalent in a country over long time spans (like tuberculosis) [*Interviewee2 2016*]. This argument relates to Price-Smith's (2002) differentiation between 'outbreak events' and 'attrition events': While large outbreak events (such as caused by ebola) may generate wide-spread fear, attrition events (e.g. caused by tuberculosis and malaria) do not tend to generate such fear although they typically result in greater morbidity, mortality, and long-term socio-economic erosion (Price-Smith 2002: 15-16). Accordingly, most of the interviewees expect tuberculosis to have no significant effect on political stability [*Interviewee1 2016, Interviewee2 2016, Interviewee4 2016, Interviewee5 2016*], which corresponds to the results of the quantitative analysis. Unlike many diseases that occur in epidemic waves of a few weeks or years, tuberculosis in many countries is chronically prevalent over long time spans (Van Helden 2003: 24), which allows society, the political system, and the healthcare system to develop coping mechanisms. Moreover, tuberculosis is slow to develop: Often enough, incubation periods are extended and last several years, which reduces the disease's propensity for destabilisation [Interviewee4 2016]. Finally, TB affects only certain social groups, reducing the general population's perceived risk. Regularly, tuberculosis affects marginalised groups, such as poor households or prison populations, with little political voice (Interviewee1 2016, Van Helden 2003: 24). In contrast, all interviewees emphasise that certain influenza types bear considerable potential for political destabilisation, particularly subtypes with high morbidity and mortality rates and pandemic potential. These assessments correspond to the findings of the quantitative analysis. Although the negative correlation between one single case of influenza per 100,000 and political stability was miniscule, it was highly significant. The small coefficient size can also be explained by the fact that my influenza variable combines cases of all influenza subtypes, thus including both more virulent and less dangerous subtypes. Had I exclusively included more virulent subtypes in the analysis, the negative correlation may have been stronger. Patrick (2011) even views influenza as the most worrisome rapid-onset disease with unmatched "potential for massive death, economic dislocation, and political instability" (Patrick 2011: 213). Similarly, Interviewee3 (2016) and Interviewee4 (2016) stress the hazardous nature of the disease as it constantly and rapidly mutates, producing more virulent strains, impeding reliable predictions, and limiting the effectiveness of earlier treatment options.

Moreover, influenza outbreaks are extremely difficult to contain as infected persons enter the contagious period before showing symptoms. Therefore, a severe influenza outbreak would require a shutdown of public life in order to disrupt transmission chains [*Interviewee4 2016*]. In addition, influenza may affect political stability when supply or stockpiles are insufficient or methods for even distribution are inadequate, which may cause the population to lose confidence in the government's ability to effectively respond to the outbreak [*Interviewee2 2016*]. Finally, high infection rates causing people to remain absent from work may restrict the provision of goods and services, including those to meet basic needs, which may lead to popular dissatisfaction and political challenges. Such complications are not confined to developing countries, but may similarly affect countries with fairly strong systems [*Interviewee3 2016*].

Generally, the interviewees and some respondents emphasise the following factors in countering destabilising effects and appropriately handling infectious diseases: First, government effectiveness is essential to effectively address outbreaks and maintain citizens' confidence in their government's capacity to fulfil its protection function [*Interviewee1 2016, Interviewee2 2016, Interviewee5 2016*]. Second, adequate communication of health risks and medical facts without scaremongering are vital to provide people with information, raise awareness, and calm over-reactive fears [*Interviewee2 2016, Interviewee3 2016, Interviewee5 2016*]. Third, effectively recognising and containing outbreaks requires strong public healthcare systems with the necessary infrastructure, supplies of medical products, and sound research; strong surveillance systems that make use of local and non-governmental capacities; and rapidly available equipment and well-trained medical staff for timely response [*Interviewee1 2016, Interviewee2 2016, Interviewee3 2016, Interviewee6 2016*].

In contrast to the counter-intuitive findings in the quantitative analysis, all interviewees expect ebola to have a significant destabilising effect. This aligns with numerous accounts of NGOs, international organisations, and media reports that expressed fear of destabilisation in West Africa during the 2014-2015 ebola outbreak. The International Crisis Group suggested in September 2014 that the "Ebola epidemic has exposed citizens' lack of trust in their governments and the grave potential for deep unrest in these already fragile societies. In all three countries, past civil conflicts fuelled by local and regional antagonism could resurface" (cited in Chonghaile 2014). Not only did the stigmatisation and isolation of survivors bear a risk of social conflict, but in certain regions locals believed to be targeted by the government through ebola for their support of the opposition (Brima 2015). Health workers were deeply mistrusted and attacks on hospitals, health facilities and health staff took place (HRW 2015, Brittain 2015). In Sierra Leone, protests erupted as public infrastructure and life succumbed and food security deteriorated [*Interviewee6 2016*]. Nevertheless, *Interviewee1 (2016)* points out that despite these turbulences, civil unrest or political backlash have not manifested in the most-affected countries. To his surprise, the people in Sierra Leone, Liberia, and Guinea have not tried to hold their governments accountable for the way the outbreak was handled, although the governments' unpreparedness, the uncoordinated response, and the poor state of public healthcare systems played a vital role in the outbreak. He assumes that local politicians and national governments did not face political consequences as much of the blame was placed on the WHO and the international response [*Interviewee1 2016*]. His assessment is substantiated by the views of some respondents: Although the national governments in West Africa were criticised for not having reacted timely and effectively enough, they have not been seriously challenged, whereas parts of the international response have faced harsher criticism. In Guinea, criticism also targeted France as its support was slow to materialise while Sierra Leone and Liberia profited from their relations to the U.S. and the U.K. [*Interviewee5 2016*]. Moreover, some respondents underline that although the ebola outbreak has affected the social fabric in the most-affected countries, it has not led to a dismantling of societal and political structures. Nonetheless, none of the interviewees expect ebola to have a positive effect on political stability, as the positive correlation in the quantitative analysis suggests. Possibly, the statistical model is inadequate for the undertaken analysis or there are serious flaws in the data. Another explanation for this finding may be linked to the characteristics of the PV indicator. However, the aggregate indicator combines several hundred variables reflecting "the views of a large number of enterprise, citizen and expert survey respondents in industrial and developing countries. They are based on over 30 individual data sources produced by a variety of survey institutes, think tanks, non-governmental organizations, international organizations, and private sector firms" (The World Bank Group 2015, Kaufmann et al. 2010: 2). Since almost all sources are available annually, the annual observations are aligned with the corresponding years of the PV indicator. However, in a few cases the data sources are updated biannually so that lagged data from these sources are used to construct the estimates for the latest measure (Kaufmann et al. 2010: 6). Theoretically, there remains a slight risk that the PV scores corresponding to past ebola outbreaks did not reflect the perceived political stability for that exact year. However, the likelihood is extremely low as only few data sources are not updated annually and the aggregate indicator is reasonably weighted. Therefore, the PV indicator itself

is unlikely to be the driving factor behind the significant positive correlation between ebola per 100,000 and political stability.
One possible explanation could be that ebola attracts an over-proportionate amount of attention and international aid, which helps to stabilise the government and the country. Since I did not include the level of foreign aid as a control variable in the regression, a potentially positive effect of foreign aid on political stability may have been confounded with that of the disease itself. In fact, certain countries have received higher net Official Development Assistance (ODA) in years of ebola outbreaks (e.g. Sierra Leone in 2014); however, for most affected countries this is not the case (World Bank 2016). At the same time, it is uncertain whether higher levels of foreign aid significantly affect political stability, wherefore I refrained from including foreign aid in the initial quantitative analysis. While Collier and Hoeffler (2010) find no direct effect of foreign aid upon the risk of civil conflict, Oechslin (2006) explains that high levels of foreign aid are significantly correlated with greater political instability: With more resources available to the regime, conflicts over the distribution of funds intensify and citizens' incentives to participate in insurgencies become stronger. As a result, the government is more likely to be ousted from power (Oechslin 2006: 1-3). Instead, some interviewees explain that an ebola outbreak might provide the government with an opportunity to prove itself capable of adequately responding to the disease outbreak, which would strengthen confidence in the government and improve political stability [*Interviewee1 2016, Interviewee3 2016*]. Interviewee1 (2016) provides a different explanation: In the face of a major ebola outbreak, the country might unite against a common enemy or external threat (ebola), whereas day-to-day political struggles are put aside. His assessment is supported by some respondents who mention that in face of the 2014-2015 outbreak, political oppositions and governments shared a sense of solidarity in jointly fighting a common challenge. This argument is not uncommon in social science that has thoroughly examined the impact of threatening situations on socio-political attitudes. A famous example is the so-called 'rally-round-the-flag effect', i.e. considerable increases in support for the U.S. president in times of international crisis (Lambert et al. 2011: 34). Although the rally-round-the-flag effect was extensively researched, there is no consensus on the evidence or its interpretation (Lai and Reiter 2005: 257). From the opinion leadership view (e.g. Brody 1991), increased support for the president is caused by a temporary decline in overt criticism by the opposition due to the complexity of international crisis issues. Such lack of criticism appears to reflect consensus among political leaders and broad support of the president's actions (Lambert et al. 2011: 343,

Lai and Reiter 2005: 256). Others attribute the rally effect to patriotism (e.g. Mueller 1970) and the desire to overcome past differences and back the leadership in face of an external threat. As such, the phenomenon is connected to the in-group/out-group hypothesis in sociology, affirming that conflict with an out-group strengthens ties within the in-group (Lai and Reiter 2005: 256). While most of the literature focuses on the U.S., some have examined rally-round-the-flag effects in other countries, such as the U.K. (Lai and Reiter 2005) or Russia (Yudina 2015). Yet, the strong focus on the U.S. and other high-income or middle-income countries may render this approach unsuitable for examining a range of different countries, including Sierra Leone, Guinea, and Uganda. Therefore, I turn to a similar, yet differently oriented literature, suggesting that external threats and competitive security environments have played a vital role in the creation of stable states (Desch 1996, Tilly 1990, Rasler and Thompson 1989). In the following section, I attempt a more profound exploration of the theoretical underpinnings and their connection to the 2014-2015 ebola outbreak in West Africa.

CHAPTER 5

Discussion

5.1 External Threats and Societal Cohesion

Drawing on previous work by Max Weber, Otto Hintze, Charles Tilly, George Simmel, and others, Michael Desch argues in his 1996 article 'War and Strong States, Peace and Weak Sates?' that war and external threats are the most important factors in explaining the emergence of strong and stable states with increased scope and cohesion, i.e. a wide range of state functions and a unified society (Walt 2016, Desch 1996: 237-251). There is consensus among historians and sociologists that wars and external security threats were the most important factors in the emergence of states and the Westphalian system (Desch 1996: 241). In turn, Desch (1996) expects that the end of the Cold War, the corresponding reduction in international security competition, and the decline of external threat environments will reduce the scope and cohesion of many states as there are less functions for the state to assume (e.g. military defence) and divisions within society regain salience without a unifying, external threat (Desch 1996: 237). In extreme cases, the lack of an external threat environment may even lead to internal conflict and state collapse (Desch 1996: 248). Although recent examples of state fragility may support this argument, I will not further explore the details of whether or why most states may have a smaller scope and less cohesion due to the end of the Cold War. Instead, the significance Desch (1996) attributes to external threats for strengthening cohesion may help us to gain a better understanding of the positive correlation between ebola outbreaks and political stability. Desch's argument is supported by the 'conflict-cohesion thesis' that holds that external threats strengthen in-group cohesiveness (Desch 1996: 242).

If ebola is perceived as a significant external threat to a country's population (the in-group), it may increase cohesiveness and unify society against the common threat. As day-to-day political competition, power struggles, subversive activities, and civil unrest are temporarily put aside, political stability would increase.
The question arises, why ebola and not influenza would be perceived as such an existential external threat, when we have already established that influenza spreads more easily, bears a greater pandemic risk, and affects and kills a multiple of the 2014-2015 ebola victims each and every year. The answer may lie in the manner in which not only material factors of the disease, but also ideational factors shape threat perceptions.

5.2 A Social-Constructivist Approach to Ebola and Political Stability

McInnes (2016) suggests that ebola became a global health crisis not only because of the material underpinnings of the outbreak, but rather that it was socially constructed as a crisis because it resonated with the dominant narrative on global health (McInnes 2016: 383). He shows how the 2014-2015 ebola outbreak was portrayed and conceived as a crisis and security risk, causing concerns about potential state collapse and uncontrolled global spread, although state failure through disease outbreaks was highly unlikely, control mechanisms had proven effective in earlier outbreaks, and transmission required direct contact during the contagious period. While the number of ebola-induced deaths was far below the number of malaria victims and children killed by diarrheal diseases in 2014-2015, those diseases received little attention (McInnes 2016: 381-382). In face of these discrepancies, we can draw on social constructivism and its essential insights that there is no absolute, transcendent reality and that the social world in its existence is not independent of observation. Rather, the ideas we utilise to observe and understand the social world also shape it. Our understanding of the world directs our actions, including the creation of socially legitimate ways of responding to an issue. Thus, the social construction of an issue in a certain manner leads to specific responses that correspond to those understandings (McInnes 2016: 383). However, the importance of ideational factors does not undermine the significance of material factors in constructing the social world: For instance, case fatality rates and symptoms constitute material factors that help to comprehend how the latest ebola outbreak was constructed as a security risk and crisis. Indeed, "[...] material factors are given meaning and in turn (re)shape ideational constructions in a symbiotic, or mutually constitutive, manner" (McInnes 2016: 383). Framing plays a vital role in the social construction and interpretation of social phenomena and issues. Problems are not self-evident realities, but they are constructed through the claims of different groups following and suggesting certain courses of actions (Nunes 2016: 544). Those claims are underpinned by narratives or frames that "shape the nature of 'problems' and 'solutions' by ordering reality in a certain way" (Nunes 2016: 544). Thus, "problem definition is not merely a value-neutral exercise of identifying self-evident problems. Problems emerge as significant not just because they are 'there', but also because they reinforce assumptions about what is important" (Nunes 2016: 545). In that sense, McInnes (2016) asserts that the manner in which the 2014-2015 ebola outbreak was framed was less connected to rationalist concerns, than rather to the dominant narrative on global health that emphasised certain types of risks, the global nature of the problem, and the need for certain responses (McInnes 2016: 380-383, Nunes 2016: 545).

The currently dominant global health narrative has developed over the past two decades and is commonly part of policy and scholarly debates. It contains three key elements that can be generally depicted as globalisation, securitisation, and politicisation (McInnes 2016: 383). First, a central emphasis is placed on the perceived impact of globalisation on health, especially the manner in which increased mobility, travel, and international trade allow diseases to spread more rapidly across borders. It also covers a variety of issues including epidemiological questions, the allocation of health resources, health staff mobility, pharmaceutical markets, the management of surveillance data, privatised healthcare, standardised response measures, etc. Furthermore, global communication technologies facilitate the rapid spread of images and stories about health crises to a wider audience, which can generate fear and lead populations to overreact to mild outbreaks (McInnes 2016: 384, Fan et al. 2016: 20).
Second, policy and scholarly circles have increasingly accepted the notion that health risks bear security implications. This development has been driven by a number of health crises and actions by various security and health actors. For example, the U.S. Institute of Medicine (IOM) declared in 1997 that exogenous health developments may threat U.S. interests. Ten years later, the WHO addressed global health security in its yearly World Health Report, and in January 2000, the UNSC discussed a disease (HIV/AIDS) as a risk to international peace and security for the first time. In the aftermath of 9/11 and the anthrax spore attack on members of Congress, the U.S. national security community included public health issues in its preparedness measures on bio-terrorism (McInnes 2016: 384, Braun 2016:

3). In addition, the rapid spread of SARS sensitised the international community to the way in which global connectivity facilitates the spread of diseases (Braun 2016: 3). From a traditional national security viewpoint, the focus lies on issues such as potential state collapse due to health crises, implications for regional stability and global security, the use of pathogens as weapons of mass destruction, and the impact of health issues on military forces. Yet, the most common national security preoccupation concerns outbreaks of infectious diseases (McInnes 2016: 384-385). The rapid spread of diseases with high mortality and morbidity rates is perceived to threaten populations around the globe, affect economic growth and regional stability, and to weaken states by undercutting state institutions, depleting confidence in the authorities' capacity to manage crises and exacerbating social inequalities and discrimination (McInnes 2016: 395).

Third, the growing notion of collective solutions for shared health problems has given rise to the significance of Global Health Governance (GHG) (McInnes 2016: 385-386). This rights-based approach that emphasises the objective assessment of health risks and responses based on scientific evidence and individual rights has been increasingly restricted by a more explicit inclusion of politics in global health, e.g. by making aid conditional upon compliance with political agendas and multiplying ODA for health (McInnes 2016: 385, Roemer-Mahler and Rushton 2016: 374). As GHG became part of the global health narrative, it facilitated new institutional arrangements and mandates, high-level political responses, and new arenas for cooperation (McInnes 2016: 386). While the 2014-2015 ebola outbreak corresponded with all three elements of the global health narrative, I will focus on its framing around securitisation as does most of the social constructivist literature on global health.

As the 2014-2015 outbreak in West Africa intensified, ebola was increasingly framed as a global health security risk that was feared to result in state failure, threaten global and regional security, and to disseminate globally. The incorporation of outbreak-related security threats into the narrative was reflected in the manner a range of influential actors and organisations referred to the outbreak (McInnes 2016: 388). In September 2014, the UNSC adopted Resolution 2177 declaring that "the unprecedented extent of the Ebola outbreak in Africa constitutes a threat to international peace and security" (UNSC 2014). It further stated that it undermined stability in the most-afflicted countries and posed a risk of social tensions, civil unrest, and an aggravated security and political climate (UNSC 2014). Similarly, the World Bank voiced concerns about the impact of the outbreak on economic stability in the region. Additionally, several actors like the Chief Scientific

Advisor of the U.K., Sir Mark Walport, and the Head of CDC, Tom Frieden, warned of further spread beyond the region and emphasised the associated risks to the well-being of (Western) populations.
U.S. President Obama and the WHO Director-General Margaret Chan even made a connection to potential state failure and global security. The credibility of these actors and the pieces of material evidence supporting their claims lend particular legitimacy to the security concerns associated with ebola (McInnes 2016: 388-390). Numerous media channels and social media quickly picked-up and spread such messages about the risk of uncontrolled spread and its devastating consequences [*Interviewee4 2016, Interviewee5 2016*]. In hindsight, none of the affected states came close to failing, regional and global security were not undermined, and trans-regional dissemination of ebola was highly unlikely (McInnes 2016: 390, *Interviewee4 2016, Interviewee6 2016*). Nevertheless, the securitisation narrative of ebola spread around the globe and throughout the affected countries. Such securitisation narrative is usually substantiated by an externalisation of threat, such that the disease becomes an extrinsic threat to the political body and the predominant concern lies in the protection of the self against the threatening other (Nunes 2016: 550). Portraying ebola as a security threat triggered a sense of imminent danger and perceived need for rapid action. This favoured policy pathways that focus on control and containment strategies, surveillance, and technological and pharmaceutical interventions over long-term approaches dealing with socio-economic and political facilitators of disease outbreaks (Roemer-Mahler and Elbe 2016: 499). The construction of ebola as a crisis was further substantiated when lacking capacity in health systems and implementation issues in local conditions limited the effectiveness of these globally accepted pathways of response (McInnes 2016: 387-388). In addition, fear in West Africa was further incited by a lack of knowledge about the disease, traditional beliefs, miscommunication, and uncertainty. The unfamiliarity of the disease had led to doubt on the existence of a virus and encouraged ideas of witchcraft and the deeds of ancestral spirits (Manguvo and Mafuvadze 2015: 1-2, Mark 2014). Moreover, health workers in full-cover protection suits carrying an array of equipment became the image of danger and the removal of loved ones who never returned. At the same time, stark messages indicating that ebola was incurable were sent and reporting exaggerated case fatality rates (Wake 2015). In general, communication through the government and media in their attempt to spread factual information, raise awareness, and improve acceptance of public health measures further fuelled fear. Government and media action was also influenced by the global securitisation narrative on ebola.

In sum, McInnes (2016) declares that the 2014-2015 ebola outbreak turned into a global health security crisis not only due to its material underpinnings; rather, it was socially constructed as a crisis as it resonated with the dominant narrative on global health (McInnes 2016: 383). Ebola was portrayed as a global health security risk that could cause state failure, threaten regional and trans-regional security, and circulate beyond West Africa. This sense of crisis and imminent danger was further exacerbated by the apparent failure of the globally accepted means of response (McInnes 2016: 391-392). That does not imply that material factors such as morbidity and mortality rates or the ease of transmission should be discounted. It is the interplay of such material factors and ideational factors (the predominant frame or narrative) that determines whether a disease is socially constructed as a crisis and security risk, or not.

5.3 Explaining Differences

This example of how a disease outbreak can be constructed as a crisis and security threat based on material and ideational factors can help us gain better understanding of why outbreaks of influenza, tuberculosis, and ebola may differ in their effect on political stability. Possibly, ebola positively correlated with political stability because it was perceived as an existential external threat, thus temporarily improving society's cohesiveness and pushing day-to-day political competition, power struggles, subversive activities, and civil unrest to the background. That is not to say that external threat perceptions are a viable way to improve political stability. Perceptions of existential threat may well cause significant instability when the fight for survival, competition for resources, and panic result in a struggle of all against all. The perception that ebola posed a significant threat was likely fomented by the social construction of ebola as a crisis and security risk. Unlike influenza and tuberculosis, ebola is particularly prone to being constructed as such because its material characteristics correspond well with dominant global health and securitisation narratives. For instance, high case fatality rates and the gruesome symptoms display tangible danger to human well-being and safety. At the same time, the lack of effective medication and vaccines increases the perceived danger from the disease. Coupled with the little amount of medical knowledge and the high degree of scientific uncertainty surrounding ebola, this underpins sentiments of insecurity and fear among populations. In many parts of Sub-Saharan Africa, the unfamiliarity of this relatively new disease has also encouraged images of witchcraft or the deeds of ancestral spirits (Manguvo and Mafuvadze 2015: 1-2). By contrast, the present geographic confinement to parts of Sub-Saharan Africa has promoted views in the rest of the world (and especially the Western hemisphere) of ebola being an 'exotic' and 'African' disease that must be particularly virulent and hostile to populations elsewhere (Abeysinghe 2016: 453).

In contrast, tuberculosis is a well-known disease that has been present in most of the world for centuries. In most of the affected countries, it is chronically present over extended periods of time with slow pathogenic development. Therefore, populations, institutions and society as a whole are familiar with the disease and able to develop coping mechanisms. Moreover, medical and scientific knowledge of the disease is extensive, leaving little room for uncertainty and demonisation. Treatment options exist for most tuberculosis strains and survival rates are fairly high when treatment is accessible (WHO 2015a: 4). All these material characteristics are less amenable to resonate with securitisation and health security narratives. Although tuberculosis is highly contagious, prone for rapid and far-reaching spread, and one of the leading causes of death worldwide, with total numbers of TB-induced deaths constituting a multiple of those resulting from ebola, it is not portrayed as a crisis or security threat. This deprives it of a sense of imminent danger and fear. Moreover, tuberculosis typically affects marginalised groups that have little political voice and are unlikely to mobilise resistance and destabilise the government [*Interviewee1 2016*].

Similarly to tuberculosis, influenza is a well-known disease that has repeatedly affected the globe over centuries. However, influenza occurs in recurrent waves of epidemics or pandemics, with some being less severe and others being highly virulent, which makes adequate preparation difficult. Furthermore, certain disease characteristics complicate containment once an outbreak occurs. There is extensive medical and scientific knowledge of the disease, decreasing uncertainty, dehumanisation, and fear. Vaccines against influenza have been developed, but the rapid mutation rate requires constant development of new vaccines, which may lead to shortages and impedes access for many populations (Fonkwo 2008: 13). Typically, seasonal influenza can be lethal for people with weak immune systems.

However, the death rate can be considerably high, depending on the subtype (RKI 2015: 17-19). Influenza is easily transmissible, it often has high morbidity rates, and it regularly affects large parts of populations. As opposed to tuberculosis, it is not confined to marginalised groups but it affects a vast range of social groups (RKI 2015). These material characteristics give an indication of why influenza, and especially the more virulent subtypes, may have a negative effect on political stability. Nevertheless, influenza remains one of the most underestimated diseases worldwide and is generally perceived as a non-worrisome disease.

Again, this can be explained by the interplay of material and ideational factors. Although the material characteristics of influenza speak to a dangerous disease with pandemic potential, they do not resonate as readily with the health security and securitisation narrative as ebola. Therefore, influenza outbreaks are less amenable to social construction as security risks or crises. Hence, they do not cross the threshold to being perceived as an existential external threat to populations or to spreading panic. That explains why we find neither a unifying and stabilising effect, nor a considerable destabilising effect from influenza outbreaks. Nevertheless, it is worth bearing in mind that large-scale outbreaks of more virulent subtypes can rapidly exacerbate destabilisation, especially when public life is severely restricted.

CHAPTER 6

Conclusion

Overall, the findings of this thesis imply that, indeed, ebola, tuberculosis and influenza differ in their effect on political stability. The quantitative analyses indicate that the three diseases display differences in the manner they correlate with political instability. Surprisingly, the number of ebola cases per 100,000 inhabitants displays a small but highly significant, positive correlation with political stability in affected countries. In contrast, there is no significant correlation between tuberculosis cases per 100,000 inhabitants and political stability. Finally, influenza cases per 100,000 and political stability show a small, yet highly significant, negative correlation. Regarding these results, we need to bear in mind that their reliability may be limited due to a range of error sources, including inaccuracies in the data, sample selection bias, omitted variable bias, or reverse causalities. Yet, these quantitative results are mostly supported by findings from the interviews. All interviewees agree that disease outbreaks can have real effects on political stability and emphasise particular characteristics that make certain diseases more likely to affect political stability than others. For instance, high morbidity and mortality rates, a lack of medical knowledge and effective treatment options, and general unfamiliarity with the disease can enhance destabilising effects. Moreover, diseases that cause short-term and acute outbreaks are considerably more likely to affect political stability than diseases that are chronically prevalent in a country over long periods of time. Accordingly, most interviewees expect tuberculosis to have no significant effect on political stability, whereas all interviewees emphasise that influenza bears considerable potential for political destabilisation, depending on the subtype. These assessments correspond with the results of the quantitative analysis. In contradiction to the counter-intuitive findings in the quantitative analysis, most interviewees expect ebola to have a significant destabilising effect. However, they provide plausible explanations for a potential positive effect, particularly that in the face of a major ebola outbreak the country might unite against a common enemy or external threat (ebola), while day-to-day political struggles are put aside. Indeed, much of the historical and sociological literature suggests that external threats and competitive security environments have played a vital role in the creation of stable states. Desch (1996) argues that external threats strengthen the cohesiveness of otherwise divided groups, and thus serve as stabilisers. If ebola is perceived as a significant external threat, it may increase cohesiveness and unify society against a common threat. Here, a social-constructivist approach helps to shed light on why some diseases are perceived as significant threats, whereas others are not. The 2014-2015 ebola outbreak in West Africa serves as an example of how a disease outbreak can be socially constructed as a crisis and security risk, not only due to its material characteristics but rather because it resonates well with the dominant narrative on global health and health security (McInnes 2016). The securitisation narrative of ebola spread around the globe and throughout the affected countries. Within West Africa, the sense of immediate danger was exacerbated by local beliefs on witchcraft, the unfamiliarity of the disease, and miscommunication (Manguvo and Mafuvadze 2015, Mark 2014). Such securitisation narratives are often substantiated by an externalisation of threat, such that the disease is an extrinsic threat to the political body and the predominant concern lies in the protection of the self against the threatening other (Nunes 2016: 550). As day-to-day political competition, power struggles, subversive activities, and civil unrest are temporarily put aside, political stability improves. That is not to say that external threat perceptions are a viable way to ameliorate political stability. Perceptions of existential threat may well cause significant instability when the fight for survival, competition for resources, and panic result in a struggle of all against all. Unlike influenza and tuberculosis, ebola was particularly prone to being constructed as a crisis and existential threat because its material characteristics correspond well with dominant narratives on global health and health security. In contrast, the material characteristics of tuberculosis are less amenable to resonate with such narratives. Although tuberculosis is highly transmissable and one of the leading causes for death worldwide, its chronic prevalence, extended incubation periods and slow pathogenic development, its link to marginalised groups, and its extensive medical exploration deprive it of a sense of imminent danger, impair its portrayal as a security threat, and reduce the likelihood of political resistance. Similarly, the material characteristics of influenza speak to a dangerous disease with pandemic potential, but they do not resonate as readily with the health security and securitisation narrative as ebola. Therefore, influenza outbreaks are less amenable to social construction as crises and are usually not perceived as an existential external threat to populations or a cause for fear and desperation. That explains why we find neither a unifying and stabilising effect, nor a considerable destabilising effect from influenza outbreaks. Nevertheless, the material characteristics of influenza indicate that large-scale outbreaks of more virulent subtypes could rapidly exacerbate destabilisation, especially when public life is severely restricted.

These findings imply that it is not only the material characteristics and virulence of a disease outbreak, but also ideational factors, images of the world, and narratives that call attention and create a sense of urgency. This can have severe implications when materially dangerous diseases or health conditions receive little attention from policy-makers because they do not readily resonate with predominant ideas, whereas other diseases attract a bulk of policy responses. The 2014-2015 ebola outbreak attracted attention and preoccupied decision-makers to an extent that other diseases with substantially greater, annually recurrent mortality rates were mostly neglected and basic medical problems became dangerous conditions as ebola blocked access to basic health services (McInnes 2016: 392, Murrey 2014). At the same time, the virulence of influenza is frequently underestimated. Certain influenza subtypes have pandemic potential, could kill millions around the world, cause economic disruption and costs amounting to billions, and have considerable destabilising effects. In order to improve the manner in which counter-measures, resources, and political attention are distributed, it is important to gain a better understanding of which diseases are particularly prone to political destabilisation for what particular reasons. This thesis was an exploratory attempt to explain the observed differences between ebola, tuberculosis and influenza in their effect on political stability. Nonetheless, these complex issues demand to be treated with scientific prudence. Future and more extensive analyses could and should involve more elaborate statistical methods, a larger range of interviews and case studies, as well as more in-depth theoretical and practical analysis. For example, comparative case studies could shed light on whether infectious disease outbreaks in a range of locations and contexts were similarly identified as threats and how that affected political stability. Moreover, the interactions between infectious disease outbreaks and the previous political, societal, and economic conditions of a country should be explored more profoundly This may also include the inclusion of a broader set of control variables and interaction effects. The role of domestic and foreign media in framing outbreaks, shaping perceptions, and attracting attention to certain diseases provides another interesting research avenue.

Generally speaking, a broader range of diverse diseases should be examined from various angles. Ultimately, future research should aim to dismantle the exact factors that substantiate the destabilising effects of certain diseases, to understand the material and ideational factors at play, and to identify effective measures to mitigate political destabilisation due to outbreaks of infectious diseases. Ideally, the findings would help to inform guidance on which diseases need particular attention, where to target resources, and what measures to take on the international, national and local level. As the awareness of the risks associated with infectious diseases is growing, these issues have gained more prominent positions on policy and research agendas. Hopefully, this will translate into sound, well-informed, and meaningful research that will help us to tackle one of the growing dangers of our time.

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ABBREVIATIONS

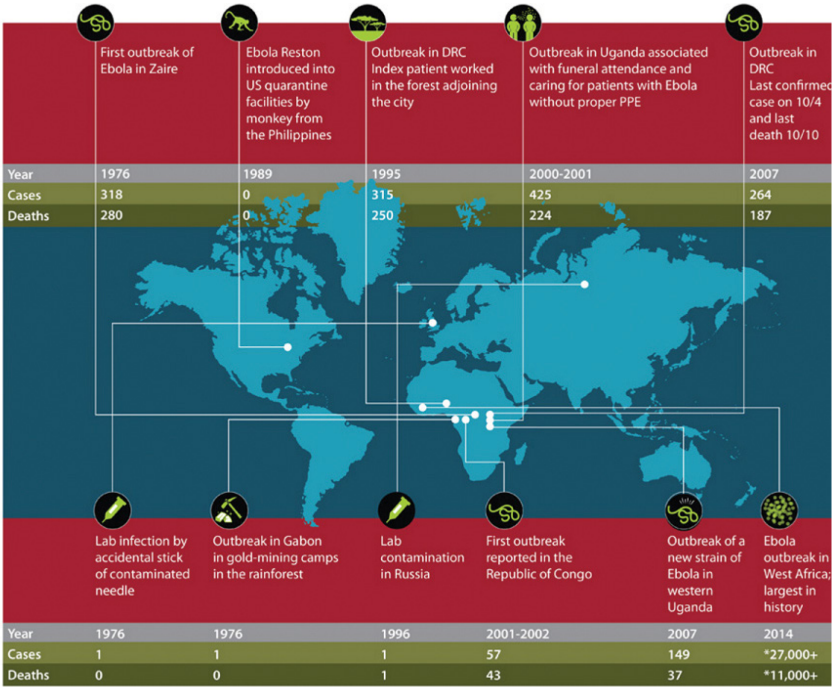
CDC	U.S. Centers for Disease Control
DGAP	Deutsche Gesellschaft für Auswärtige Politik / German Council on Foreign Policy
DRC	Democratic Republic of the Congo
EIU	The Economist Intelligence Unit
GDP	Gross Domestic Product
GHG	Global Health Governance
GNI	Gross National Income
HRW	Human Rights Watch
IOM	U.S. Institute of Medicine
MAR	Minorities at Risk Project
MDGs	Millennium Development Goals
MDR-TB	Multidrug-resistant Tuberculosis
MENA	Middle East and North Africa
MSC	Munich Security Conference
MSF	Médecins Sans Frontières / Doctors Without Borders
NCDs	Non-communicable Diseases
NIAID	National Institute of Allergy and Infectious Diseases
NIC	U.S. National Intelligence Council
NSTC	U.S. National Science and Technology Council
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
PITF	Political Instability Task Force
PPP	Purchasing Power Parity
PV	Political Stability and Absence of Violence/Terrorism
RKI	Robert Koch Institut

RWJF	Robert Wood Johnson Foundation
SARS	Severe Acute Respiratory Syndrome
TB	Tuberculosis
UNMIL	United Nations Mission in Liberia
UNSC	United Nations Security Council
VIF	Variance Inflation Factor
WGI	Worldwide Governance Indicators
WHO	World Health Organisation
XDR-TB	Extensively Drug-resistant Tuberculosis

APPENDIX

Annex A: Maps and Figures

Map A.1: Ebola Outbreaks Chronology



Source: Centers for Disease Control and Prevention (CDC) (2015) 'Outbreaks Chronology: Ebola Virus Disease' (image).

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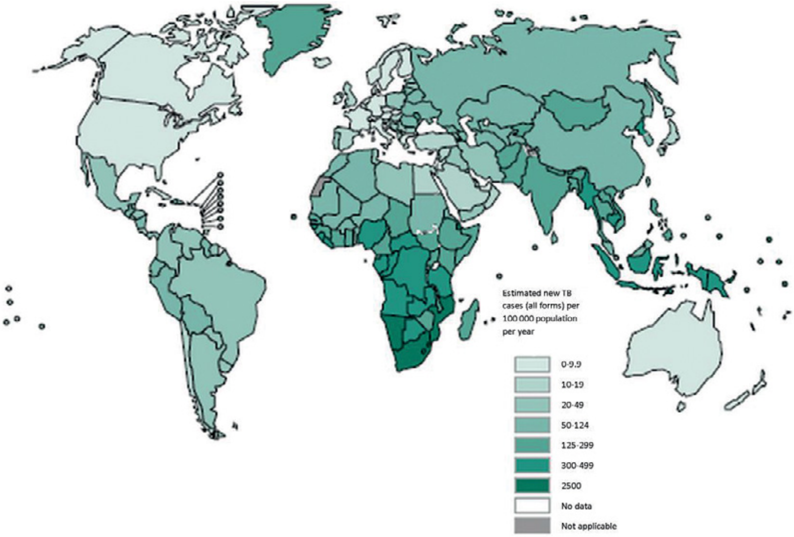
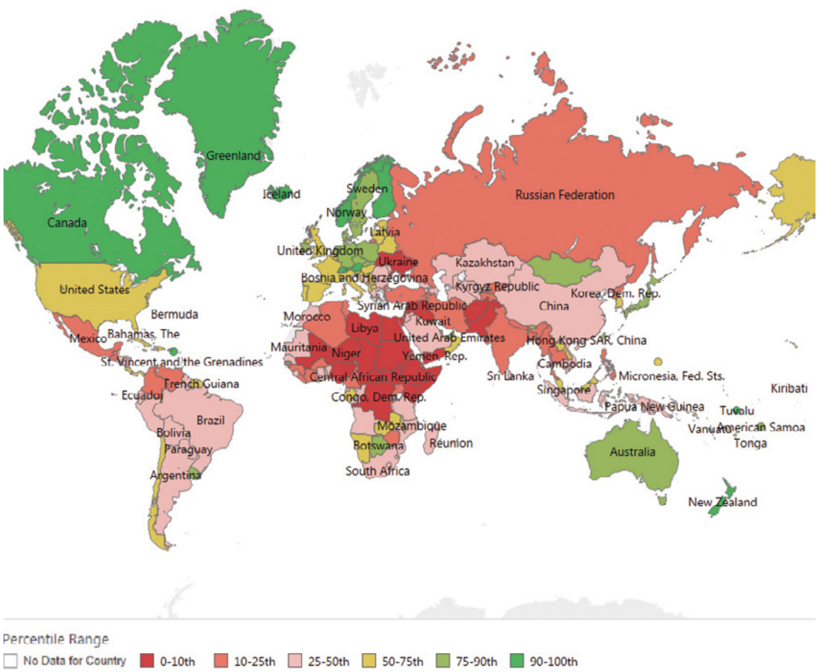
Map A.2: Estimated TB Incidence Rates, 2014



Source: World Health Organization (WHO) (2015b) ‘Estimated TB Incidence Rates, 2014’ (image), *Global Tuberculosis Report 2015*: p. 18. Geneva: World Health Organization.

Map A.3: Political Stability and Absence of Violence/Terrorism, 2014



Source: Worldwide Governance Indicators (WGI) (n.d.c.) '2014, Political Stability and Absence of Violence/Terrorism' (image).

Annex B: Additional Information

Document B.1: Information on Ebola, Tuberculosis, and Influenza

Ebola

Belonging to the family of filoviruses, ebola causes severe acute viral illness, the ebola haemorrhagic fever. The symptoms are acute fever, malaise, headache, lyalgia, vomiting and diarrhea, macupapular rash, limited renal and hepatic involvement, and hemorrhagic diathesis. The incubation period lasts between 2-21 days with symptoms usually showing during the infectious period (Lamunu et al. 2002: 3*Interviewee3 2016, personal interview*[15]). However, ebola symptoms are generally non-specific, especially in early stages of the disease, and resemble those of many other tropical diseases like typhoid, yellow fever, and malaria. This complicates the identification of the disease and often delays outbreak recognition (Muyembe-Tamfum et al. 2012: 7). Case fatality rates are high, ranging between 50-90% and to date there are no approved vaccines or antiviral medications against ebola (Muyembe-Tamfum et al. 2012: 1, 7, Lamunu et al. 2002: 3). Infection with the disease has been linked to increasing contact with infected wildlife, e.g. through farming or hunting. Following the first infections, human-to-human transmission through direct contact with bodily fluids, bodies of deceased patients, or contaminated tissue and objects spreads the disease further (Muyembe-Tamfum et al. 2012: 1-7). Although the disease is highly contagious, outbreaks previous to the 2014-2015 outbreak in West Africa were contained fairly quickly, with the virus typically impeding its own spread by rapidly killing its hosts [*Interviewee4 2016, personal interview*][16] .

[15] Personal interview with Interviewee3 on infectious diseases and political stability, Berlin, 5 July 2016.

[16] Personal interview with Interviewee4 on infectious diseases and political stability, Würzuburg/ Washington DC, 16 September 2016.

The key for controlling an outbreak is to disrupt the viral transmission chain, e.g. through isolation of patients, identification and tracking of contact persons, barrier precautions and protective equipment, safe burial practices, and prudent waste disposal (Muyembe-Tamfum et al. 2012: 7). Ebola has emerged relatively recently: The first known outbreaks took simultaneously place in DRC and Sudan in 1976. Ever since, outbreaks mainly occur in the basins of the rivers Congo and Nile (Muyembe-Tamfum et al. 2012: 1), and are often confined to localised, rural populations (Mark 2014). The 2014-2015 ebola outbreaks in West Africa was the first to occur in the region, to turn into a cross-border epidemic, and to spread to urban populations, which impaired containment (Mark 2014). With an estimated 28,616 cases and 11,310 deaths, the 2014-2015 ebola outbreak was by far the largest outbreak in history, surpassing the combined total outbreaks of all previous outbreaks (CDC 2016b, Roemer-Maler and Rushton 2016: 373).

Tuberculosis

Tuberculosis is caused by the bacillus *Mycobacterium tuberculosis* and typically affects the lungs, but may also spread to other parts of the human body (WHO 2012: 4). The symptoms include cough, pain chest, coughing up blood, weight loss, fatigue, fever, and night sweat (CDC n.d.b). The incubation period can be very extended: Not seldom, it takes years until the disease openly breaks out and symptoms appear. In fact, an estimated 2-3 billion people is infected with *M. tuberculosis*, but only 5-15% of the infected individuals will develop an open tuberculosis disease (WHO 2012: 4). The disease usually breaks out when an *M. tuberculosis* infection is coupled with factors that cause immunosuppression, such as an HIV/AIDS infections or malnutrition (Van Helden 2003: 24). Once an infected person develops pulmonary tuberculosis, the disease is highly contagious and easily transmittable through the air when bacteria are expelled by coughing, sneezing or speaking (CDC n.d.b). Since the symptoms are unspecific for extended periods of time, resembling those of a normal cough, recognition of the disease is often delayed, allowing the bacterium to infect vast numbers of people. The key to controlling outbreaks lies in strong public health measures, including the the rapid isolation of cases, identification and tracking of contact persons, and thorough medical treatment [*Interviewee4 2016*]. Although major improvements in the fight against tuberculosis have been achieved since it was included in the Millennium Development Goals (MDGs) in 2000, tuberculosis remains one of the leading causes of death worldwide. In 2014, an estimated 9.6 million people fell ill with tuberculosis and about 1.5 million people died of the disease, including 140,000 children (WHO 2012: 1). The global case facility rate lies at 7-35% (Lin et al. 2014: 1). Treatment is available, but relatively costly and time-consuming, which impairs access for certain populations. Without treatment, the death rate is high (estimates point to 70%) (WHO 2012: 4). In recent years, increases of multidrug-resistant tuberculosis (MDR-TB) and extensively drug-resistant tuberculosis (XDR-TB) have been of growing concern. In 2014, about 3% of new cases and 20% of previously treated cases had MDR-TB, of which only 50% were successfully treated. A total of 190,000 people died of MDR-TB in 2014 (WHO 2012: 2). It is widely accepted, that tuberculosis is not only a medical problem, but also an issue of poverty and social inequality (Van Helden 2003: 24). The crowded conditions in which many of the poor live (e.g. in urban slums) offer favourable conditions to the spread of tuberculosis, while access to effective treatment is limited. In addition, tuberculosis exacerbates poverty: Country case studies have shown that each TB patient loses an average of 3-4 months of work time per year, which translates into a loss of 2-30% of household income. Families of deceased tuberculosis patients are found to lose about 15 years of income (Fonkwo 2008: 15). Nevertheless, the risk of tuberculosis is not confined to low-income and developing countries. It has been making a steady comeback in high-income countries, especially in Canada and the U.S. (Price-Smith 2002: 7).

Influenza

Influenza is a viral disease that can develop in various manners, depending on the circulating virus subtype and the infected age group (RKI 2015: 17). Symptoms may include headaches, muscle or body aches, cough, fatigue, sore throat, and in some cases diarrhoea and vomiting (CDC n.d.a). Influenza outbreaks occur in regular waves and often affect large parts of the population in a range of various countries, including high-, middle-, and low-income countries (WHO 2014b). In Germany, about 5-20% of the population are affected by influenza each year (RKI 2015: 17). The disease transmits easily through the air and can spread rapidly. Since individuals who contracted influenza enter the contagious period before showing symptoms, containment efforts are merely reactive, making effective outbreak control extremely difficult. In fact, effective containment of a severe influenza outbreak would require the shutdown of public life in order to disrupt transmission chains [*Interviewee4 2016*]. Each year, an estimated 500,000 people die of influenza worldwide, but fatality rates vary strongly between years and the circulating influenza subtype (World Bank 2013, RKI 2015: 18). More transmissible and virulent subtypes could well turn into pandemics and cause millions of deaths (World Bank 2013, Fan et al. 2016: 5). The influenza pandemic from 1918-1920 (the 'Spanish flu') is an example of a particularly virulent outbreak that affected 25-30% of the world's population and killed an estimated 20-50 million people (Patrick 2011: 213, Fan et al. 2016 5). The U.S. government predicts, that an outbreak similar to the Spanish flu today may lead to 90 million cases and 2 million deaths in the U.S. alone (Patrick 2011: 213). Recent examples of more severe outbreaks are the 2003-2004 H5N1 influenza pandemic ('avian flu') and the 2009 H1N1 swine flu pandemic that infected about 200 million people but had low lethality (WHO 2014a, MSC 2016: 42). In addition, economic costs of influenza outbreaks can be considerable when large, productive parts of the population are temporarily unable to work, logistics chains weaken, and the burden on health systems increases [*Interviewee3 2016*]. For example, the 2009 H1N1 influenza pandemic affected a range of economic activities, including tourism, the service sector, entertainment, trade and transport, and agriculture. An estimated 0.3-0.5% of GDP were lost to the outbreak (WHO 2012: 18). Furthermore, the World Bank estimates that a severe influenza pandemic could result in an income loss of 4-5% of global GNI (Fan et al. 2016: 2). More virulent virus subtypes with pandemic potential emerge through mutation, evolution and recombination. Influenza viruses have high genetic flexibility and constantly mutate and recombine to circumvent the defence mechanisms of their hosts. Therefore, the development of effective influenza vaccines is difficult and requires constant updates (Fonkwo 2008: 13). The greatest source of highly virulent and contagious influenza viruses are birds (Patrick 2011: 213). Especially intensive livestock farming with crowded living conditions offer a favourable environment for interaction among virus subtypes, recombination, and mutation (Patrick 2011: 234). Despite the potential for virulent influenza outbreaks and pandemics, influenza is often underestimated and most countries remain insufficiently prepared for a pandemic (Patrick 213-214, *Interviewee2 2016, personal interview*[17]).

[17] Personal interview with Interviewee2 on infectious diseases and political stability, Washington DC, 6 May 2016.

Table B.1: Variables

Variable	**Political Stability**
Definition	The likelihood of a destabilisation of the government or disorderly transfer of government power in a given country and year through unconstitutional means, including violent protest, armed conflicts, social unrest, terrorism, or international tension.[18]
Explanations	One of the six governance indicators reported by the Worldwide Governance Indicators (WGI) project of the World Bank for 215 economies over the period of 1996-2014. The standard range of the indicator lies between 2.5 (strong political stability) and -2.5 (weak political stability). However, extreme cases with higher scores occur. The aggregate indicator is based on perceptions of the likelihood that the government will be unconstitutionally destabilised or overthrown[19] and combines "the views of a large number of enterprise, citizen and expert survey respondents in industrial and developing countries. They are based on over 30 individual data sources produced by a variety of of survey institutes, think tanks, non-governmental organizations, international organizations, and private sector firms."[20] The aggregate indicator includes individual variables such as armed conflict, violent demonstrations, social unrest, terrorist threat, intensity of internal conflict, intensity of violent activities of political organisations, government stability, ethnic tensions, etc.[21]
Source	World Bank Group (2015).

[18] WGI (n.d.b)
World Bank Group (2015)
[19] Kaufmann, D.; Kraay, A. and M. Mastruzzi (2010): 4.
[20] World Bank Group (2015).
[21] WGI (n.d.b)

Variable	Ebola per 100,000
Definition	The estimated number of ebola cases per 100,000 inhabitants in a given country in a given year
Explanations	The total number of new and relapse ebola cases (CDC, WHO) expressed as the rate per 100,000 inhabitants (World Bank) of the respective country in a given year.
Source	CDC (2016b). WHO (n.d.a). World Bank (2016).
Variable	**Tuberculosis per 100,000**
Definition	The estimated number of new and relapse tuberculosis cases per 100,000 inhabitants in a given country in a given year.
Explanations	Indicator provided by the World Bank. All forms of tuberculosis are considered, including cases in people infected with HIV.
Source	World Bank (2016).
Variable	**Influenza per 100,000**
Definition	The estimated number of new and relapse influenza cases per 100,000 inhabitants in a given country in a given year
Explanations	The total number of influenza cases (WHO) expressed as the rate per 100,000 inhabitants (World Bank) of the respective country in a given year. The total number of influenza cases includes influenza A subtypes and influenza B subtypes.

Source	WHO (n.d.c). World Bank (2016).
Variable	**GDP per capita (PPP)**
Definition	Average gross domestic product per capita in a given country in a given year in terms of purchasing power parity (PPP)
Explanations	Expressing the GDP per capita in terms of PPP allows to eliminate exchange rate fluctuations and to facilitate international income comparisons by converting the purchasing power of the US$ into local purchasing power.
Source	World Bank (2016).
Variable	**Population growth (%)**
Definition	Percentage by which the total population of a given country increases or decreases in a given year as compared to the previous year.
Explanations	
Source	World Bank (2016).
Variable	**Government effectiveness**
Definition	The perceived "quality of public services, civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies"[22] in a given county in a given year.

[22] WGI (n.d.a).

Explanations	Binary dummy variable taking on the value 1 when government effectiveness is perceived as weak, i.e. when the government effectiveness indicator taken from the World Bank's Worldwide Governance Indicators (WGI) is smaller than zero. Dummy variable takes on the value 0 when said government effectiveness indicator is equal to or larger than zero. The government effectiveness indicator used to define the dummy variable is one of the six governance indicators reported by the Worldwide Governance Indicators (WGI) project of the World Bank for 215 economies over the period of 1996-2014. The standard range of the indicator lies between 2.5 (strong government effectiveness) and -2.5 (weak government effectiveness). The aggregate indicator is based on "perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies"[23] It combines "the views of a large number of enterprise, citizen and expert survey respondents in industrial and developing countries. They are based on over 30 individual data sources produced by a variety of of survey institutes, think tanks, non-governmental organizations, international organizations, and private sector firms."[24] The aggregate indicator includes individual variables such as institutional effectiveness, infrastructure, quality of the education system, coverage area of public schools, basic health services, transport infrastructure, drinking water and sanitation, etc.[25]
Source	World Bank Group (2015).
Variable	**History of instability**

[23] WGI (n.d.a).
[24] World Bank Group (2015).
[25] WGI (n.d.a).

Definition	Occurrence of significant episodes or events of coups or violent conflict in a given country within the twenty-year period previous to a given year.
Explanations	Categorical variable that takes on the value 0, if there have been no significant episodes or events of coups or violent conflict (including unconstitutional regime change, revolutionary war, ethnic war, or complex conflict) as recorded by the Political Instability Task Force (PITF) in the twenty years previous to the given year. Categorical variable takes on the value 1, if the PITF recorded one unconstitutional regime change or violent conflict in the twenty years previous to the given year. Categorical variable takes on the value 2, if the PITF recorded two or more events or episodes of unconstitutional regime change or violent conflict within the past twenty years. Categorical variable takes on the value 3, if the PITF recorded a significant episode or event of unconstitutional regime change or violent conflict within the exact given year. The categorical variable is based on the findings of the Political Instability Task Force (PITF) that has recorded instances of regime change, revolutionary war, ethnic war, or complex conflicts in the period of 1955 to 2014. The coding is a modification of the coding used by the Economist Intelligence Unit for their own indicator of political instability.[26]
Source	PITF (2015).
Variable	**Neighbourhood**
Definition	Occurrence of significant episodes or events of coups or violent conflict in one or more neighbouring countries in a given year.

[26] EUI (2009).

Explanations	Categorical variable takes on the value 0, if the there have been no significant episodes or events of coups or violent conflict (i.e. unconstitutional regime change, revolutionary war, ethnic war, or complex conflict) as recorded by the Political Instability Task Force (PITF) in any neighbouring country in the given year. Categorical variable takes on the value 1, if the PITF recorded significant episodes or events of regime change or violent conflict in one neighbouring country in a given year. Categorical variable takes on the value 2, if the PITF recorded significant episodes or events of regime change or violent conflict in one neighbouring country in a given year. Categorical variable takes on the value 3, if the PITF recorded significant episodes or events of political instability in two or more neighbouring countries in a given year. The categorical variable is based on the findings of the Political Instability Task Force (PITF) that has recorded instances of regime change, revolutionary war, ethnic war, or complex conflicts in the period of 1955 to 2014. The coding is a modification of the coding used by the Economist Intelligence Unit for their own indicator of political instability.[27]
Source	PITF (2015).
Variable	**OECD**
Definition	Formal member of the Organisation of Economic Co-operation and Development (OECD)
Explanations	Binary dummy variable taking on the value 0 if a given country is not a formal member of the OECD in a given year. Dummy variable takes on the value 1, if the given country is a formal member of the OECD in a given year.
Source	OECD (n.d.).

[27] EUI (2009).

Annex C: Regression Equations

Document C.1: Regression Equations

Ebola 1: $PV_{it} = \alpha + \beta_1 Ebola_{it} + \pi_t + \rho_i + u_{it}$

Ebola 2: $PV_{it} = \alpha + \beta_1 Ebola_{it} + Controls1_{it}\lambda + \pi_t + \rho_i + u_{it}$

Ebola 3: $PV_{it} = \alpha + \beta_1 Ebola_{it} + Controls2_{it}\lambda + \pi_t + \rho_i + u_{it}$

Ebola 4: $PV_{it} = \alpha + \beta_1 Ebola_{it-1} + Controls2_{it}\lambda + \pi_t + \rho_i + u_{it}$

Ebola 5: $PV_{it} = \alpha + \beta_1 Ebola_{it} + Controls2_{it}\lambda + Robust1_{it}\beta_2 + \pi_t + \rho_i + u_{it}$

Ebola 6: $PV_{it} = \alpha + \beta_1 Ebola_{it} + Controls2_{it}\lambda + \pi_t + \rho_i + u_{it}$ (subsample)[1)]

Tuberculosis 1: $PV_{it} = \alpha + \beta_1 TB_{it} + \pi_t + \rho_i + u_{it}$

Tuberculosis 2: $PV_{it} = \alpha + \beta_1 TB_{it} + Controls1_{it}\lambda + \pi_t + \rho_i + u_{it}$

Tuberculosis 3: $PV_{it} = \alpha + \beta_1 TB_{it} + Controls2_{it}\lambda + \pi_t + \rho_i + u_{it}$

Tuberculosis 4: $PV_{it} = \alpha + \beta_1 TB_{it-1} + Controls2_{it}\lambda + \pi_t + \rho_i + u_{it}$

Tuberculosis 5: $PV_{it} = \alpha + \beta_1 TB_{it} + Controls2_{it}\lambda + Robust1_{it}\beta_2 + \pi_t + \rho_i + u_{it}$

Tuberculosis 6: $PV_{it} = \alpha + \beta_1 TB_{it} + Controls2_{it}\lambda + \pi_t + \rho_i + u_{it}$ (subsample)[1)]

Influenza 1: $PV_{it} = \alpha + \beta_1 Influenza_{it} + \pi_t + \rho_i + u_{it}$

Influenza 2: $PV_{it} = \alpha + \beta_1 Influenza_{it} + Controls1_{it}\lambda + \pi_t + \rho_i + u_{it}$

Influenza 3: $PV_{it} = \alpha + \beta_1 Influenza_{it} + Controls2_{it}\lambda + \pi_t + \rho_i + u_{it}$

Influenza 4: $PV_{it} = \alpha + \beta_1 Influenza_{it-1} + Controls2_{it}\lambda + \pi_t + \rho_i + u_{it}$

Influenza 5: $PV_{it} = \alpha + \beta_1 Influenza_{it} + Controls2_{it}\lambda + Robust1_{it}\beta_2 + \pi_t + \rho_i + u_{it}$

Influenza 6: $PV_{it} = \alpha + \beta_1 Influenza_{it} + Controls2_{it}\lambda + \pi_t + \rho_i + u_{it}$ (subsample)[1)]

PV_{it}:	PV score of country i at time t
α:	unobserved time-invariant, country-specific effects
β_1, β_2:	coefficients
$Ebola_{it}$:	number of ebola cases per 100,000 inhabitants in country i at time t
$Ebola_{it-1}$:	number of ebola cases per 100,000 inhabitants in country i at time t-1
TB_{it}:	number of tuberculosis cases per 100,000 inhabitants in country i at time t
TB_{it-1}:	number of tuberculosis cases per 100,000 inhabitants in country i at time t-1
$Influenza_{it}$:	number of influenza cases per 100,000 inhabitants in country i at time t
$Influenza_{it-1}$:	number of influenza cases per 100,000 inhabitants in country i at time t-1
Controls1:	time-varying control variables for each country (GDP per capita and population growth)
Controls2:	time-varying control variables for each country (GDP per capita, population growth, government effectiveness, and history of political instability)
Robust1:	time-varying variable for each country for robustness checks (neighbourhood)
λ:	vector of coefficients associated with control variables
π_t:	time-fixed effects
ρ_i:	country-fixed effects
u_{it}:	error term

1) The specifications Ebola 6, Tuberculosis 6 and Influenza 6 constitute re-estimations of the specifications Ebola 3, Tuberculosis 3 and Influenza 3 for the subsample of non-OECD members only.