Vicious Circle—HIV/AIDS, State Capacity, and National Security: Lessons from Zimbabwe, 1990-2005

Andrew T. Price-Smith

Recent macro level empirical analyses have revealed a complex relationship between health and governance. Yet, most micro level studies fail to assess the effects of HIV/AIDS induced morbidity and mortality as they interact across the domains of demography, economic and governance at the domestic level of analysis. This consilient case study illustrates the manner in which HIV/AIDS generates negative pressures that destabilize Zimbabwean society, its economy, and its structures of governance. The article asserts that HIV/AIDS can act as a stressor upon seriously affected societies, and may over time generate or exacerbate macro-level destabilization.

INTRODUCTION

The HIV/AIDS pandemic continues to spread in inexorable fashion throughout the developing world, proliferating from its established base in sub-Saharan Africa to infect millions in India, Eastern Europe, and East Asia. In 2005, the pandemic claimed 2.8 million lives, while generating 4.1 million new infections, to bring the number of people currently infected to 38.6 million.[1] Despite increased production rates of anti-viral therapies, access to them remains limited in the developing world, and resistant strains of Human Immunodeficiency Virus (HIV) have begun to proliferate.

This study analyzes the effects of HIV/AIDS upon governance and security within the context of the case of Zimbabwe. Once the greatest success story in Africa, Zimbabwe now totters on the brink of economic and political collapse. The country is currently beset by political violence, electoral fraud, foreign wars, and land seizures from white minorities.[2] Zimbabwe is also beset with a declining GDP, high rates of inflation and unemployment, increasing poverty, and attenuated drought. In addition to these problems, the state exhibits one of the highest levels of HIV/AIDS seroprevalence in the world, with approximately 20 percent of the total population currently infected with HIV.[3]

This case study employs process-tracing techniques[4] to illustrate the effects of HIV/AIDS upon the various domains of economics, governance and security. Within such complex bio-political systems effects may take the form of complex feedback loops and exhibit non-linear properties. [5] Indeed, Margaret and Harold Sprout noted this principal of "connectivity" across domains, stating that "any substantial change in one sector of the milieu is nearly certain to produce significant, often unsettling, sometimes utterly disruptive consequences in other sectors."[6] Moreover, Jervis argues that complex systems exhibit the following properties such that, "[m]any crucial effects are delayed and indirect; the relations between two actors (or domains) are often determined by each one's relations with others; interactions are central and cannot be understood by additive operations; many outcomes are unintended; regulation is difficult."[7]

This study provides initial empirical evidence of the epidemic's capability to compromise prosperity, political stability and national security in seriously affected regions of the world over

a longer period of time. Given the assortment of complex factors working to destabilize Zimbabwe, the HIV/AIDS epidemic should be regarded as a powerful 'stressor' which undermines the prosperity and political stability of the nation. In particular we argue that in the context of poor governance, (i.e. low levels of political will and state capacity) HIV/AIDS reinforces a vicious spiral within affected societies that will threaten the stability of the state.

Literature Review

Historians have long understood the deleterious effects of epidemic disease upon the stability of states and societies. The historian William McNeill was rather explicit with regard to this subject when he stated that:

> The disruptive effect of such an epidemic is likely to be greater than the mere loss of life, severe as that may be. Often survivors are demoralized, and lose all faith in inherited custom and belief which had not prepared them for such a disaster. Population losses within the twenty to forty age bracket are obviously far more damaging to the society at large than comparably numerous destruction of the very young or the very old. Indeed, any community that loses a significant percentage of its young adults in a single epidemic finds it hard to maintain itself materially and spiritually….the structural cohesion of the community is almost certain to collapse.[8]

In recent years infectious disease has gained recognition as a threat to both international development and to national security, spurring the development of the nascent field of "health security."[9] Prior analyses have concluded that HIV/AIDS threatens the efficacy of military forces,[10] effective governance,[11] and the macro-economy[12] that underpins the preceding variables. Recent empirical work by Susan Peterson and Steven Shellman indicates that the incidence of HIV/AIDS acts through indirect mechanisms to generate intra-state conflict and human rights abuses, thereby representing a threat to national security.[13] Despite the increasingly sophisticated analysis, few studies have assessed the threat as it affects both state and society across domains at the micro and macro level.[14] The balance of evidence presented herein illustrates that HIV/AIDS constitutes both a *direct* and *indirect* substantive threat to Zimbabwean governance and national security.[15]

The analysis begins with a brief examination of the utility of the concept of state capacity, while applying it to the case of HIV/AIDS and its effect on Zimbabwe. Subsequently, our discussion turns to the demographic effects of the contagion, particularly the cohort of orphans generated by AIDS-induced mortality. The following sections detail the mechanisms by which HIV/AIDS acts in a corrosive fashion to undercut economic productivity, while simultaneously weakening the institutional structure of the state, including the national military and police forces.

HEALTH AND STATE CAPACITY

Varying conceptualizations of State Capacity have been proffered by Theda Skocpol, Pierre Engelbert and Joel Migdal.[16] Migdal argues that strong states are capable of penetrating society, extracting and appropriating resources, and regulating social relationships.[17] With a nod to Migdal, we have refined our definition of state capacity to be one country's ability to maximize its prosperity and stability, to exert *de facto* and *de jure* control over its territory, to

protect its population from predation, to extract resources, regulate social relationships, and to adapt to diverse crises. State capacity is defined as the capability of government, and it may be measured by an empirical index consisting of variables that are logical indicators of the state's ability to deliver on its central functions.[18]

Hypothetically, states with relatively low levels of capacity, but are governed well, can respond with reasonable efficacy to the epidemic and thus, control its further spread. This has occurred in both Thailand and Uganda , where political elites use their power to mobilize civil society in a bid to reduce risky behavior.[19] Both of these countries have seen their seroprevalence levels of HIV infection decline significantly over the past decade. Conversely, countries with mid to low levels of capacity, combined with poor governance, have been ineffective at containing the spread of the contagion, as well as in mitigating its adverse economic and political effects (e.g. Zimbabwe).

In the context of the HIV/AIDS epidemic, the intervening variable of governance is of utmost importance as it helps to explain differential outcomes in the ability of polities to respond to the epidemic while maintaining economic and political stability. For example, Botswana, despite having a slightly higher seroprevalence rate, has higher empirical levels of state capacity and more apt political leadership than that of Zimbabwe, It is probable that this combination of effective political leadership and higher endogenous capacity in Botswana (due to mineral exports) has moderated the negative effects of the pandemic, whereas Zimbabwe is seeing significant socio-economic destabilization as a result of HIV/AIDS.

This study draws upon the preliminary finding that there is a strong positive empirical association between population health and state capacity.[20] Population health is measured through indicators of life expectancy and infant mortality. In an empirical cross-national study of twenty nations, utilizing forty years of data, Price-Smith demonstrated that public health is a major driver of state capacity. This study also revealed the existence of a feedback loop between population health and state capacity, wherein a fifteen year lagging of the variables, demonstrated that health is a stronger driver of capacity than the obverse. Altogether this conclusion suggests that significant declines in a population's health (regardless of the source of decline), will therefore generate significant declines in downstream state capacity. Given adult seroprevalence rates of 20.1 percent, the HIV/AIDS epidemic has dramatically eroded life expectancy in Zimbabwe and has significantly compromised the health and welfare of the population as a whole.

One might reasonably ask why Zimbabwe seems to be reeling under the epidemic while its neighbor Botswana (possessing an adult HIV seroprevalence rate of 24.1 percent) remains generally stable. I argue that state capacity is an intervening variable between the independent variable of HIV incidence on the one hand, and the dependent variable of political stability on the other. Botswana is an interesting case because it is a relatively prosperous rentier state with significant mineral wealth, high per capita income and therefore relatively higher levels of state capacity vis a vis Zimbabwe. A brief comparison of the relative state capacity of both nations is in order to illustrate this point. GDP per capita is a significant indicator of SC as it illustrates the strength of the national economy, and the subsequent tax revenues the state may garner as a result. According to UNESCO data for 2004, Botswana has a GDP per capita of $8,714 while Zimbabwe's is a mere $2,362. The annual growth rate of their economies in 2004 was +5.4 percent for Botswana, whereas Zimbabwe exhibited an alarming decline of -5.6 percent.

Public expenditures on education (and aggregate measures of educational enrollment) also illustrate the relative capacity of each nation, as education is a necessary, yet expensive

good to provide. The number of children of primary school age that were not attending school was roughly equivalent at 16 percent, as was the net primary enrollment rate at 82 percent. However, in the realm of secondary school education, which is indicative of the endogenous base of human capital being generated on an annual basis, the net secondary enrollment rate in Botswana was 61 percent, to a meager 38 percent in Zimbabwe, while tertiary enrollment was 6 percent in Botswana to 4 percent in Zimbabwe.[21]

Moreover, Botswana possesses relatively effective political leadership in President Festus Mogae, an Oxford-trained economist who is engaged in efforts to blunt the negative effects of the epidemic on the people of Botswana. The Mogae administration has provided significant leadership in mobilizing communities to reduce endogenous transmission, and has promised that infected persons will receive free anti-retroviral therapy to prolong their lifespan and productivity. Thus, Botswana possesses several critical advantages over Zimbabwe, higher capacity, and better political leadership which enjoy greater levels of legitimacy in the eyes of its populace.

DEMOGRAPHIC PROJECTIONS

Disturbingly, the HIV/AIDS epidemic has seen significant increases in adult prevalence from an estimated 12 percent of the Zimbabwean population in 1990, peaking at an estimated 33.7 percent in 2001, but declining in recent years to circa 20.1 percent. HIV/AIDS induced deaths reached their apex in 2001 at an estimated 200,000, and continued at that level through 2003, declining marginally to 180,000 in 2005. More than 800,000 Zimbabweans have died from the disease since 1998, which (given a current population of 12.237 million) results in a mortality rate of a significant 6.537 percent of the populace during the last eight years as a result of the epidemic. Currently, over 1.7 million Zimbabweans are now infected with HIV, up from 1.6 million in 2003,[22] over 600,000 have full-blown AIDS and more than 2,500 die each week as a result of the disease. These figures translate into the debilitation (to various degrees) of approximately 13.892 percent of the total population. The epidemic continues to spread rapidly throughout the Zimbabwean populace, with little evidence of abatement. Within the country, the distribution of HIV infection exhibits significant variance, with Masvingo province at 49.4 percent, the midlands at 45.1 percent and then Harare and Bulawayo respectively at 30 percent.[23]

Zimbabwean life expectancy at birth declined precipitously from fifty-two years in 1970 to a mere thirty-seven years as of 2006, and it is predicted to fall to a meager twenty-seven years by 2010 according to UNICEF. Indeed the average Zimbabwean has lost 7.8 years from their lifespan between 1990 and 2006.[24] Infant mortality increased from a rate of fifty-three deaths per thousand in 1990 to seventy-nine per thousand in 2006, and under-five mortality also increased from 80 per thousand in 1990 to 129 per thousand in 2006, much of which may be attributed to the AIDS epidemic.[25]

As a result of the dramatic winnowing of the adult population, the national population distribution is expected to transform from a traditional pyramid shape to that of a chimney-type form perched on a large base of children and adolescents. Fourie and Schonteich argue that this demographic shift, and the resultantly large cohort of orphans, will have significant negative ramifications for societal stability as youth are more frequently involved in criminal activity and prone to radicalization.[26] Such impoverished and disaffected youth may be convinced to join various radical and destabilizing movements such as militias, paramilitaries, and terrorist

organizations. These issues will be explored in greater depth during the discussion of governance.

Orphans

Given that HIV/AIDS generates significant mortality with the fifteen to forty-five year age range of the population one might expect the pandemic to generate a significant cohort of orphans who have lost one or both parents to the disease. UNAIDS estimates the number of Zimbabwean children who have lost one or both parents to AIDS at 1.1 million as of 2005, (up from 600,000 in 2000).[27] In 2000, the U.S. National Intelligence Council report concluded that:

> With as much as a third of the children under fifteen in hardest-hit countries expected to comprise a 'lost orphaned' generation by 2010 with little hope of educational or employment opportunities, these countries will be at risk of further economic decay, increased crime, and political instability as such young people become radicalized or are exploited by various political groups for their own ends; the pervasive child soldier phenomenon may be one example.[28]

Schonteich has argued that the AIDS epidemic will directly increase the frequency and severity of crime in Zimbabwe in the decades to come, primarily as a function of the inexorably growing population of AIDS orphans. He concludes that, "[g]rowing up without parents, and badly supervised by relatives and welfare organizations, the growing pool of orphans will be at greater than average risk to engage in criminal activity." [29]

The drain of orphaned populations upon state coffers will become onerous in the years to come and has the capacity to further strain Zimbabwe's already overtaxed budget. The other portion of the burden will fall upon extended family members to care for the children, placing additional strains on declining household incomes and savings. Therefore, such a large cohort of orphans threatens to overwhelm already flimsy existing support systems. The majority of these children will grow up impoverished, poorly educated, prone to criminal behavior, and disenchanted with society. Such disaffected young individuals are excellent candidates for recruitment to radical political causes. As the AIDS epidemic continues to expand, it will destabilize governments throughout the region. Such weakened states may provide fertile breeding grounds for terrorist organizations to move in, set up shop, and recruit from the estranged orphan populations. This is particularly worrisome given that terrorist organizations are active in eastern Africa and currently moving into Southern Africa to set up bases of operations and recruit personnel. Thus, the AIDS orphan problem threatens not only to create governance problems within affected states, but also to contribute to problems of global governance (particularly terrorist activity) in the future. These assertions will be examined in greater depth in the sections that follow.

ECONOMICS

There are diverse factors contributing to Zimbabwe's economic miasma ranging from drought, to land seizures, and threatened nationalization of the mining industry; yet, the impact of HIV/AIDS is frequently downplayed. Zimbabwe exhibits high levels of income inequality with approximately 20 percent of the population receiving 60 percent of the income. Roughly 60 percent of the population lives below the poverty line, with the poor spending between 33 and 50

percent of their total annual expenditure on food and health care.[30] Zimbabwe is also beset with shortages of foreign exchange, and significant arrears on its foreign debt. What is not often understood is that the HIV/AIDS epidemic has been contributing to the decline of the Zimbabwean economy for some time, exacerbating income inequalities, undermining societal productivity and generating capital flight out of the country. In this section we document the observed negative effects of HIV/AIDS on the domestic economy at the micro and macroeconomic levels on foreign investment and on the impact of foreign aid in Zimbabwe.

Micro-level Impact

At the household level, AIDS has had a dramatic negative effect on production and earnings, resulting in reduced income, declining productivity, and the reallocation of labor and land to deal with debilitated and/or dead breadwinners. AIDS-induced debilitation generates a number of negative demand and supply-side shocks to households, including the loss of income from infected wage earners, significant expenditures on medical expenses, and the loss of employment as healthy individuals must care for ill family members.

Premature AIDS-induced mortality results in the permanent loss of income, large funeral costs, and permanent labor substitution as children are removed from school to generate income for the family. Furthermore, widows may lose their land when their husbands die of AIDS, as male relatives may lay claim to the dead individual's belongings (including their spouses) according to custom. Given that most Zimbabwean women lack legal certificates (such as wills or marriage certificates) their rights are not protected.

Moreover, the burden of disease falls unequally upon classes, with poorer populations bearing a disproportionate share of the costs relative to their incomes.[31] The indigent may be forced into sexually exploitive situations in order to generate income to make ends meet. The poor will also be most vulnerable to infection given their lower levels of nutrition and lower basal health conditions, and will be unable to afford certain medical treatments (i.e. anti-retroviral therapies) that may slow the progression of the disease. Therefore, it is important to understand that the burden of AIDS tends to fall upon the lower and middle classes, which fosters greater income disparities in Zimbabwean society as a whole. The consequences of such increasing economic inequities on societal stability are explored below.

Considerable decline has been witnessed across important sectors ranging from 25 percent of manufacturing capacity since 1998, a loss of 20 percent of mining output volume since 1999, and a decline in earnings from tourism of roughly 50 percent since 1999.[32] This is not to suggest that the AIDS epidemic is responsible for this entire decline in productivity, yet it certainly is a significant factor in limiting productive possibilities of the Zimbabwean economy. HIV/AIDS has various effects on the labor supply, through the debilitation and death of skilled employees, which induces a scarcity of skilled workers, and a decline in returns to training. Thus, at the macro level HIV is eroding the endogenous stock of human capital in Zimbabwe.

Counter-intuitively, AIDS-induced debilitation and mortality will not dramatically lower the unemployment rate of approximately 80 percent as of 2005,[33] because as the macro economy contracts this will lower the demand for labor, even as the labor supply diminishes due to disease-induced morbidity and mortality. Moreover, there is a pre-existing shortage of skilled labor in the country, and as the epidemic erodes human capital it will only serve to increase the shortage of skilled workers. Thus, the long-term prognosis consists of persistently high unemployment combined with a dearth of skilled labor.

Human Capital

Economic development should be regarded as a "generalized process of capital accumulation" wherein capital consists of both physical and human assets and institutions.[34] The epidemic's pernicious influence on the formation and consolidation of human capital within Zimbabwean society is significant. AIDS will take the lives of a significant proportion of the brightest minds of Zimbabwe. This in turn will hamper efforts toward economic development and impede the consolidation of democratic government. It is important to recognize that the HIV/AIDS epidemic simultaneously drains reserves of human capital, and prevents its accumulation, combining to weaken the institutional capital of a given society.

The net outcome of HIV-induced decline in a society's stock of human capital is the impedance of economic development and the onset of serious economic decline over time. As government funding is diverted from education to the health care sector this will impede the development of human capital in Zimbabwean society as the young will become increasingly devoid of skills and adequate literacy. McPherson argues that the HIV-induced decline of savings and loss of efficiency is very much like 'running Adam Smith in reverse.' He continues that, "[a]s an increasing number of workers become debilitated and drop out of the labor force, many of the advantages of specialization and the division of labor are lost. Moreover, the loss of labor is a direct reduction of the nation's productive capacity."[35] Thus, the HIV/AIDS epidemic will have a pronounced effect on the accumulation and consolidation of knowledge and skills within the Zimbabwean population while simultaneously depleting the pre-existing stock of human capital through the premature mortality of skilled workers. This long-term process of AIDS-induced human capital erosion will result in significant long-term negative outcomes for Zimbabwean prosperity.

Macroeconomic Impact

Given that AIDS depletes the national reservoir of human capital and impedes its formation, it will limit the long-term development potential of Zimbabwe. AIDS-induced shortages of skilled workers will result in higher domestic production costs, which will in turn erode international competitiveness. According to estimates by Haacker, the HIV/AIDS epidemic will result in a loss of output per capita of –7.3 percent per annum due to a change in total factor productivity of –1.3 percent.[36] Bonnel estimates that current levels of adult HIV seroprevalence at 34 percent will slow the growth rate of the macro economy, such that disease induced morbidity and mortality will reduce GDP growth by approximately 1.5 percent per annum.[37] While this may not sound like a significant decline, for the developing countries of southern Africa a 1.5 percent annual decline in GDP growth is an economic catastrophe in the making.

As the rate of population growth declines and the economy contracts, so will personal incomes, consumption rates, and corporate profits. Government revenues are also projected to decline as the tax base stagnates. Simultaneously, the government will attempt to increase expenditure in the health sector, which will result in a deteriorating national fiscal balance. This has resulted in increased deficit spending in the wake of a contracting endogenous revenue base with budget revenues of $1.409 billion, and expenditures of 1.905 billion in 2005.[38] Zimbabwe's GDP declined from $US 8.6 billion in 1991 to $US 3.2 billion in 2005,[39] which

partially reflects HIV's increasing drag on national productivity. Similarly, gross domestic investment (as a percentage of GDP) declined precipitously from 20.8 percent in 1981 to a meager 7.8 percent in 2001. Gross domestic savings (as a percentage of GDP) have declined over the same period from 14.3 percent to 9 percent, while Gross National Savings declined from a high of 12.5 percent in 1991 to 7.4 percent in 2001. This generally reflects the depletion of individual savings by AIDS induced costs generated by debilitation and premature mortality. Simultaneously, total debt as a percentage of GDP has grown from 39.8 percent in 1991 to an astounding 109.8 percent in 2005.[40]

Under the Mugabe regime, Zimbabwe experienced moderate economic success throughout the 1980s with GDP growth from 1981 to 1991 averaging a 3.6 percent increase per annum. However, concurrent with the onset of massive infection rates throughout the early and mid 1990s the annual growth rate of GDP declined to –4.9 percent in 2000, and –8.4 percent in 2001. Moreover, the growth rate of GDP per capita has also declined from 0.3 percent in 1991, to –7.7 percent in 2000, and to –10.1 percent in 2001. Inflation increased from 32 percent in 1998, to 59.4 percent in 1999, to 266.8 percent as of 2005.[41] To offset declining domestic productivity and increased government spending, the Mugabe regime has incurred an enormous debt load. The total external debt of Zimbabwe in 2005 was pegged at $US 5.216 billion, up from $US 4.45 billion in 2001, with debt servicing costs as a percentage of exports running at 69 percent. The nation's current account balance stands at - $US 519 million as of 2005.[42]

In sum, the HIV/AIDS epidemic has already begun to generate serious negative outcomes for the Zimbabwean economy including declining GDP and GNP, in terms of both absolute and per capita measures. It also promises diminishing national and individual savings, declining productivity, and falling rates of foreign investment. The overall picture is one of sustained economic stagnation, and the accelerating contraction of the Zimbabwean economy. This slowing of national economic growth, decline in savings, chronically high levels of unemployment, and declining real per capita GDP will intensify the poverty experienced by the middle and lower classes. The burgeoning epidemic has had a significant negative impact on the Zimbabwean economy, and one might reasonably expect this economic contraction to intensify in the years to come as more HIV-infected individuals develop AIDS and succumb to the illness. Nonetheless, it is difficult to empirically establish the proportion of Zimbabwe's economic decline as a direct result of the contagion, due to the Mugabe government's increasingly sub-optimal economic decisions throughout the 1990's. Subsequent studies will require further analysis of this issue.

Foreign Investment

The AIDS epidemic also has had a profound negative effect on the foreign investment climate for Zimbabwe. Prudent foreign investors grow increasingly wary of Zimbabwe's dire economic future, and as a result of the expanding AIDS epidemic, they are likely to pull their capital investment out of the Zimbabwean economy, a process known as capital flight.

Alternatively, they may simply forgo investing in Zimbabwe in favor of countries with lower risk exposures. Thus, we argue that significant levels of HIV infection (>10 percent seroprevalence) are likely to result in declining levels of foreign investment within seriously affected regions. Notably, the HIV/AIDS epidemic has increased the risk profile for investment in Southern Africa, with investors requiring a premium rate of return exceeding 25 percent throughout the region.[43] The great uncertainty regarding the ultimate economic effects of the

epidemic (due to a paucity of information) also functions to worsen the investment climate for Zimbabwe, as investors are prudently leery of uncertainty. McPherson concurs that:

> Investors are more likely to wait (defer investment) when they have information indicating that the spread of HIV/AIDS will affect adversely the cost structure of any investment they are contemplating. As the perceived costs of dealing with the spread of HIV/AIDS rises, the rate of investment tends to decline. This has reinforced the decline in the supply of investible resources, already under pressure through falling productivity due to the spread of HIV/AIDS. Thus, while the spread of HIV induces the need for higher rates of investment to help maintain worker productivity, it erodes the means by which such investment can be financed. [44]

Foreign Aid

As AIDS induces the contraction of the national economy, it will intensify competition between economic and political elites for control over increasingly scarce fiscal resources. This may contribute to substantial governance problems, including increasing the potential for political violence and coups. While detractors of the Mugabe regime might support such political instability as a means of regime change, it is important to understand that any successor regime would also face a similar scenario of continuing economic and political destabilization as the epidemic continues to rage unabated.

National security does not occur in a vacuum, and economic resources are fungible in that they may be readily translated into military power through the acquisition of material, and the training of forces. Given that the AIDS epidemic has the potential to generate significant long-term constraints on the Zimbabwean economy, it will then by default place increasing limitations on Zimbabwean military power into the foreseeable future. It is patently impossible to field a modern, well trained, and well-equipped fighting force without a substantial national economic engine to power it. Perversely, this may be a good thing as the Mugabe regime may be compelled to withdraw its weakening armed forces from foreign theatres of conflict. The AIDS epidemic, and its attendant long-term damage to Zimbabwe's economic base, promises a reduction in the absolute power of the country over the long-term. We now turn our discussion to the impact HIV/AIDS pandemic upon the broader Zimbabwean apparatus of governance, including military and police forces.

GOVERNANCE

Zimbabwean society today faces immense barriers relating to the practice of good governance. The Mugabe government and its ZANU-PF party have systematically implemented strategies to confound democratic governance processes, such as the allowance of basic human rights and the practice of fiscal transparency in governmental operations.

The suppression of fundamental democratic principles such as freedoms of the press, speech and public assembly are common, and unfortunately, increasing. Recent legislation has further suppressed democratic expression and action in this nation. Notably, the Zimbabwean government's Access to Information and Protection of Privacy Act effectively criminalizes free speech, while the Public Order and Security Act (POSA) outlaws public meetings, and the Law and Order Maintenance Act (LOMA) prohibits the

publication of anything "likely to cause alarm and despondency."[45] This has resulted in the effective censorship of the media and the crushing of dissent within the country.

The Mugabe government employs torture as a tool of political control. Frequently, they apply it against Movement for Democratic Change (MDC) members—the main opposition party to the ZANU-PF. President Mugabe demands compliance with the government's draconian laws and public policy practices by torturing dissidents. Torture, however, is not simply administered to control opposition party activities. Tony Reeler, clinical director for Zimbabwe's Amani Trust recently suggested, "probably 20 percent of the entire population has had intimate experience with torture."[46]

Governance in Zimbabwe, already exhibiting an incredible potential for violence and institutional instability, likely will experience further declines as a result of the AIDS epidemic. The nature of socio-political instability experienced in Zimbabwe today will result in an increasingly demoralized populace. Such disruption, combined with rising levels of mortality and morbidity resulting from AIDS, magnifies the sense of hopelessness and despair within the citizenry, and diminishes perceptions of governmental legitimacy. This will create rising individual and collective frustration that will be expressed through increasing acts of lawlessness, personal behavioral recklessness, and callousness towards fellow Zimbabweans. Under these circumstances, one should anticipate growing crime rates, including more aggressive crimes of violence like murder, rape and other sexual assaults.

Over the next decade, Zimbabwe will also lose a substantial portion of its existing law enforcement personnel. The Zimbabwe Republic Police serve the needs of Zimbabwe's eight provinces and its two major "provincial" cities of Harare and Bulawayo. The premature displacement of its personnel will critically cut into law enforcement's capacity to sustain peace and tranquility at the community level. The confluence of high and rising unemployment, rampant poverty, rapidly growing cohorts of orphans, severe food and fuel shortages, and an economy in a state of hyperinflation, coupled with the prevalence of HIV, has induced skyrocketing crime rates.

A comparison of 2001 Interpol crime statistics of Zimbabwe, which to date are the most recent available, with those in 1995 exemplifies the degradation that has occurred in this nation. Zimbabwe's population grew 15.5 percent between 1995 and 2001. Thus, one might anticipate comparable boosts in crime tied to the nation's growth rate; however, crime rates were much higher than expected. The incidence of crime grew substantially during this period, as reported murders increased by 68.7 percent, while sexual assaults increased by 26.9 percent, and the incidence of rape climbed 58.5 percent. Some of this increase might well be tied to the mistaken regional belief that an individual can rid himself of HIV if he has sexual intercourse with a virgin. The incidence of rape of young girls has soared because of this myth, and in some instances, females ages five and younger have been victimized. Other notable increases in criminal activity during this period include: robbery and violent theft at 89.8 percent, auto theft at 49.1 percent, and aggravated theft at 37 percent.[47]

These startling increases point to a society spiraling deeper into greater levels of lawlessness and chaos. The growing practice among the citizenry to shun assistance from law enforcement warrants equal concern. Many victims in Zimbabwe do not report incidents believing that their calls for aid will be ignored. This is particularly true for those with known affiliations to political, media or labor alliances out of favor with the

Mugabe government. The future of effective governance, through law enforcement efforts, is increasingly at risk in Zimbabwe, partially due to the growing attrition rates among police personnel. Decline in law enforcement's credibility as a primary source of intervention and assistance to victims of crime also explains the growing lack of confidence in this governance unit.

Effect of HIV on Public Service

Zimbabwe's AIDS epidemic affects the nation's ability to sustain and deliver quality public services to its citizens. Since the early 1990s, the Zimbabwean government has been under increased pressure to reform its civil service systems. International funding sources (i.e., the World Bank and the International Monetary Fund) have linked continued support to the imposition of structural changes that would reduce Zimbabwe's bloated civil service. Makumbe characterized Zimbabwe's civil service in the following terms: a "weak government capacity to ensure minimal services, highly compressed wages, inability to attract and retain skilled manpower resources, and a large civil service (192,000) absorbing 18 percent of GDP in salary and wages by 1990/91."[48] Recent International Monetary Fund estimates (October 2000) place Zimbabwe's public service employment at 194,500.[49]

The HIV/AIDS epidemic also creates a profoundly negative impact on service delivery and quality of services provided to the citizenry. Clearly, citizens will pressure the government to spend a greater proportion of national revenue on health provisions over the next five to ten years. In a country as cash strapped as Zimbabwe, there is little elasticity for moving money from one revenue source to another.

HIV/AIDS will create a slow degradation of the quality of services provided by national public servants. Traditionally, in developing nations like Zimbabwe, the best and brightest have chosen careers in public service. Civil service employees often represent the most highly educated in underdeveloped societies, with many having received graduate education from European and American universities. Moreover, these professionals, because of their higher incomes and revered status in society, have become earlier victims of HIV than the rest of the general populace.[50] HIV/AIDS will cut deeply into Zimbabwe's professional civil service talent pool in all areas of government. Costly losses in professional fields like civil engineering, medicine and health care, education, financial administration, and developmental planning remain a particular concern.

Much of the concern among human resource planners has revolved around the issue of finding adequate replacements to fill the professional void caused by AIDS. Certainly, anticipated professional losses looming as high as 40 percent create great concern about a viable professional staff in government. Nevertheless, the loss of professional staff due to HIV/AIDS related illnesses explains only part of the attrition problems that the Zimbabwean government faces in seeking to maintain staff competency.

Losses also will result from the voluntary separation of talented public servants who are cognizant of the fact that their HIV status is negative. In part, this exists among individuals who fear that their pensions will have dwindled away by the time they reach their "full-benefits" retirement eligibility status. As John L. Daly's research on Swaziland noted, this has occurred in that nation, where highly placed public servants with notable marketability were choosing to leave government service early. They opted for early retirement and a reduced benefit package.

This occurred because of fears regarding the long-term solvency of their pension plan resulting from the rising numbers of premature medical retirements due to HIV/AIDS. [51]

The crisis identified above attests to the fact that Zimbabwe's government is rapidly witnessing the erosion of its endogenous state capacity (SC). Zimbabwe's level of SC also determines the scale of adaptive resources that the nation could mobilize to mitigate the negative effects of HIV/AIDS. In this instance, the Zimbabwean government has clearly failed the task. Therefore, its society faces a vicious spiral in the form of a positive feedback loop. As the AIDS epidemic progressively takes its toll, Zimbabwe's SC declines, and subsequently, its ability to institute creative AIDS intervention strategies correspondingly diminishes.

The government's ability to deal effectively with the AIDS epidemic will be hampered by a second critical issue—its declining financial capacity. Realistically, under the best of financial conditions, Zimbabwe would have a difficult time developing adaptive strategies to curtail effectively its HIV/AIDS epidemic. Burdensome debt obligations owed to international financiers like the World Bank and International Monetary Fund, stunt the implementation of effective health interventions and progressive educational awareness initiatives. These debts divert monies away from health programs towards repayment schemes. At the beginning of 2000, for example, Zimbabwe expended 25 percent of its export earnings to service its debt, even as an estimated 28 percent of its population was infected with HIV/AIDS.[52] Furthermore, the combination of declining fiscal health and state capacity render successful endogenous adaptive HIV/AIDS strategies by the Zimbabwean government unlikely in the near future. This decline in capacity, coupled with a government and economy on the verge of collapse, suggest that exogenous assistance from developed countries, United Nation agencies and major private sector donors, will be necessary to avert further degradation of the socioeconomic and political structures existing in the Zimbabwean society.

As HIV erodes state capacity, it undermines the state's ability to provide much needed services to the population (e.g. health care, education, law enforcement); that in turn, accelerates the negative spiral of HIV proliferation. Therefore, purely endogenous solutions to build capacity and curb the spread of the epidemic are unlikely to be successful, and capacity will have to be imported from exogenous sources such as foreign multilateral or bilateral institutions. Thus, the desire for purely "African solutions" to the HIV epidemic, while understandable, have been of limited utility as they fail to acknowledge the epidemic's inexorable and negative effect on endogenous state capacity. Furthermore, given that many societies in sub-Saharan Africa now reel under the strain of HIV/AIDS the cumulative effect will be to erode the capacity of the region as a whole, wherein affected states will find it increasingly difficult to come to each other's aid.

In a climate of increasing lawlessness, a stagnant or contracting economy, increasing institutional fragility, and declining revenue in the form of taxes, the capacity of the state will be, at a minimum, strained. This results from the increasing demand upon the state from all sectors to deal effectively with the epidemic, even as the epidemic inexorably erodes the state's capacity to respond effectively. Simultaneously, as the population becomes increasingly infected, morbidity and mortality will grow, poverty will deepen as people deplete their savings, and crime will increase. All of this will result in increased feelings of relative deprivation and injustice on the part of the people, who will also increasingly view the government as illegitimate. It is precisely this dynamic of a weakening state, combined with increasing real and/or perceived deprivation, which increases the probability of political violence within the

state.[53] The probability of intra-state political violence (and possible state failure) logically increases as the epidemic intensifies.

History has shown that outbreaks of epidemic disease often result in the curtailing of civil liberties.[54] Thus, HIV/AIDS may induce a shift from democratic to more authoritarian modes of government, particularly in unstable nascent democracies. Indeed, in such a climate of disease-induced disorder, scarce resources, and declining government legitimacy, the state may increasingly resort to the use of violence against competing factions within its own population in an attempt to maintain order.[55] The lessons of history are also useful here, as epidemic disease has generated conflict between rival ethnicities over the centuries, typically with the scapegoating of minority populations, such as the white Zimbabwean minority in this case.

While there is no evidence that the Shona and Ndebele consider white populations to be the cause or principal carriers of the disease, nevertheless white populations have been targeted for political violence as the majority sinks deeper into poverty and chaos. As the epidemic continues to intensify and generate increasing deprivation for the majority, there is every reason to believe that violence against white minority populations will increase, particularly if the Mugabe regime continues to employ such tactics as a means to distract the populace from their many grievances. Notably, in December 2000, Mugabe publicly stated to a ZANU-PF Congress that, "[o]ur party must continue to strike fear in the heart of the white man, our real enemy."[56]

Increasing disease-induced deprivation combines with a weakening state to generate an increasing probability of violence within the society, either between ethnic groups, classes, or political elites. It may also foster the deliberate use of violence by the state against its own citizens in an attempt by the government to retain control. This phenomenon is widely observed throughout Zimbabwe. As the state becomes increasingly unable to supply the demands of the populace, it is seen as increasingly illegitimate. It is apparent that the Mugabe government is resorting to violence against the population given this climate of increasing economic scarcity, famine and despair. As the epidemic intensifies one would expect an intensification of authoritarian rule as the government becomes ever more desperate in its bid to hold onto power.

HIV/AIDS AND NATIONAL SECURITY

In the post-Cold War era, the definition of national security has evolved to include such phenomena as terrorism,[57] resource scarcity,[58] migration,[59] and now encompasses threats of infectious disease.[60] During the first session of the United Nations Security Council on 17 July 2000, the UN adopted Resolution 1308 (2000) and declared the HIV/AIDS pandemic a threat to global security. This represents the first time in history that an issue of public health has been elevated to such status, and it illustrates the recent transformation in thinking about new threats to security in the post-cold war era.

Robert Ostergard argues, correctly, that security studies have been tainted by an ethnocentric bias that grew particularly acute during the Cold War era. Given the bipolar animosity between the US and the Soviet Union, theory and praxis emphasized matters of European or North American security, deterrence, polarity, and the relationships between great powers.[61] However, such definitions of security were of little relevance to the peoples of the developing world, where other problems such as, poverty, disease, famine and resource scarcity have proved to be the most eminent threats to security.

One early challenge to purely militaristic (i.e. Western) conceptualizations of security came from Barry Buzan et al., who argued that, "the security of human collectives is affected by

factors in five major sectors: military, political, societal, economical and ecological.".[62] Such a definition is in consonance with our investigation of the impact of HIV/AIDS across the various domains of demography, economics, military, and bureaucracy; however, it remains excessively broad in scope. Richard Ullman also argued that "defining national security in purely military terms conveys a profoundly false image of reality [and] causes states to concentrate on military threats and to ignore other and more harmful dangers."[63] Stefan Elbe posits that while the expansion of the scope of national security poses a conceptual and analytical challenge to the orthodox camp, the categorical enlargement is a necessity in the twenty-first century. He further notes that:

> [S]uch breadth may considerably complicate the task of the security analyst, especially because there are also complex interactions that take place between the various [domains]… [G]rappling with the problems of contemporary world politics is surely a more pressing concern than policing the traditional boundaries of security studies in the name of parsimony, focus, tradition, and possibly convenience.[64]

Herein, I propose a "broadening" of the national security concept wherein the power and stability of the state is necessarily derived from the populace, and therefore, the health and well-being of the population constitutes the essence of state power. This argument is predicated upon the understanding that health is the basis for human capital, spurs the production of ingenuity and thus serves as the foundation of economic productivity within societies.[65] In the absence of health, productivity declines in dramatic fashion, cognitive function is impaired limiting the production of useful ideas, and the aggregate base of human capital is correspondingly diminished. Given that economic power is fungible and is readily translated into military power, any modern conceptualization of power should include population health as a central component of a state's *puissance*. Moreover, the effective function of the organs of the state, particularly the apparatus of coercion (the police and military forces) and the apparatus of extraction (the bureaucracy) will be similarly inhibited by high rates of debilitation, absenteeism, premature retirement, and the death of skilled employees.

Therefore, it is prudent to try to distinguish empirically between infectious diseases that truly threaten the "security" of a given polity, and those that simply constitute background noise. For the purposes of this analysis, therefore, I define a pathogenic threat to security as a process that threatens to significantly and rapidly destroy the physical population of a state, severely constrains its pareto-optimal economic productivity, and/or acts as a significant constraint upon the decision-making latitude of policymakers. Furthermore, treating all infectious diseases as security threats is simply illogical. For example, the common cold does not threaten the security of a polity on any given year, nor does measles threaten to debilitate most societies. Therefore, in order to add an increasing degree of rigor, and stimulate debate, the following calculus is proposed. If a given pathogen is to be considered a threat to the security of a given polity it should satisfy two or (preferably) more of the following criteria:

1. The pathogen would debilitate a significant proportion of the population (>5 percent), or result in the deaths of (>1 percent) of the populace.
2. The pathogen would significantly impede economic productivity within the affected nation, resulting in a reduction of the national GDP by >1 percent/annum.

3. The pathogen would generate significant constraints (in the domains of the economy, governance, and/or the military) upon decision-making at the domestic and/or the international level.
4. Pathogens may combine (through interactive co-infection) to satisfy the above conditions (such as HIV providing a gateway to subsequent infection and death by tuberculosis).

Let us now articulate the mechanisms by which the contagion undermines prosperity, effective governance and security. In relative terms, the absolute mortality that AIDS has induced within the Zimbabwean population vastly exceeds deaths resulting from any armed conflict in the recorded history of that nation, and it is increasingly common to hear Zimbabweans refer to the epidemic as a "holocaust." Indeed, a brief comparison of mortality from HIV/AIDS to that induced by war is illustrative. According to the WHO in 2002 (the last year for which data is currently available) HIV/AIDS accounted for 67 percent of all deaths and 69 percent of aggregate years of life lost, whereas war accounted for a mere 1 percent of deaths and 1 percent of years of life lost.[66] Thus, HIV/AIDS has a *direct* negative effect on Zimbabwean security through its generation of massive mortality (>6 percent of total population since 1998).

Our examination of HIV/AIDS' effect on governance continues with an assessment of the epidemic on Zimbabwe's military and paramilitary (i.e., law enforcement) forces. In many nations these organizations serve as control mechanisms to ensure and sustain the peace within civil society. In Zimbabwe, however, these units also function as instruments of terror. President Mugabe and the ZANU-PF party use these units to prop up and fortify an illegitimate government, which repeatedly faces claims that it stole the national presidential election in March 2002 through corruption, vote rigging, and voter intimidation.[67]

The nascent health security literature views AIDS-induced destabilization as a major contributing factor to conflict. Elbe and Ostergard have argued that AIDS-induced mortality and morbidity jeopardize the efficacy of military institutions, and may thereby promote conflict between states.[68] Elbe argues that AIDS is eroding the functional efficacy of African military institutions along four dimensions. He notes that:

> [AIDS generates] the need for additional resources for the recruitment and training of soldiers to replace those who have fallen ill, have died, or are expected to die…Additional resources are also required to provide health care for soldiers who are sick or dying. Second, the spread of HIV/AIDS is affecting important staffing decisions. High HIV prevalence rates lead to (1) a decrease in the available conscription pool from which to draw new recruits, (2) deaths among officers higher up the chain of command, and (3) a loss of highly specialized and technically trained staff who cannot be easily or quickly replaced. Third…it can result in increased absenteeism and reduced morale. Fourth, HIV/AIDS is generating new political and legal challenges for civil-military relations…[69]

South Africa's Institute for Security Studies' 2001 estimate, places the size of the Zimbabwe National Army (ZNA) and the Air Force of Zimbabwe (AFZ) at 35,000 and 4,000 staff respectively.[70] Historically, military and paramilitary organizations have also served as primary vectors for the spread of sexually transmitted pathogens, including HIV. According to Lindy Heinecken's estimates, Zimbabwe's armed forces exhibited an

aggregate seroprevalence rate of 55 percent.[71] Extensive planning will be needed now to replace the losses of more than 1,000 professionally trained personnel per year just to maintain minimal levels of professional competency. One also expects AIDS losses in the Zimbabwe Air Force (AFZ) over the next decade to range from a low of 1,300 to a high of 2,600 personnel. AFZ mortalities have a relatively greater impact than those of the ZNA because of the greater challenge to sustain this unit's professional competency level. The skills, talent and abilities of pilots, air traffic control personnel, mechanics and other technical staff often are in short supply in Zimbabwe and will not be easily replaced.

In Zimbabwe, HIV-related military attrition will create a loss of continuity at the command level and in the ranks as experienced higher-ranking officers are forced into early medical retirement. Rodger Yeager of the Civil-Military Alliance to Combat HIV and AIDS, notes that military staff attrition also results in "increased recruitment and training costs for replacements, and a general reduction in preparedness, internal stability, and external security. In this sense, HIV/AIDS can easily serve as a domestic and regional destabilizer and [as] a potential war-starter." [72] Thus, Mugabe's military strength, which serves as an instrument of control over legitimate democratic processes, will slowly and almost invisibly erode over the next decade. Losses of more seasoned and experienced military staff through HIV and AIDS related attrition will induce institutional fragility in the apparatus of coercion.

In 1998, Zimbabwe dispatched military personnel and arms to fortify the Democratic Republic of the Congo (DRC) in support of the regime of Laurent Kabila,[73] By 2001, over 8,000 members of the Zimbabwe military were deployed to the DRC.[74] Deployment of Zimbabwean military personnel further compounds the transmission of HIV, as separation from one's family often results in increased sexual contact with high-risk partners (e.g., commercial sex workers). The fact that other sexually transmitted diseases (STDs) often go unchecked within this group, especially when involved in active military conflicts, exacerbates the problem. Not surprisingly, estimates have placed HIV seroprevalence levels of the Zimbabwe servicemen returning from the DRC as high as 80 percent.

Zimbabwe's Air Force also will degrade substantially without a plan that overcomes likely human capital losses caused by HIV/AIDS. Compulsory HIV screening, mandated for US military personnel, is not utilized in Zimbabwe's Army, but it is selectively employed in its Air Force. For example, Air Force aircrew and medical officers receive regular testing. Grounding, reassignment and eventual discharge all apply to HIV positive pilots and medical officers. The AIDS-induced erosion of human capital creates broader problems for Air Force and Army operations beyond the loss of gifted professionals and seasoned military leaders. It also creates major gaps for sustaining crucial operational aspects of these services. For example, morbidity and mortality losses of technical talent (e.g., airplane mechanics, computer and information specialists, accountants and procurement officers) weaken the service and mission of these organizations. In the case of Zimbabwe, the progression of AIDS will continue to weaken the military and its capacity to sustain national security.

VIOLENT CONFLICT

HIV/AIDS will have a significant long-term negative effect on the prosperity and quality of life of the majority of the Zimbabwean people, generating increasing levels of relative deprivation throughout the populace. Relative deprivation will increase for the lower and lower middle classes that bear a relatively greater cost of AIDS- induced morbidity and mortality. All Zimbabweans will experience absolute deprivation as the economy stagnates and begins to contract as a result of the epidemic. Increasing deprivation generates further frustration and aggression by both individuals and collectivities, and such deprivation thereby increases the probability of social violence and political chaos.[75] However, if deprivation were the sole sufficient and necessary condition to generate political violence, then the majority of states in the world would be perpetually consumed within the fires of internal rebellion; however, this is certainly not the case. Collective violence against the state tends to occur when stressors—such as the HIV/AIDS epidemic—create both the *incentive* and the *opportunity* for citizens to engage in violent collective action against the status quo. Thus, the strength or weakness of the state apparatus itself plays a key role as to whether men decide to rebel against their political masters. When increasing deprivation is combined with declining state capacity, these factors act together to increase the probability of collective violence against the state.

The epidemic has generated increased competition between interest groups for increasingly scarce economic resources, particularly as federal funding is diverted to health care, and away from other sectors such as law enforcement, education, and the military. The AIDS epidemic has most certainly placed rapidly increasing demands on the Zimbabwean government to provide additional services to its population, even as the government's capacity to provide such services is simultaneously being reduced by the expanding AIDS epidemic. Furthermore, the federal government has begun to significantly increase taxation of the populace to restore depleted government coffers. This resulting reduction of services and increasing taxation in a climate of increasing deprivation has further eroded the government's legitimacy. Thus, the AIDS epidemic has simultaneously increased both absolute and relative deprivation, intensified perceptions of government ineptitude and illegitimacy, and diminished the overall capacity of the state . Collectively this equation increases the probability of internal collective political violence against the state, or violence by the state against its own population, and increases the probability of state failure. Thus, the HIV/AIDS epidemic may not only kill and impoverish a significant proportion of the Zimbabwean people, it may also contribute to the macro-level political and social destabilization that jeopardizes the stability and security of the nation.

Effects on Regional Stability

Given the increasing levels of HIV/AIDS infection throughout sub-Saharan Africa, the pandemic threatens to destabilize many countries throughout the entire region including Botswana, South Africa, Zambia, Angola, Malawi, Namibia and Mozambique. The epidemic is also burgeoning in Nigeria, Kenya, Tanzania, Swaziland, and Lesotho. As the HIV/AIDS pandemic intensifies in the region it increases the potential for the economic and political destabilization of the Southern Cone of Africa. This bodes ill for the spread and consolidation of democracy and provides fertile ground for the proliferation and consolidation of radical and/or terrorist operations throughout the region.

One important element typically overlooked in the discussion of an infectious disease's impact on national security, is its possible effect on the relative power of states, particularly within a regional context. Certainly the HIV/AIDS epidemic will reduce Zimbabwe's absolute power over the long-term, given its profound, negative effects on the country's military and economy. With respect to Zimbabwe's relative power—that is, its power relative to other states—the equation exhibits increasing complexity as a function of varying HIV infection rates throughout all of sub-Saharan Africa. This means that the pandemic will have a greater negative effect on the relative power of Zimbabwe, than on neighboring states such as South Africa and Mozambique, which have lower HIV/AIDS prevalence rates. Zimbabwe's relative power in comparison to Zambia (which has a roughly equivalent prevalence rate) will remain essentially unaltered by the AIDS epidemic, even as the absolute power of these countries is diminished by the contagion. The point here is that high levels of lethal epidemic disease can erode a nation's absolute power, and more importantly erode a given state's relative power vis a vis its rivals.[76] While it is unlikely that contagion-induced shifts in relative power will generate interstate war, it is important to note that the epidemic has the long-term potential to affect and alter regional balances of power. This finding will become increasingly important as the pandemic intensifies in other key states such as India, Russia, Ukraine, and China.

The obvious implication is that the AIDS-induced decline of effective governance throughout the Southern African region will require an increasingly effective military to guarantee the integrity of Zimbabwe's borders. Unfortunately, as shown above, HIV's negative effect on the military, promises increasing fragility for that institution and diminishing levels of tax revenue to direct towards military funding as a result of the declining economy. Thus, while the required demand for military power and efficacy is growing, the supply of military power and efficacy is rapidly declining due to the epidemic's decimation of military personnel. As a result, Zimbabwe should be increasingly concerned that the regional epidemic promises increasing insecurity for the country as a result of both internal and external destabilization. The greatest immediate risk is the ever increasing instability throughout border regions as a result of crime, smuggling and refugee movements that Harare is unable to control, and that echoes the situation in West Africa.

One frequently asked question is: at what threshold might HIV seroprevalence (as a percentage of population) cause a society to experience the collapse of effective governance? The answer will remain elusive for the time being as it depends upon whether the populace has access to effective anti-retroviral therapies, whether the government will provide such therapies to infected populations in a comprehensive and non-partisan manner, and to what extent the economy, governmental institutions and legitimacy have been damaged by the epidemic. It may also depend upon regime type, as nascent democracies and authoritarian regimes will likely exhibit different vulnerabilities to disease-induced economic and political destabilization. Established democracies would seem to be more resistant to such disease-induced stresses. It is necessary to understand the effects of HIV from the perspective of an "attrition process," the slow and inexorable destruction of a nation's economy, in addition to its institutions and social mores. The pandemic is a process not a temporally constrained event and should be seen in that light.

As deprivation increases to critical mass, and the apparatus of coercion erodes, expect considerable internal political violence that may culminate in the overthrow of the Mugabe regime unless considerable reforms are enacted within the near future. The removal of Mugabe from power would most likely provide enormous benefit to the country, as it would permit a new

and accountable leadership structure. However, any new democratic regime would remain subject to the same levels of instability generated by the epidemic.

At this point, let us then evaluate the degree to which HIV/AIDS constitutes a security threat to Zimbabwe, as based upon the criteria laid out above. First, the pandemic has dramatically reduced Zimbabwean life expectancy and quality of life, generated significant levels of death and debilitation, and created significant cohorts of orphans, thereby meeting the first of our criteria. Second, the destruction of the country's endogenous stock of human capital has resulted in the systematic erosion of the economy through declining productivity, depletion of savings, deficit spending, and a soaring debt load. Moreover, the annual HIV/AIDS-induced drag on GDP exceeds 1 percent, satisfying our criteria. Third, the pandemic is systematically eroding government institutions (such as police and military forces) while depleting aggregate state capacity, thus, dramatically narrowing the range of policy options available to policymakers, and satisfying the third parameter of our criteria. Given that HIV satisfies the first three parameters in and of itself the fourth criteria (regarding the burden of disease through co-infection) is redundant. Ultimately, HIV/AIDS satisfies all of the parameters of our definition of pathogenic threats to security.

POLITICAL LEGITIMACY

The issue of political legitimacy is also of critical importance, given that declining capacity may significantly undercut perceptions of state legitimacy in the eyes of the populace. The mechanisms by which HIV/AIDS may affect political legitimacy include the depletion of political leadership (of both elected representatives and members of the bureaucracy), the erosion of the base of political parties (in this case the opposition MDC), the generation of a significant level of deceased voters on the national rolls which raises questions of fraud during elections and stigmatization and discrimination that impedes political participation.

Alagappa et al., have described four key elements of legitimacy: *normative* (referring to shared norms and values), *procedural* (adherence to established rules), *performance-related* (regarding the proper and effective use of state power) and, *consensual* (the public acceptance of state authority).[77] Employing Alagappa's framework of four variables, we analyze the impact of HIV/AIDS on the various domains examined above. In the realm of the normative facet of legitimacy, the stigmatization and discrimination generated by HIV/AIDS, undercuts shared norms and values and erodes social cohesion within affected societies. On the procedural level, the government's policy of rewarding its acolytes with anti-retroviral drugs, while punishing political opponents by withholding such lifesaving treatments, further erodes perceptions of governmental legitimacy. In the category of performance-related legitimacy, HIV/AIDS significantly undermines state capacity, and therefore compromises the effective delivery of required services (education, health care, law enforcement and military security) to the populace.

On the consensual level, the demographic impacts of the contagion generate considerable negative effects on the productivity of workers, constraining the productive capacity of the macro economy over time. HIV/AIDS will also generate negative impacts on sectors, particularly those that are labor-intensive in nature such as agriculture and mining.[78] Collectively, then an increase in HIV/AIDS prevalence will increase poverty levels throughout affected nations and such increasing deprivation will undercut consensual perceptions of governmental legitimacy throughout the polity.[79] Taken together, HIV/AIDS-induced poverty combines with diminishing state capacity and the egregious misuse of governmental power, to

seriously diminish governmental legitimacy in the case of Zimbabwe which sets the stage for increasing political violence within the polity.

CONCLUSIONS

This study demonstrates the means by which pathogenic infection acts across domains (demographic, economic, and governmental institutions) to compromise governance and ultimately, the national security of seriously affected states. It also provides preliminary evidence that HIV/AIDS-induced declines in population health are generating a significant decline in Zimbabwean state capacity.[80] These findings permit the formulation of a set of axioms regarding the effects of HIV/AIDS on governance. Further cross-national empirical studies will be required to evaluate the general applicability of these axioms:

1. Demographic collapse will generate vast cohorts of orphans, who may then become radicalized and generate crime.
2. Burden of illness falls disproportionately on the poor, exacerbating inequities between classes.
3. Economic contraction generated by the contagion will lead to competition over scarce resources, fostering competition between elites, classes, and possibly ethnicities.
4. Disease, and the conditions generated by it, foments the scapegoating and persecution of ethnic minorities.
5. AIDS-induced mortality erodes the base of endogenous human capital, constraining future economic productivity and generating institutional fragility throughout existing structures of governance.
6. As the contagion withers institutional capacity, and erodes the economy, it may alter the relative power of affected states in comparison to non-affected states.
7. The proliferation of HIV/AIDS threatens governmental legitimacy in affected nations, which may increase the probability of conflict between the state and society.

This case demonstrates that HIV exerts moderate to significant negative effects upon Zimbabwe's economy, social stability, structures of governance, and ultimately its national security. In conclusion, the HIV/AIDS pandemic represents a significant threat to the population of seriously affected societies, particularly those plagued by low levels of state capacity and poor leadership. Thereby the pandemic represents both a direct and indirect threat to both political stability and national security over the longer-term within such states, reinforcing the findings of Peterson and Shellman. Furthermore, as detailed above, various factors have combined in order to exacerbate conflict between elites, classes, and ethnicities, and/or to foster violence by an increasingly draconian state against its own populace in an attempt to maintain power.

Andrew Price-Smith *is Assistant Professor of Political Science at Colorado College, having held previous appointments at both the Earth Institute and School of International and Public Affairs of Columbia University, and the University of South Florida. He earned his PhD in Political Science from the University of Toronto in 1999, an M.A. from the University of Western Ontario in 1994, and a B.A. (Honors) from Queens University in 1992. Price-Smith is author of several books including* The Health of Nations: Infectious Disease, Environmental Change, and

their effects on National Security and Development *(MIT Press, 2002);* Plagues and Politics *(Palgrave/Macmillan, 2001). He is currently completing a third book entitled* Contagion and Chaos *(MIT Press, forthcoming 2008). Prof. Price-Smith has served as a consultant to the United States Institute of Peace, the United Nations Development Program, the World Bank, the US Department of Energy, and for the private sector. He is CEO of APS Consulting of Wyoming, which specializes in the use of open-source intelligence (including health, demographic and psychological data).*

The author would like to thank Robert Ostergard, Yanzhong Huang, David Fidler, Stefan Elbe, and Solomon Nkiwane for their insightful comments and critiques. Research Assistance was provided by Rachel Shaffer. This article is partially based upon Andrew Price-Smith and John L. Daly, Downward Spiral: HIV/AIDS, State Capacity and Political Violence in Zimbabwe *Peaceworks #53 (Washington, DC: United States Institute of Peace, 2004).*

---

[1] UNAIDS, *2006 Report on the Global AIDS Epidemic*, (2006), 8. Available at www.unaids.org/en/HIV_data/2006GlobalReport/default.asp.
[2] Sandra J. Maclean, "Mugabe at War: the political economy of conflict in Zimbabwe," *Third World Quarterly*, Vol. 23, No. 3, (2002), 513-528.
[3] UNAIDS, 16.
[4] Process-tracing techniques are widely employed within the emergent school of "environmental security" which seeks to analyze the paths to outcomes as being equally relevant as the outcomes themselves. See Thomas Homer-Dixon, *Environment, Scarcity, and Violence,* (Princeton, NJ: Princeton University Press, 1999). The utility of case studies is discussed in J. Fearon and D. Laitin, "Violence and the Social Construction of ethnic Identity," *International Organization,* Vol. 54, No. 4, (Autumn 2000); Also see Stuart Kaufman, "Symbolic Politics or Rational Choice," *International Security*, Vol. 30, No. 4, (Spring 2006), 45-86.
[5] Robert Jervis, *System Effects: Complexity in Political and Social Life,* (Princeton, NJ: Princeton University Press, 1997), 6.
[6] Harold and Margaret Sprout, *An Ecological Paradigm for the Study of International Politics,* (Princeton University, Center for International Studies, Research Memorandum No. 30, March 1968), 55.
[7] Jervis, 29.
[8] William McNeill, *Plagues and Peoples*, (Anchor/Doubleday, 1977), 61.
[9] See Stefan Elbe, "HIV/AIDS and the Changing Landscape of War in Africa," *International Security,* Vol. 27, No. 2, (Fall 2002), 159-177; Robert Ostergard, "Politics in the Hot Zone: AIDS and the Threat to Africa's Security," *Third World Quarterly,* Vol. 23, No. 2, (April 2002), 333-350; Andrew T. Price-Smith, *The Health of Nations: Infectious Disease, Environmental Change and their Effects on National Security and Development,* (Cambridge, MA: MIT Press, 2002).
[10] See Ostergard, Elbe.
[11] Andrew Price-Smith, *Pretoria's Shadow*, (Washington, DC: CBACI, 2002).
[12] David Bloom and Ajay Mahal, "Does the AIDS Epidemic Threaten Economic Growth?" *Journal of Econometrics*, (1997), 105-124; D. Bloom and David Canning, "The Health and Wealth of Nations," *Science,* Vol. 287, No. 5456, (18 February 2000), 1207-1209; Price-Smith, 2002.
[13] Susan Peterson and Stephen Shellman, *AIDS and Violent Conflict: The Indirect Effect of Disease on National Security,* (Woodrow Wilson Center, Princeton University, 2006). Available at www.wws.princeton.edu/pai/pdf/AIDSandViolentConflictFinal.pdf.
[14] Circa 75 percent of HIV positive individuals are co-infected with tuberculosis in the Zimbabwean context.
[15] The argument that HIV presents a substantive material threat that challenges the emerging constructionist literature. The latter holds that health security arguments are merely artifices fashioned to generate the political will sufficient to tackle problematic global public health issues. For a comprehensive discussion of such issues see Stefan Elbe, "Should HIV/AIDS Be Securitized? The Ethical Dilemmas of Linking HIV/AIDS and Security," *International Studies Quarterly*, Vol 50, No. 1, (Spring 2006), 119-144.

[16] Theda Skocpol, "Bringing the State Back In: Strategies of Analysis in Current Research," in Peter B. Evans (et al.) (eds.) *Bringing the State Back In*, (New York: Cambridge University Press, 1985), 3-43; Pierre Engelbert, *State Legitimacy and Development in Africa*, (Boulder, CO: Lynne Rienner, 2000).
[17] Joel S. Migdal, *Strong Societies and Weak States*, (Princeton, NJ: Princeton University Press, 1988), 274-277.
[18] Price-Smith, 2002, 23-30.
[19] HIV seroprevalence in Thailand has declined markedly to 1.4 percent, and Uganda to 6.7 percent; see UNAIDS 2006, 505-516.
[20] Price-Smith (2002), Chapters 1 and 2.
[21] Statistics in this section taken from the UNESCO database for the year 2004. Available at www.uis.unesco.org/profiles/selectCountry_en.aspx.
[22] UNAIDS, (2006), Annex 2. Available at http://data.unaids.org/pub/GlobalReport/2006/2006_GR_ANN2_en.pdf.
[23] Claire Bisseker, "AIDS Epidemic Runs Wild," (Zimbabwe) *Financial Mail*, (5 July 2002), Health 30.
[24] Davidson R. Gwatkin, Shea Rustein, Kiersten Johnson, Rohini Pande and Adam Wagstaff, "Socio-Economic Differences in Health, Nutrition, and Population," *HNP/Poverty Thematic Group of the World Bank*, (May 2000). Available at www.worldbank.org/poverty/data/trends/mort.htm.
[25] Available at www.unicef.org/infobycountry/zimbabwe_statistics.html.
[26] Pieter Fourie and Martin Schonteich, "Africa's New Security Threat: HIV/AIDS and Human Security in Southern Africa," *African Security Review*, Vol. 10, No. 4, (2001), 29-57.
[27] UNAIDS, (2006), Annex 2. Available at: http://data.unaids.org/pub/GlobalReport/2006/2006_GR_ANN2_en.pdf.
[28] National Intelligence Council (United States), "National Intelligence Estimate: The Global Infectious Disease Threat and its Implications for the United States,"(January 2000), NIC, re-printed in *Environmental Change and Security Project Report*, Woodrow Wilson center, Report #6 (Summer 2000), 61.
[29] Martin Schonteich, "Age and AIDS: South Africa's Crime Time Bomb?" *Africa Security Review*, Vol. 8, No. 4, (1999), 57.
[30] Lori Bollinger et al., *The Economic impact of AIDS in Zimbabwe*, The POLICY Project, USAID (September 1999), 3-4.
[31] Amartya Sen, "The Economics of Life and Death," *Scientific American*, Vol. 268, No. 5, (May 1993), 18.
[32] John Robertson, "Zimbabwe's Economy Shipwrecked," *Times of London*, (6 March 2002). Available at www.timesonline.co.uk/article/0,,3-227241,00.html.
[33] CIA World Factbook. Available at www.cia.gov/cia/publications/factbook/geos/zi.html.
[34] Malcolm F. McPherson, *Macroeconomic Models of the Impact of HIV/AIDS*, Feb. 10, 2003. Available at http://www.ksg.harvard.edu/m-rcbg/hiv-aids/ksg/McPherson_Macroeconomic.models.pdf.
[35] Ibid, 13.
[36] Markus Haacker, "The Economic Consequences of HIV/AIDS in Southern Africa," *IMF Working Paper*, (2002), 35.
[37] R. Bonnel, *Economic Analysis of HIV/AIDS, ADF2000 Background Paper*, The World Bank, September 2000, 3-5.
[38] CIA World Factbook 2006. Available at www.cia.gov/cia/publications/factbook/geos/zi.html.
[39] CIA World Factbook 2006. Available at www.cia.gov/cia/publications/factbook/geos/zi.html#Econ.
[40] Data compiled from World Bank world data tables. Available at www.worldbank.org/data/countrydata.html, and CIA World Factbook 2006. Available at www.cia.gov/cia/publilcations/factbook/geos/zi.html.
[41] Ibid.
[42] FAO, *FAO/WFP Crop and Food Supply Assessment Mission to Zimbabwe*, (June 1, 2001). Available at www.fao.org/WAICENT/faoinfo/economic/giews/english/alertes/2001/SRZIM601.htm. Data for 2005 taken from CIA World Factbook. Available at www.cia.gov/cia/publications/factbook/geos/zi.html.
[43] Available at http://www.businessmap.co.za/.
[44] McPherson, 16-18.
[45] Ibid, 18.
[46] Ibid.
[47] See Price-Smith and Daly, (2004), 26.
[48] J.M. Makumbe, "The Zimbabwe Civil Service: A Wind of Change," *The International Development Department*, (Birmingham, UK: University of Birmingham, 1997). Available at www.idd.bham.ac.uk/research/Projects/Role_of_gov/workingpapers/paper16.htm.

[49] Anonymous, "Zimbabwe: Recent Economic Developments, Selected Issues and Statistical Appendix," *IMF Country Report No. 01/13,* (January 2001). Available at http://www.imf.org/external/pubs/ft/scr/2001/cr0113.pdf.
[50] Note that in the early years of the epidemic many highly successful African males contracted HIV due to the social norm that wealthy males were expected to have many female sexual partners. In latter years the epidemic's demographic distribution has seen the infection of Zimbabwean society en masse.
[51] John L. Daly, "AIDS in Swaziland: The Battle From Within," *African Studies Review,* Vol. 44, No. 1, (April 2001), 21-35.
[52] Deborah L. Toler, "A Different Approach Needed to Fight Global AIDS Epidemic," Knight Ridder/Tribune News Service, January 31, 2000.
[53] See Price-Smith, "Ghosts of Kigali: Infectious Disease and Global Stability at the Turn of the Century," *International Journal,* (Summer 1999), 426-442.
[54] See McNeil; Also see Michael Dols, *The Black Death in the Middle East,* (Princeton, NJ: Princeton University Press, 1977).
[55] An excellent article on the role of scarcity in triggering state-sponsored violence is Colin Kahl, "Population Growth, Environmental Degradation, and State-Sponsored Violence: The Case of Kenya, 1991-93," *International Security,* Vol. 23, No. 2, (Fall 1998), 80-119.
[56] Raymond Copson, "Zimbabwe Backgrounder," *Congressional Research Service,* (US Library of Congress, December 27, 2001), 12.
[57] For example see Bruce Hoffman, *Inside Terrorism,* (New York, NY: Columbia University Press, 1999); and Mark Juergensmeyer, *Terror in the Mind of God,* (Berkeley, CA: University of California Press, 2003).
[58] Thomas Homer-Dixon, *Environment, Scarcity and Violence,* (Princeton, NJ: Princeton University Press, 1999); Peter Gleick, "Water and Conflict: Fresh Water Resources and International Security," in Sean Lynn-Jones and Steven Miller (eds.) *Global Dangers: Changing Dimensions of International Security,* (Cambridge, MA: MIT Press, 1995), 84-118.
[59] Myron Weiner, "Security, Stability and International Migration," in Sean Lynn-Jones and Steven Miller (eds.) *Global Dangers: Changing Dimensions of International Security,* (Cambridge, MA: MIT Press, 1995), 183-218.
[60] The earliest works to characterize pathogens as threats to security includes: Andrew T. Price-Smith, "Ghosts of Kigali: Infectious Disease and Global Stability at the Turn of the Century," *International Journal,* Vol. 54, No. 3 (Summer 1999), 426-442; and "The United States' National Intelligence Estimate 99-17D," *The Global Infectious Disease Threat and its Implications for the United States (2000).* Available at www.fas.org/irp/threat/nie99-17d.html.
[61] Ostergard, 334.
[62] Barry Buzan, *People, States, and Fear: The National Security Problem in International Relations,* (Brighton: Wheatsheaf Books, 1983), 19 and 116-134.
[63] Richard Ullman, "Redefining Security," *International Security,* Vol. 8, No. 1, (1983), 129.
[64] Elbe, (2006), 9.
[65] See the works of Robert Fogel, and Paul Romer's contribution to new Growth Theory which emphasizes the role of human capital and ingenuity as decisive variables determining the trajectory of economic development in a given society. Robert Fogel, "Economic Growth, Population Theory, and Physiology: The Bearing of Long-Term Processes in the Making of Economic Policy," *National Bureau of Economic Research,* Working Paper 4638, (1994); Robert Fogel, "The Conquest of High Mortality and Hunger in Europe and America: Timing and Mechanisms," in David Landes, et al. (eds), *Favorites of Fortune,* (Cambridge MA: Harvard University Press, 1991); and P. Romer, "Endogenous Technical Change," *Journal of Political Economy,* Vol. 98, (1990), S71-S102.
[66] Available at www.who.int/whosis/mort/profiles/mort_afro_zwe_zimbabwe.pdf.
[67] The CIA's *World Factbook 2002* on Zimbabwe bluntly states, "(i)gnoring international condemnation, Mugabe rigged the 2002 presidential election to have himself reelected." CIA, *The World Factbook 2002 – Zimbabwe*. Available at http://www.cia.gov/cia/publications/factbook/print/zi.html.
[68] See Elbe, (2002); Ostergard, (2002).
[69] Elbe, (2002), 155-56.
[70] Armando Mabuchi, "Zimbabwe—Security Information," *Institute for Security Studies,* (South Africa). Available at http://www.iss.co.za/AF/profiles/Zimbabwe/SecInfo.html.
[71] Lindy Heinecken, "Living In Terror: The Looming Security Threat to Southern Africa," *African Security Review,* Vol. 10, No. 4, (2001), 11.

[72] Rodger Yeager, "Military HIV/AIDS Policy in Eastern and Southern Africa: A Seven-Country Comparison," *Civil-Military Alliance to Combat HIV and AIDS*, Occasional Paper No. 1 (1996), 2.
[73] Mabuchi, Available at http://www.iss.co.za/AF/profiles/Zimbabwe/SecInfo.html.
[74] Ibid.
[75] Ted Gurr, *Why Men Rebel*, (Princeton, NJ: Princeton University Press, 1970).
[76] Realist theory argues that shifts in the relative power often precipitate interstate conflict. See Kenneth Waltz, *Theory of International Politics*, (Addison-Wesley).
[77] Muthiah Alagappa (ed.), *Political Legitimacy in South-East Asia*, (Standford, CA: Stanford University Press, 1995). Also see Andrew MacIntyre, "Grappling with Legitimacy," *Journal of Democracy*, Vol. 7, No. 3, (July 1996), 170-173.
[78] The sectoral economic impact of HIV/AIDS is detailed in Andrew T. Price-Smith and John L. Daly, "Downward Spiral: HIV/AIDS, State Capacity, and Political Conflict in Zimbabwe," *United States Institute of Peace*, Peaceworks Paper No. 53, (2004).
[79] For an interesting examination of the linkages between deprivation and intrastate violence see Ted Gurr, *Why Men Rebel*, (Princeton, NJ: Princeton University Press, 1970).
[80] Ibid.