HIV/AIDS in Southern Africa:

A Comparative Analysis of Governance and the Self-Sufficiency of HIV/AIDS Responses in South Africa, Zimbabwe, and Namibia

A Thesis in International Relations

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Abstract

HIV/AIDS is a disease which has long affected the globe and been a burden of public health. Southern Africa has been a region that currently and historically disproportionately has been affected by HIV/AIDS, with extremely high incidence and prevalence, especially when compared to both other regions and the globe at large. To combat the HIV/AIDS pandemic the United States and others have long provided foreign aid to recipient countries, with many Southern African countries being natural recipients of said aid. Now, however, foreign aid for HIV/AIDS has experienced significant cuts from the United States, threatening the public health of many recipient countries who rely on said aid. Because of this, there is a growing concern over the HIV/AIDS program sustainability and self-sufficiency within these recipient countries, especially in Southern African countries. To answer how effective and self-sufficient Southern African countries are in managing their HIV/AIDS epidemic and how they can improve, this thesis seeks to explore what self-sufficiency in HIV/AIDS epidemic response looks like and what factors contribute towards its development in Southern Africa. This thesis begins with a review of the current HIV/AIDS foreign aid system, the role of the United States, and the recent decline in HIV/AIDS foreign aid, ultimately concluding that the previous levels of foreign aid towards HIV/AIDS are now unfeasible. This is followed by a literature review which goes over multiple articles discussing the current foreign aid system, why the current aid system is flawed and encourages aid dependency, and how the aid system can be reformed by giving more responsibility to recipient countries and improving domestic government institutions. The thesis then compares three Southern African countries, South Africa, Zimbabwe, and Namibia, examining both their history, epidemic incidence and prevalence, HIV/AIDS spending and financial self-sufficiency, and scores on the six World Bank's Worldwide Governance Indicators.

This is followed by a series of multiple regressions, one for each country, using the six Worldwide Governance Indicators as predictors of HIV/AIDS self-sufficiency, with HIV/AIDS self-sufficiency measured as a percentage of total HIV/AIDS spending within that country from domestic government sources. Ultimately the results of the country comparison indicate that all countries are significantly suffering from the HIV/AIDS pandemic, but in the management and trajectory of their epidemics both South Africa and Namibia are faring better than Zimbabwe in their response and financial self-sufficiency, along with their higher governance scores. This is despite Namibia and Zimbabwe being categorized as lower-middle income economies and South Africa as an upper-middle income economy, indicating a lower importance of overall country wealth than what would be assumed in governance and epidemic response. In addition from the multiple regression it is evident that the Worldwide Governance Indicators have strong correlation with financial self-sufficiency, and specifically the value of the indicators of political stability, regulatory quality, control of corruption, and government effectiveness as predictors of financial self-sufficiency. Ultimately this thesis concludes from the literature review, country comparison, and multiple regression that a self-sufficiency is necessary for the future response to the HIV/AIDS pandemic, that governance ability is vitally important in creating a self-sufficient HIV/AIDS response, and that in the future foreign aid should focus on improving recipient country governance capabilities to ensure the long term sustainability of the HIV/AIDS response. For future study this thesis suggests the use of the methods in this thesis to create a model which uses all country recipients of HIV/AIDS support and their data from a single year, which could create results that could be applied more universally.

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Introduction

It has only been around 55 years since the Human Immunodeficiency virus (HIV), and its late stage consequence Acquired Immunodeficiency Syndrome (AIDS) first made its introduction to the greater public. Within a relatively short timeframe, it quickly became one of the most infamous and destructive pandemics of the late 20th and early 21st century. What was first recognized in 1981 as multiple reports of patients with a severe immunodeficiency of unidentifiable origin across the United States would eventually be identified as the result of this previously unknown virus, and only shortly after its discovery would be the beginning of its rapidly growing pandemic.[2] HIV is a retrovirus spread primarily through sexual contact and other bodily fluids, infecting the immune system T helper cells of its host.[1] It cannot be cured, and if left untreated will advance into AIDS, a severe immunodeficiency and chronic condition that makes a person susceptible to various opportunistic infections and cancers.[1] Its chronic nature makes HIV/AIDS extremely difficult to treat and control, and while there have been great efforts in the reduction of HIV incidence and prevalence, HIV/AIDS still remains globally prevalent and a major cause of mortality worldwide, which is especially impressive given the dominance of chronic non-infectious diseases in that category. Of all the places on earth to suffer from the scourge that is HIV/AIDS, it is in Southern Africa where HIV/AIDS is most prevalent. Its presence in the region has lasted much longer than in the United States, likely first introduced in 1960, only growing more rapidly towards the 1970s and 80s.[3] Since then both the prevalence and incidence of HIV in the region has remained significantly higher than the global average, as data from UNAIDS estimates peak prevalence in Eastern and Southern Africa being 8.3% from 1998 to 2001, while during that same time the global prevalence was only 0.7%, and the next highest region, Western and Central Africa, was only 2.6%.[4] Given the crisis the HIV/AIDS

pandemic created, many nations, especially those of the United States and its Western allies, along with intergovernmental organizations (IGOs) and non-governmental organizations (NGOs) have provided external assistance to those countries which were suffering greatly from the pandemic. Given the impact of HIV in the region, many Southern African nations naturally became recipients of said aid, providing for the maintenance and expansion of health systems and HIV/AIDS programs. While aid has for a long time been steadily growing throughout the 2000s and 2010s, it has begun to decrease significantly, as other emerging crises divert attention away from HIV/AIDS and the American government and public become increasingly averse to external assistance in general. For countries like South Africa, Namibia, and Zimbabwe, all Southern African countries which have received significant external assistance for HIV/AIDS over their history, there are now concerns of greater external assistance reductions and a worsening of their HIV/AIDS epidemics. Due to this, there is a growing call for states to overcome aid dependency and become more self-sufficient in the financing and management of the HIV/AIDS epidemic, less reliant on external assistance in maintaining effective health programs.

Given the importance of maintaining the programs and interventions against HIV/AIDS in these high impact countries, this thesis seeks to explain the HIV/AIDS epidemic in the Southern African region, the foreign aid dedicated to it along with the concept of self-sufficiency, in addition to what factors, specifically governance indicators, contribute (or detract) towards self-sufficiency. Ultimately this thesis will argue that the variation in HIV/AIDS self-sufficiency can be explained by governance quality, specifically those measured in the World Bank Worldwide Governance Indicators, with specific indicators contributing differently depending on the country. To achieve this, this thesis will first analyze the rise and fall of

HIV/AIDS foreign assistance over time, especially from the U.S., and how changes in global funding for HIV/AIDS threaten those states reliant on said aid. Next the paper will discuss the literature surrounding aid-dependency and self-sufficiency, constructing a working definition which this paper will use as a measure for financial self-sufficiency. Next will be a country comparison among three major Southern African countries of interest with high HIV/AIDS prevalence, South Africa, Zimbabwe, and Namibia, examining their historical background, HIV incidence and prevalence, HIV/AIDS spending and financial self-sufficiency. Following this will be an examination of the six World Bank Worldwide Governance Indicators, comparing each country and conducting a series of multiple regressions using said indicators to explain financial self-sufficiency. Finally this thesis will conclude with a discussion on the results of the statistical analysis, what all this information means for HIV/AIDS self-sufficiency and spending in the region, and how this can be used to improve self-sufficiency within the Southern African region and beyond.

HIV/AIDS External Assistance: Rise and Fall

Since its discovery, HIV/AIDS has represented a unique and ever present threat to the people and governments of the world. Due to its high prevalence and rapid spread across the world, particularly Sub-Saharan Africa, external assistance programs were developed by both countries and international organizations to stop the spread and assist countries in combating HIV/AIDS. While many countries have made contributions to the fight against HIV/AIDS over the years, out of all of them none is perhaps more dedicated and recognized than the United States and its infamous President's Emergency Plan for AIDS Relief (PEPFAR), which has greatly contributed towards HIV/AIDS funding around the world and fundamentally shaped the way external assistance is delivered. However, in the last decade the previously growing external assistance towards HIV/AIDS has stagnated, and more recently decreased dramatically. To understand how external assistance has changed over time, this section will examine the program and politics of external assistance from the highest contributing donor country, the United States.

Before the creation of PEPFAR, the United States provided significant funding to fight HIV/AIDS in lower income countries through the U.S. Agency for International Development (USAID), which was already leading the world in providing HIV/AIDS assistance to other countries.[5] Initiatives such as the Leadership and Investment in Fighting an Epidemic Initiative in 1999 and the International Mother and Child HIV Prevention Initiative in 2002 provided significant funding towards combating HIV/AIDS abroad.[5] It was in 2003 when the U.S. Congress would authorize the United States Leadership Against HIV/AIDS, Tuberculosis, and Malaria Act of 2003, supported by the Bush administration, which significantly increased U.S. commitment to external assistance in fighting HIV/AIDS, along with Tuberculosis and Malaria.[5] This would be one of the largest disease prevention initiatives for HIV/AIDS to date, authorizing

the use of $15 billion USD over 5 years and allowing for the creation of The U.S. President's Emergency Plan for AIDS Relief (PEPFAR) and the position of the U.S. Global AIDS Coordinator.[5] PEPFAR's goals would focus singularly on that of HIV/AIDS, encouraging the continued fight against HIV/AIDS at all levels, use best practices in the policies and application of HIV/AIDS prevention, treatment, and care in accordance with local government, and to encourage other organizations and governments to coordinate efforts.[5] The program would focus much of its efforts on a small set of highly impacted countries, including many within Southern Africa such as South Africa, with the program also renewing and reforming aid programs from the USAID, Department of Defense, Labor, and Health and Human Services for services in more than 100 countries impacted by HIV/AIDS.[5] The initial success of PEPFAR would eventually result in successive legislation for its renewal, which would continue in the following decades in spans of 5 years.[5] The renewed PEPFAR program would not only continue the work of the first, but also push for countries towards developing more sustainable HIV/AIDS program, improve the overall health system of recipient countries, along with a push for expanded HIV/AIDS prevention, care, and treatment.[5] For the following decades since its creation, the PEPFAR took a leading role in fighting HIV/AIDS, and has generally had bipartisan support and been recognized for its success in treating HIV/AIDS globally and its spillover effects in the health systems of the countries it operates.[6] However, despite PEPFAR and U.S. external assistance having seen relative success in combating HIV/AIDS, external assistance for HIV/AIDS has seen sharp decreases in recent years. To visualize this change, a graph of the HIV/AIDS annual financial contributions from sources is provided. The graph itself depicts the estimated total global development assistance for health (DAH) for HIV/AIDS spending annually by aid source, with DAH being any spending which is dedicated towards another country for improving health

systems and services, in this case only examining DAH spending specifically to address HIV/AIDS. Data for which was collected and compiled by the Institute for Health Metrics and Evaluation (IHME), whose data analysis tools were used to create the following figure.

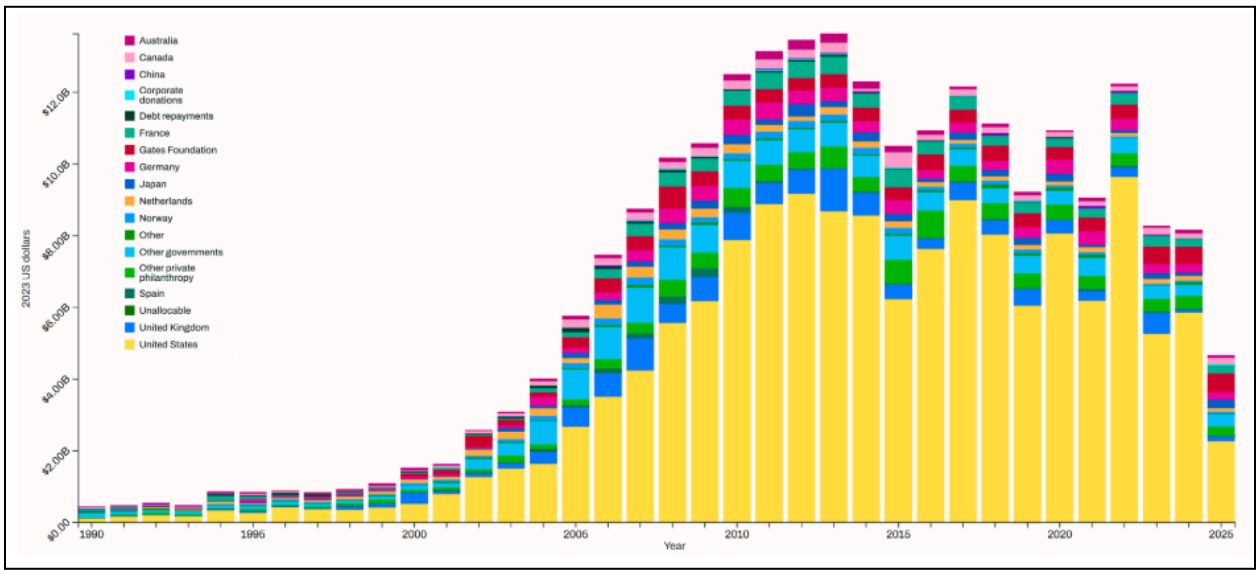

Figure 1: Sources of DAH for HIV/AIDS 1990 to 2025 (IHME 2026)

As seen in figure 1, total DAH towards HIV/AIDS saw extreme growth from 1.52 billion in 2000 to 12.5 billion in 2010, with total contributions remaining steady above 10 billion for the next decade.[7] Throughout this time, the United States has provided more than half of all development assistance for HIV/AIDS, with annual contribution estimates hovering between 5 to 10 billion since 2008.[7] However, as is clearly visible from the most recent estimates of 2025, the DAH contributions towards HIV/AIDS have dramatically declined, with total contributions at only around 4.66 billion total and 2.27 billion from the United States, less than half of the DAH from the previous year.[7] It is also evident that this decrease is primarily driven by the United States, as when only examining non United States sources, 2025 DAH remains relatively similar to the previous year.[7]

Ultimately this significant decline of DAH in 2025 can be interpreted in part as a result of the policy decisions taken by the Trump Administration. Examining the recent 2025 publication of the *America First Global Health Strategy* from the Department of State brings more insight into how this administration views DAH in general. While the report does praise previous efforts and achievements of the U.S. foreign aid system, it is also very critical of the financial inefficiencies within that system, citing parallel systems, the significant resources dedicated to technical assistance, and incentives for states to remain dependent of DAH as major problems.[8] While the report does write its intent to develop stronger health systems within states to make them more resilient, the report emphasizes the importance of infectious disease surveillance and outbreak containment as threats directly towards U.S. citizens.[8] While the Department of State report is not overly hostile, the Trump Administration itself has taken repeated hostile actions against the major foreign aid institutions of USAID and PEPFAR, greatly reducing the powers of USAID to nonfunctioning and freezing many bilateral health programs in the process.[6] Even though this policy approach can be given much of the blame for decreasing DAH for HIV/AIDS, it would be a mistake to see this decline as an anomaly rather than a part of a greater global trend. Even before 2025 there were indications that development assistance for HIV/AIDS was beginning to decline or at least level off from the great highs seen in the early 2010s. Findings made by the Global Burden of Disease Health Financing Collaborator Network in 2018 found that while development assistance for health had increased by 394.7% between 1990 and 2017, this funding peaked in 2013, and had decreased since.[9] Later literature reflects this decrease, as while there was an increase in bilateral funding in 2020, it was primarily driven by the U.S., reflecting the oversized share of HIV/AIDS funding the U.S. provides, while the bilateral funding of other countries decreased, representing a greater long term trend, and an indicator of

decreasing HIV/AIDS aid to come.[10] Ultimately it is doubtful that in the following years we will see a return to the DAH highs of the 2010s.

Aid Dependency and Self-Sufficiency

If the recent contribution data is anything to go off of, external assistance is not going to be a stable source of HIV/AIDS funding like it has been for the past decade. With new crises diverting global attention away from HIV/AIDS and a lack of commitment from the United States and others to maintain previous spending, there is an increasing need for recipient countries, such as those in Southern Africa, to adopt a more sustainable, long term plan to address their respective HIV/AIDS epidemics. How is it then that recipient countries can improve their response to their HIV/AIDS epidemic, and what factors can contribute towards this goal? To answer this question, this section will examine the literature regarding HIV/AIDS aid and effective responses, the relevant theories on aid dependency and issues with the current aid model, and discuss what path HIV/AIDS aid recipients should take going forward, along with the factors contributing towards this development.

First the problem of aid dependency and the current model of the aid system must be addressed. Donor dependency can be understood as the reliance of one state on the financing of another for their health system or initiatives. For many reasons this can become an issue for country health systems and continued sustainability. As is already apparent from changes in HIV/AIDS aid spending, the previously high commitment the United States and other donor countries had in addressing HIV/AIDS global has diminished greatly.[7] This has the potential to leave many countries at risk of HIV/AIDS increases, as services and initiatives previously supported by the United States lose that support and suddenly have to support themselves. As

previously mentioned, for at least the current United States administration, a large reason for their withdrawal from foreign aid is the perception that the current foreign aid system is inefficient and creates dependency for recipient nations.[8] Whether one is in agreement with the methods the Trump administration has used in reforming the traditional foreign aid system, the idea that aid dependency generates negative effects is not uncommon, and have been discussed in depth through various pieces of literature on the subject, which will be discussed in the following paragraphs.

The article *Reimagining Global Health Financing: How Refocusing Health Aid at the Margin Could Strengthen Health Systems and Futureproof Aid Financial Flows* by Drake et al. (2023) makes clear its issues with the current aid system. The main issues identified by the report include volatility in aid funding, the fragmentation of aid programs, the crowding out of domestic finances by aid, the ineffective prioritization by programs, the lack of transition planning away from aid, and a lack of country ownership over aid programs.[11] *HIV programme sustainability in Southern and Eastern Africa and the changing role of external assistance for health* by Neel et al. (2024) shares similar concerns, as through the interviews with key informants in government, civil society, and academia, as respondents expressed concerns over the heavy reliance on external assistance governments have for their HIV programs, as while governments can usually provide for the cost of ARVs, recurrent costs from human resources and other activities are primarily lead through donors, with governments lacking the funds to take up those costs.[12] In the article *Innovative approaches to HIV/AIDS financing: lessons learned from the Sustainable Financing Initiative (SFI)* by Baker et al. (2024), the same concerns appear as the share of resources from domestic sources are regarded as not enough to keep up with declining external assistance.[13] In the article *Potential for additional government spending on*

HIV/AIDS in 137 low-income and middle-income countries: an economic modelling study by Haakenstad et al. (2019) there is a great concern over HIV/AIDS financing, as the governments of many middle-income countries lack the ability to replace even 10% of external assistance towards care and treatment, not to mention the huge shares of external assistance being sourced from PEPFAR and the U.S., creating a significant risk to HIV/AIDS programs as the policy decisions of one country can dramatically reduce available resources.[14] Beyond the financial resources donors provide there is also the knowledge which recipient countries are able to utilize and build off of through donor countries, as donors provide expertise, close monitoring, and consistent program support which recipient countries lack.[15] All of this is to say that the current aid system which exists to support HIV/AIDS programs is heavily flawed and in need of reform. The system encourages a level of donor dependency, which means that governments have less control over their own programs and finances, and are more subject to the political changes of their donor countries, something in which they have little control over.

While many proposals have been made to reform the current aid system, the most pressing issue for countries now is to remove themselves from their state of donor dependency. This is a sentiment shared across many articles. Going back to Drake et al., the authors ultimately propose a model for foreign aid which has recipient and donor countries agree on establishing a transition framework to eventually move away from aid dependency.[11] Another article which shares this argument is *U.S. withdrawal from WHO and aid programs: implications and opportunities for Africa's global health security* by Nwofe et al. (2026) which ultimately argues for African countries to take advantage of the current decline in foreign health aid as an opportunity to build self-sufficiency, by making their own health priorities, using financial resources from domestic sources, using local manufacturing for medicines, and taking advantage

of regional institutions to manage disease.[16] What this literature shows is that there are proposals for reforming the current aid system towards a more recipient country centered approach. Of course moving away from the donor centered aid system is easier said than done, and push back can be expected from both recipients and donors who benefit from a flawed system. Ultimately it will be from the individual recipient countries who will have to make the steps necessary towards a more sustainable and self-sufficient system.

So what factors make a country able to move away from donor dependence? Baker et al. (2024) discusses the importance of system strengthening and public financial management in treating HIV/AIDS and creating significant returns on investments.[13] Neel et al. (2024) shows a similar sentiment among donor governments as they hold distrust towards local governments primarily out of fear of inefficiency, mismanagement, or corruption, preferring to work through international NGOs and retaining a high degree of control over how funding is used.[12] Mann et al. (2024) makes clear through its analysis that a strong public financial management systems allows for a more effective and accountable domestic resource allocation and health system.[17] These articles emphasize the importance of strong domestic institutions which can deliver results. Other articles highlight the importance of integrating HIV/AIDS programs in the larger domestic health system, as the separation of HIV/AIDS treatment from general health is inefficient due to the need for a robust and coordinated health system to effectively treat and care for HIV/AIDS patients over an extended period of time, the need to alleviate the economic burden on HIV/AIDS patients, and the HIV/AIDS response dependent on multiple factors outside of traditional treatment and prevention goals.[18,19] From these articles it is apparent that building self-sufficiency and moving away from donor dependence requires strong institutions and good governance to achieve. Given the clear importance of strong institutions and effective

governance in moving away from donor dependency and building a self-sufficient HIV/AIDS response as shown by the articles examined, this thesis will move into a country comparison and statistical analysis of Southern African countries to see the relationship between country self-sufficiency and good governance.

Country Comparison

To further examine how foreign aid and self-sufficiency has evolved and impacted countries with high HIV/AIDS prevalence, specifically in Southern Africa, along with what factors influence self-sufficiency in general, this section will conduct a country comparison of three Southern African countries, those being South Africa, Zimbabwe, and Namibia. These countries have all historically held a high prevalence of HIV/AIDS, and have been the recipients of HIV/AIDS external assistance. They themselves represent varying levels of HIV self-sufficiency, national income level, and governance. In addition to this, they all reside in the same geographic region and have relatively similar originating environmental and political conditions, and thus all serve as good comparisons. The analysis will go through each country's history with HIV/AIDS, their prevalence and incidence estimates as reported by UNAID, and their HIV/AIDS spending sources and amounts from IHME, all to get an understanding of the state of the HIV/AIDS epidemic within the country. Self-sufficiency will ultimately be measured using the proportion of HIV/AIDS spending from government sources, as while it may not encompass the full dimensions of aid self-sufficiency, it is a measure which can be easily assessed and used for statistical purposes, lending itself well to the already existing sources of data regarding HIV/AIDS spending. The spending data itself originates from IHME, which records DAH spending data, that as previously mentioned is any spending which is dedicated towards improving the health systems and services of another country, in this case only examining DAH spending specifically to address HIV/AIDS. The spending data from IHME, however, will only cover 2002 to 2017, due to that being the latest the relevant data was recorded, and will be measured in total 2023 USD per prevalent case, as to account for possibly different burdens of the HIV/AIDS epidemic in their respective region. Next will be an analysis

of each World Bank Worldwide Governance Indicators (WGI) from the World Bank of each country. The WGI themselves utilize various surveys and assessments to create six measures meant to capture the various dimensions of good governance, consisting of Voice and Accountability, Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption, all measured on a scale ranging from a score of 0 to 100, with 0 representing the absolute worst and 100 the absolute best for that governance indicator.[20] WGI data itself will only cover 2002 to 2017, the same time frame as the IHME spending data, as to allow for easier comparison between the two variables.

Historical Background

As mentioned previously, all three countries have had similar originating political conditions, which can be largely attributed to the colonizations the region faced by multiple European powers but primarily British.[21–23] This section will briefly go over the geographic and political history of each country.

South Africa is a country at the southernmost point of Africa, bordering both Namibia and Zimbabwe.[21] South Africa was once one of many African countries colonized by Europeans, both by Dutch (Boers) and British settlers.[21] For much of the 20th century South Africa was ruled under apartheid, a system in which the government was controlled exclusively by the minority white population, and a system of racial segregation in almost all areas of life was enforced by the government.[21] This apartheid government was greatly despised by both the majority African population and the international community, and eventually the repealing of apartheid laws and democratization would take place.[21] This eventually lead to the election of Nelson Mandela in 1994 and the adoption of a new constitution in 1996.[21] Today South Africa is

an upper middle income democracy with a GDP per capita of $6,267.19 USD (2024), outperforming many other nations in the region.[21,24] Despite its relative success in the region, South Africa suffers from some of the highest HIV/AIDS prevalence globally, and thus has had to dedicate significant resources to address the epidemic, which will be further examined in a later section.

Zimbabwe is a landlocked Southern African country. Originally called Rhodesia, it was colonized by British settlers who governed as the white minority over the black majority, eventually declaring themselves an independent republic in 1965 under white minority rule.[22] Growing resentment by the black majority population would lead to the formation of multiple groups aiming to end this rule, as leaders such as Joshua Nkomo and Robert Mugabe would unite forces to form the Patriotic Front (PF).[22] Eventually both external and internal pressures lead to the end of the white minority government, and in 1980 a new government was formed with Mugabe as the Prime Minister of Zimbabwe.[22] However, civil war and political conflict between Mugabe and Nkomo, along with poor economic policies such as the seizure and redistribution of land, would lead to a political and economic crisis.[22] While Zimbabwe was democratic in theory, it often acted as an autocratic regime which utilized repression and election manipulation to its advantage.[22] Mugabe ruled from independence all the way to 2017, when the military launched a coup and Mugabe was forced to resign.[22] Since then Emmerson Mnangawa, a member of the ZANU-PF, has served as president.[22] As of current Zimbabwe is a lower middle income economy with a GDP per capita of $2,497.20 USD (2024).[24]

Namibia is a Southern African country which is largely arid and sparsely populated.[23] Like many other nations in the region, European settlers would colonize Namibia, though due to the environment, colonization was slower relative to other regions in the area.[23] Unlike the

surrounding areas controlled by the British, Namibia would first be annexed by the Germans.[23] This colonization was brutal, as people groups like the Herero and Nama people were subject to mass depopulation.[23] Eventually Namibia would be taken over by South Africa during World War 1, subjecting the area now to apartheid laws.[23] Namibians would petition the United Nations (UN) for sovereignty, and while the UN would recognize it in 1966, this did not lead to actual independence.[23] Black Namibian political movements, such as SWAPO, would fight for independence.[23] Both declining economic prosperity and defeats in conflicts with SWAPO and Angolan forces would result in Namibian independence by 1990.[23] SWAPO gaining a majority in government and a democratic constitution was adopted, along with policy embracing reconciliation.[23] Namibia is relatively stable lower middle income country with a GDP per capita of $4,413.13 USD (2024), and while the SWAPO party remains dominant, it has still maintained political stability and democracy.[23,24]

As shown, these three countries have very similar historical backgrounds. All countries are located in Southern Africa and have been at one point subject to British colonial rule, followed by a period of white minority rule. The period of white minority rule was characterized by racial segregation and injustice, ultimately culminating in the end of white minority rule and the transition to black and native majority rule. Of course each country has since diverged both economically and politically, especially Zimbabwe with its significantly worse economy and democratic One thing that does remain though is their shared struggle with HIV/AIDS. To examine this more the next section will cover the incidence and prevalence of each country.

HIV Incidence and Prevalence

For a better understanding of each country's experience with their HIV/AIDS epidemic, data on HIV incidence and prevalence will be used to create figures to allow for further understanding of the evolution of the HIV/AIDS epidemic in each country. The following figures compare South Africa's, Zimbabwe's, and Namibia's HIV incidence and prevalence estimates from UNAIDS on a set of line graphs spanning from 1990 to 2024, with incidence displayed as the number of estimated new infections that year per 1000 people, and prevalence displayed as the estimated percentage of the population which has HIV.

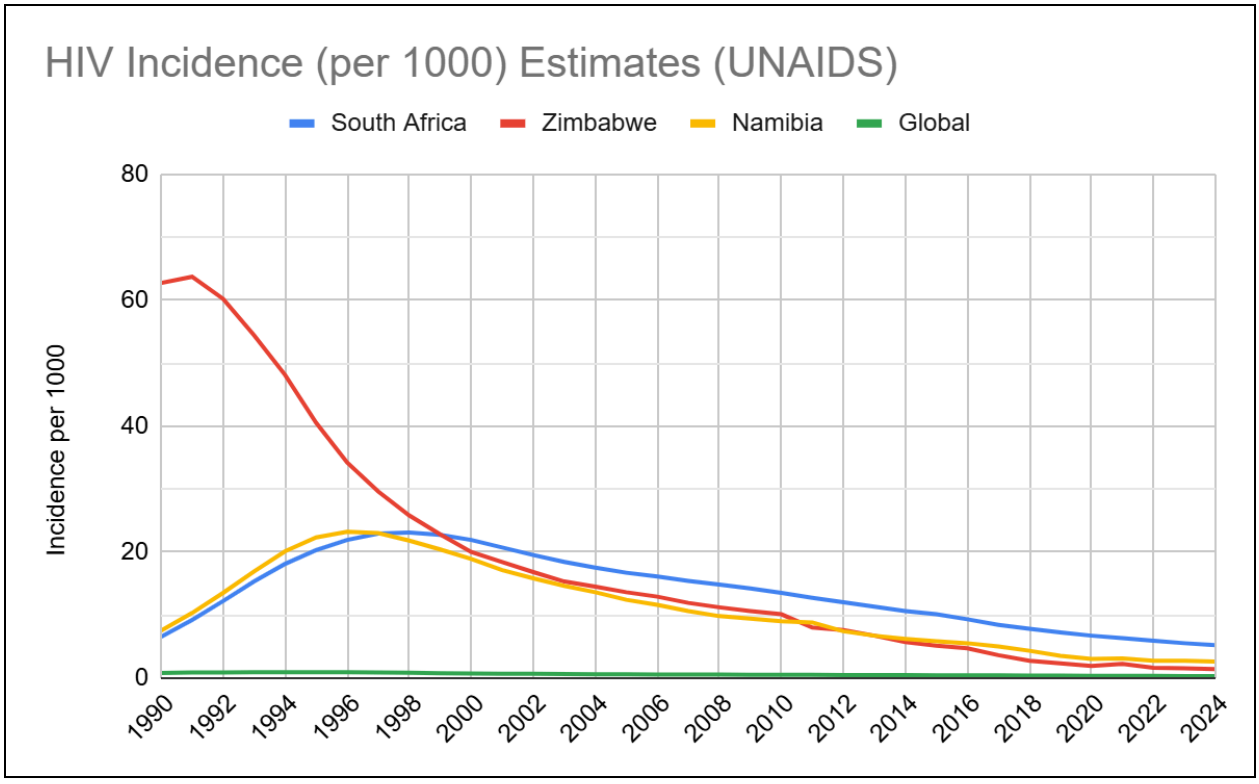

Figure 2: Country HIV Incidence per 1000 1990 to 2024 (UNAIDS 2025)

As visible in figure 2, all countries analyzed had significantly high HIV incidences from the 1990s to the early 2000, specifically when compared to the global incidence at the time, though all eventually experienced an incidence decline, steadily decreasing towards 2024.[4] Both

South Africa and Namibia followed a very similar trajectory, with South Africa peaking at an incidence of 23.1 per 1000 people in 1998 and Namibia peaking with an incidence of 23.2 per 1000 people in 1996, ultimately leveling off to their most recent levels of 5.2 for South Africa and 2.6 for Namibia.[4] Zimbabwe, however, has had a radically different experience with HIV/AIDS. Starting off with an incredibly high incidence of 63.7 per 1000 people in 1991, this would quickly fall to an incidence of 20 per 1000 people by 2000, now as of 2024 resting at an incidence of 1.4 per 1000 people.[4] So does this mean Zimbabwe managed to gain control over HIV incidence? Unfortunately I don't think this is the case. Given the extremely high incidence and dramatic fall, it is more likely Zimbabwe suffered significant mortality which in turn reduced incidence. While Zimbabwe may now be around the same level of incidence as Namibia, it is doubtful that this is due to an effective government response.

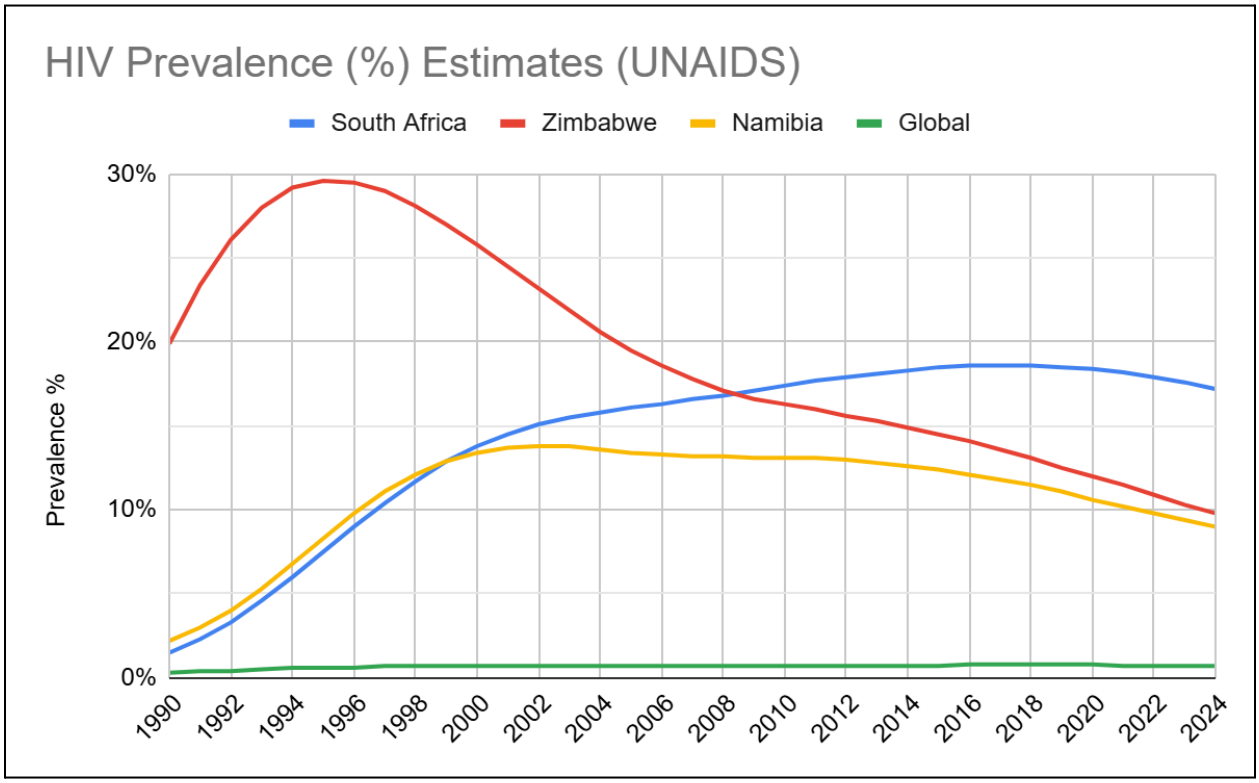

Figure 3: Country HIV Prevalence % 1990 to 2024 (UNAIDS 2025)

As visible in figure 3, each country followed a relatively similar prevalence trajectory to that of incidence. Both Namibia and South Africa had prevalence increase at a relatively equal pace, though this would change as Namibia would peak at a prevalence of 13.8% in 2002 and 2003, while South Africa would peak in 2016-2018 with a prevalence of 18.6%.[4] Currently both countries have since decreased in prevalence, with a prevalence of 17.2% for South Africa and 9% for Namibia.[4] Zimbabwe's HIV prevalence would, much like its incidence, take a different path, peaking at 29.6% in 1995, rapidly declining up to now with a current prevalence of 9.8%.[4] While it may seem that Zimbabwe had an excellent recovery to its HIV epidemic, when examining prevalence it is important to remember that HIV aids is a chronic disease that cannot yet be cured. A rapidly decreasing prevalence is indicative towards high mortality and a lack of treatment for patients. Rather, a steady, slowly declining prevalence is indicative of an improving epidemic where people who have HIV are being treated long term.

Despite the changes in both incidence and prevalence, it should be recognized that the HIV/AIDS epidemic still serves as a very present threat in these countries, and the rate of decline in both prevalence and incidence still leaves much to be desired. Even now, both the incidence and prevalence of HIV/AIDS in each of these countries is significantly higher than the global estimates, which as of 2024 only have an estimated incidence of 0.28 per 1000 and prevalence of 0.7%.[4] Still, significant process has been made in each country since the early years of the pandemic, which should be recognized. Though only looking at HIV prevalence and incidence does not reveal much about the long term stability of the HIV/AIDS response, nor the main contributors towards that response. To get a better understanding of how HIV/AIDS programs are financed in each country, the next section will cover HIV/AIDS DAH spending data for each individual country.

HIV/AIDS Spending

For an analysis of HIV/AIDS spending data and evaluation of each country's self-sufficiency when it comes to HIV/AIDS funding, data from IHME will be used to create figures displaying each country's HIV/AIDS spending, both in total amount and in source. The IHME data consists of spending dedicated towards HIV/AIDS programs and initiatives within the country, along with the source the funding is originating from. The data spans from 2002 to 2017, which is due to both limitations in the data recorded by IHME and to allow for easier comparison with later figures. In addition, spending was measured per prevalent case, as to account for the epidemiological differences for each country's HIV/AIDS epidemic, so as to have the spending measure be more comparable between countries.

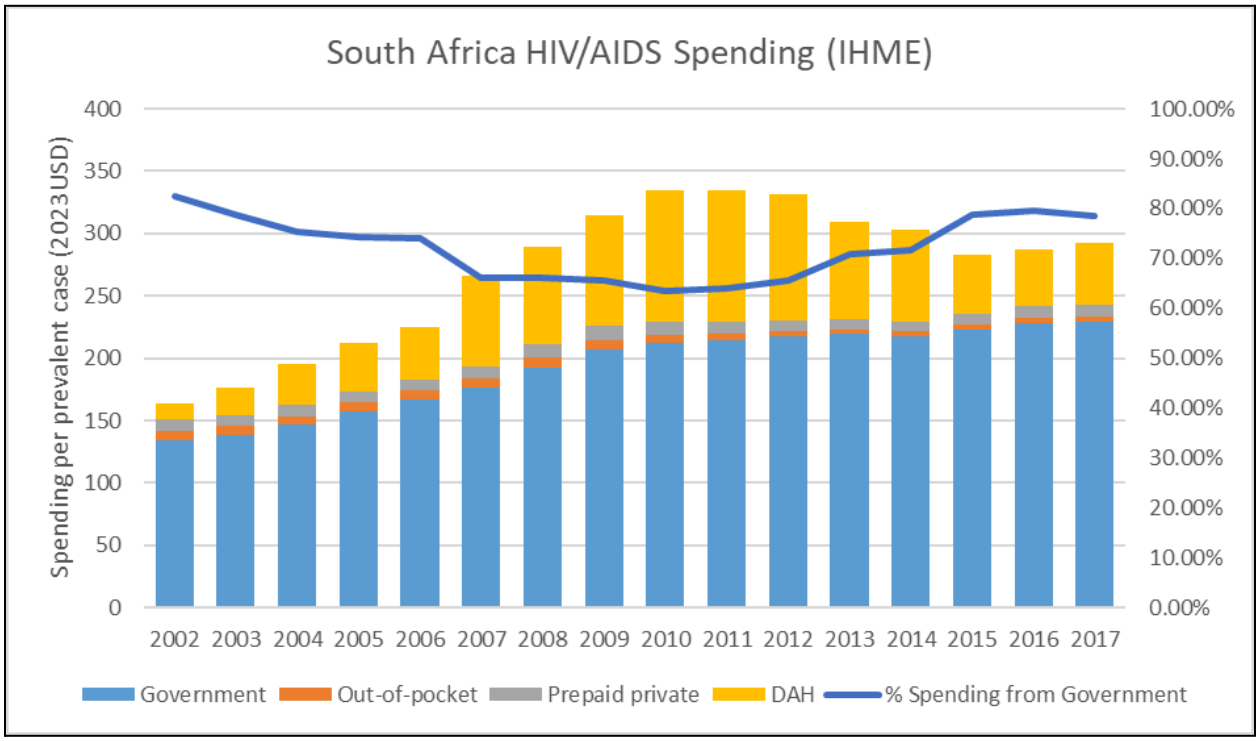

Figure 4: South Africa HIV/AIDS Spending by Source 2002 to 2017 (IHME 2026)

To begin with is South Africa, whose HIV/AIDS spending data is shown in figure 4. HIV/AIDS spending has gradually risen overtime, starting in 2002 with 163.532 USD per prevalent case, peaking in 2011 with 334.316 USD per prevalent case, and with most recent estimates in 2017 putting it at 292.018 USD per prevalent case.[7] In addition the proportion of spending sourced from government remains high and has been steadily rising from 2002 to 2017.[7] While DAH spending has fluctuated, its smaller proportion of the total HIV/AIDS expenditure makes its fluctuations less impactful on the total expenditure.[7] Furthermore by examining HIV/AIDS spending as a percentage of health spending for all causes, it makes up an estimated 8% of spending for all causes.[7] Both the proportion and consistency of government spending towards HIV/AIDS indicate a relatively high level of financial self-sufficiency, at least when compared to the other country cases, which will be examined in short order. All this is to say that any significant decrease in DAH, while it no doubt will have an impact, will not result in an uncontrollable crisis, and the South African government should be able to adapt to fluctuations in DAH.

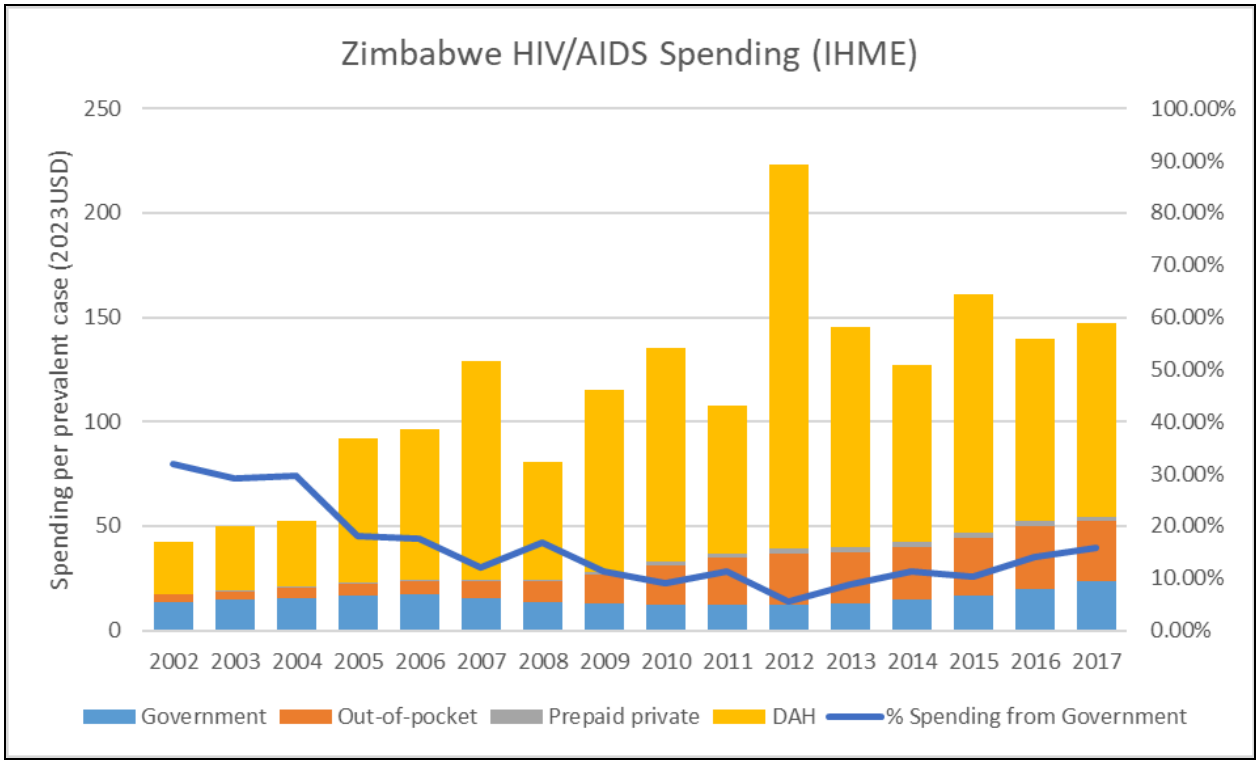

Figure 5: Zimbabwe HIV/AIDS Spending by Source 2002 to 2017 (IHME 2026)

Zimbabwe, whose HIV/AIDS spending data can be seen in figure 5, has a much different spending profile than South Africa. First of all, spending towards HIV/AIDS is notably lower, starting at 42.248 USD per prevalent case in 2002 and most recent estimates at 147.482 USD per prevalent case in 2017.[7] In addition, most of the change in spending can be attributed to DAH and out-of-pocket spending, with out-of-pocket spending originating from the spending an individual gives to receive healthcare services.[7] Meanwhile government spending remaining extremely low in the 10 to 25 USD per prevalent case range, only making up about 15.72% of the total spending in 2017.[7] There have also been large fluctuations in HIV/AIDS spending by year, as DAH jumped from 70.58 to 183.775 USD per prevalent case from 2011 to 2012, and then in the following year dropping back down to 105.11 USD per prevalent case.[7] Furthermore by examining HIV/AIDS spending as a percentage of health spending for all causes, it makes up an estimated 11% of spending for all causes.[7] With most spending coming from non-government

sources, it is evident that Zimbabwe has a very low level of financial self-sufficiency and is highly reliant on foreign aid, with changes in donor priorities having the potential to dramatically change the HIV/AIDS epidemic for the worse. In addition the lack of prioritization of HIV/AIDS also cannot be used as an explanation for the poor HIV/AIDS spending, given it makes up an estimated 11% of all health spending.

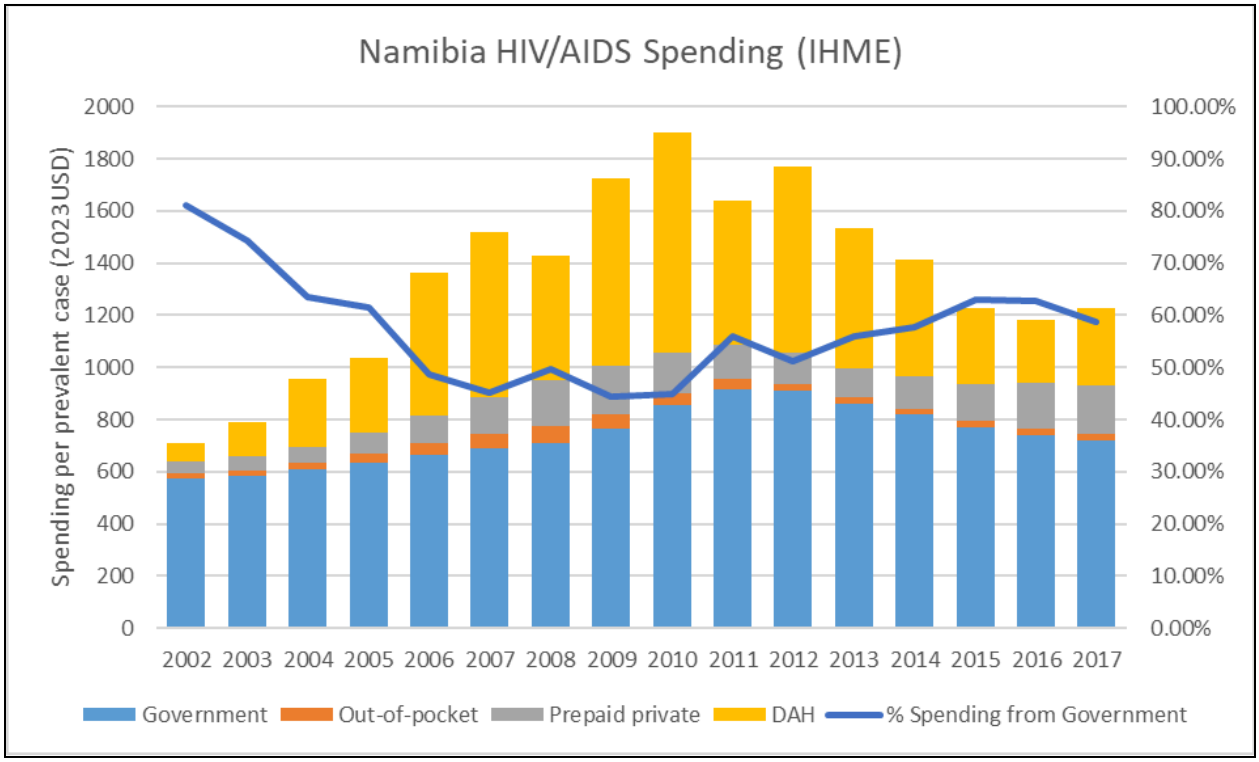

Figure 6: Namibia HIV/AIDS Spending by Source 2002 to 2017 (IHME 2026)

Namibia, as seen in figure 6, is much more comparable to South Africa then it is to Zimbabwe, despite the shared status of both Namibia and Zimbabwe as a lower middle income economies (though it should be noted that Namibia still has a larger GDP per capita than Zimbabwe).[24] In fact, Namibia has the highest HIV/AIDS spending per prevalent case out of any country, starting at 709.074 USD per prevalent case in 2002, already a higher level of spending than any other country case managed to accomplish between 2002 and 2017, with the most recent figure in 2017 being 1229.929 USD per prevalent case.[7] The government also makes up a

majority of spending, with it making up 58.65% of total HIV/AIDS spending as of 2017.[7] Furthermore by examining HIV/AIDS spending as a percentage of health spending for all causes, it makes up an estimated 5% of spending for all causes.[7] The proportion of HIV/AIDS spending from government is similar to that of South Africa, if only slightly lower, and given government spending makes up a majority of HIV/AIDS spending, along with HIV/AIDS spending only making up 5% of all health spending, it is fair to say they are self-sufficient, able to dedicate significant spending towards HIV/AIDS while only having said spending be 5% of all health spending. It is even possible they are fairing better against the HIV/AIDS epidemic than South Africa, given their lower HIV prevalence and incidence as shown earlier.[4,7]

Overall if we use the proportion of HIV/AIDS spending from government sources as a measure of financial self-sufficiency, it would appear that both South Africa and Namibia have a relatively high level of self-sufficiency, given more than half of all HIV/AIDS spending originates from domestic government sources, compared to Zimbabwe whose low government HIV/AIDS spending, significantly less than half of all HIV/AIDS spending, makes it reliant on DAH. Now that both a review of each country's epidemic and spending has occurred, the next section will examine their Worldwide Governance Indicators (WGI).

Worldwide Governance Indicators

As mentioned previously the Worldwide Governance Indicators (WGI) from the World Bank are six measures meant to capture the various dimensions of good governance, consisting of Voice and Accountability, Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption, all measured on a scale ranging from a score of 0 to 100.[20] These governance scores can then be used to both compare and contrast country

governance with each other, along with the global average which tends to have a governance score around 50 for all the governance indicators, serving as a good baseline.[20] For this section, each of the 6 governance indicators will be explained and examined for each country from 2002 to 2017. The timeframe from 2002 to 2017 was selected to give it parity with the HIV/AIDS spending section, allowing for a basic understanding of governance ability and its relation to spending, which will be further explored in the subsequent section.

Voice and Accountability:

The voice and accountability indicator as explained by the World Bank's definition encompasses *"perceptions of the extent to which citizens can participate in selecting their government including electoral integrity, and of accountability mechanisms for citizens—reflected in the ability to access information, governmental oversight bodies, and a robust traditional/digital media landscape."*[20] Essentially what this score describes is how freely people can participate in government and express themselves, with higher scores indicating an open political system, public media, and strong civil society, and lower scores indicating a restricted political system, censorship, and possibly repression.

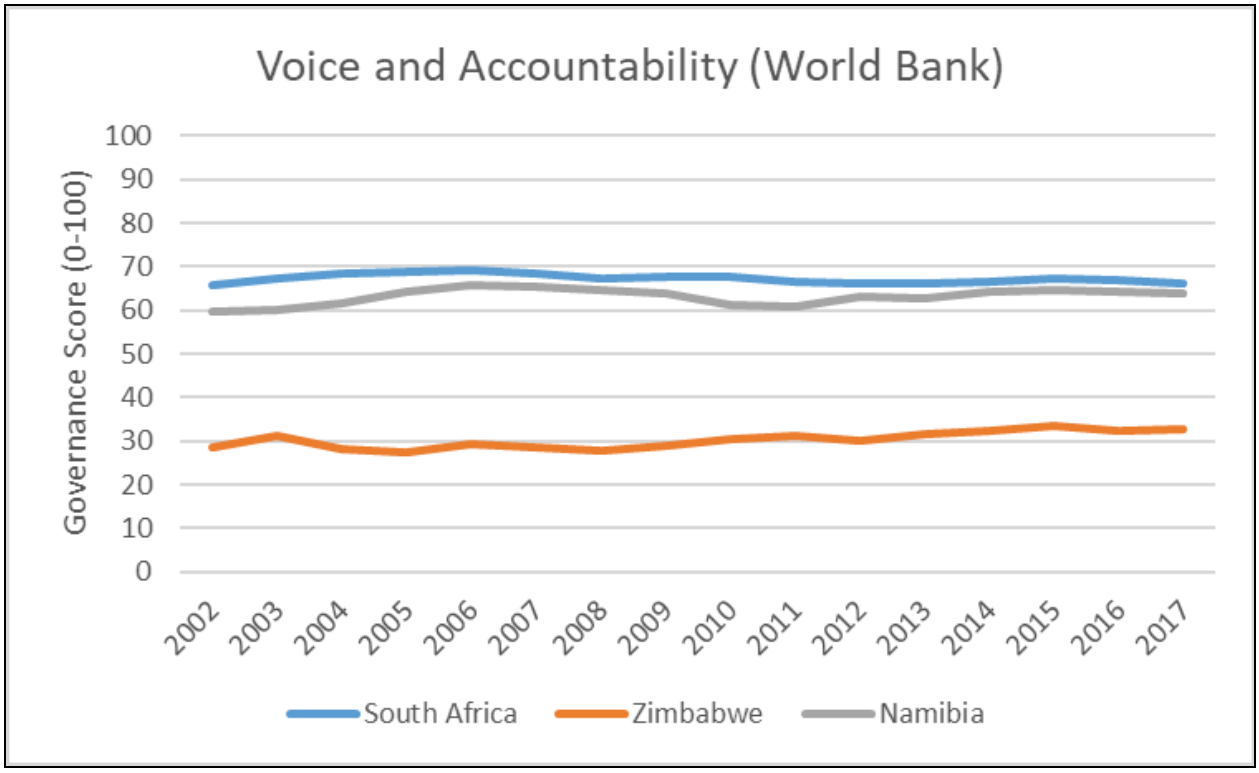

Figure 7: Country Voice and Accountability Governance Score 2002 to 2017 (World Bank 2025)

As visible from figure 7, the governance score for voice and accountability across countries has remained relatively stagnant for each country.[20] In addition, both South Africa and Namibia have relative parity between them, as of 2017 holding governance scores of 66.29 for South Africa and 64.04 for Namibia, not significantly different from each other. which is relatively high compared to Zimbabwe.[20] Zimbabwe meanwhile holds a governance score which hovers around 30, indicating a poorer state of voice and accountability in the country.

Political Stability:

The political stability indicator as explained by the World Bank's definition encompasses *"perceptions of the extent to which political power and governance are secure from destabilization, and of the likelihood that authority will be challenged or altered through violent,*

coercive, or unconstitutional means."[20] Essentially what this score describes is how likely a government is going to be destabilized by violence or illegal acts, with higher scores indicating peaceful, predictable politics, and lower scores indicating frequent political violence and upheaval.

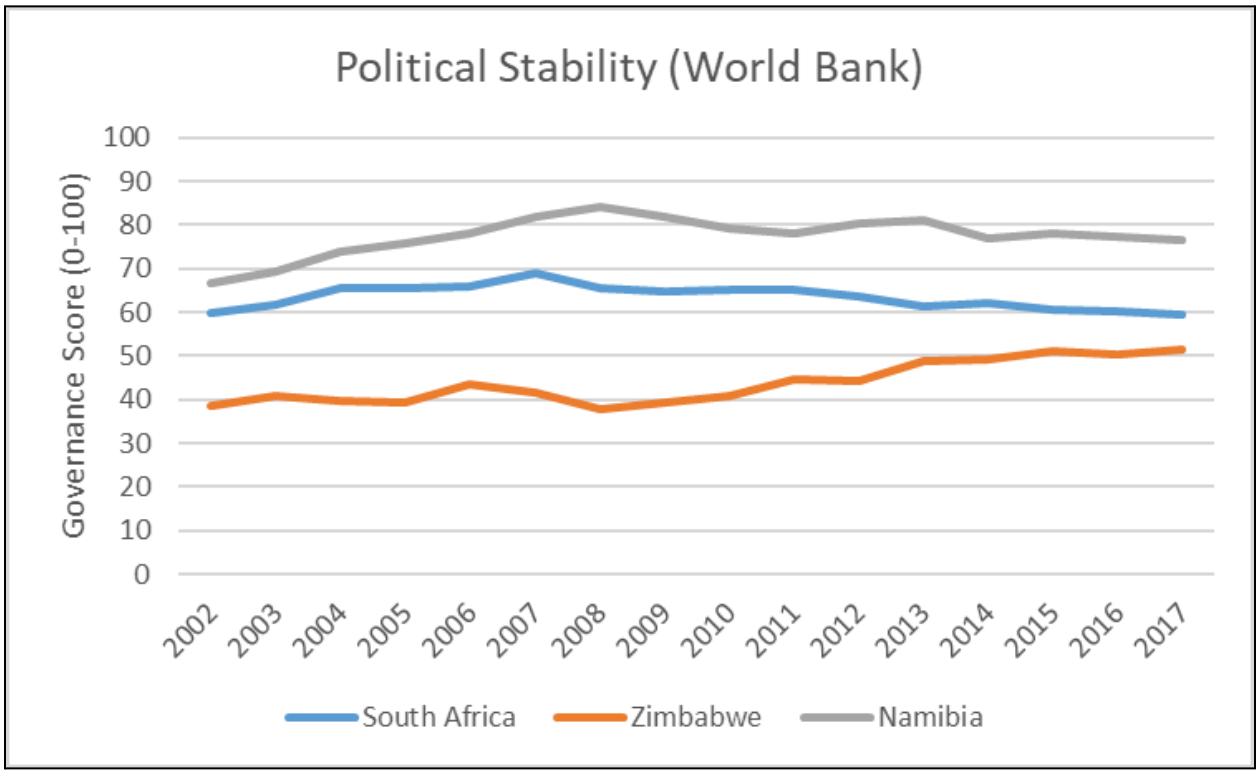

Figure 8: Country Political Stability Governance Score 2002 to 2017 (World Bank 2025)

As visible from figure 8, the governance scores of Namibia currently sit at 76.65, of South Africa at 59.36, and of Zimbabwe at 51.63, all as of 2017.[20] While South Africa has mostly remained stagnant in political stability, both Zimbabwe and Namibia have increased political stability, indicating improvement outside of the expected level of noise.[20]

Government Effectiveness:

The government effectiveness indicator as explained by the World Bank's definition encompasses *"perceptions of the quality of public services, the civil service, policy formulation and implementation, and the credibility of a government's decisions."*[20] Essentially what this score describes is how well the government can implement policy, with higher scores indicating effective bureaucracies and public services, and lower scores indicating poor administrative capabilities.

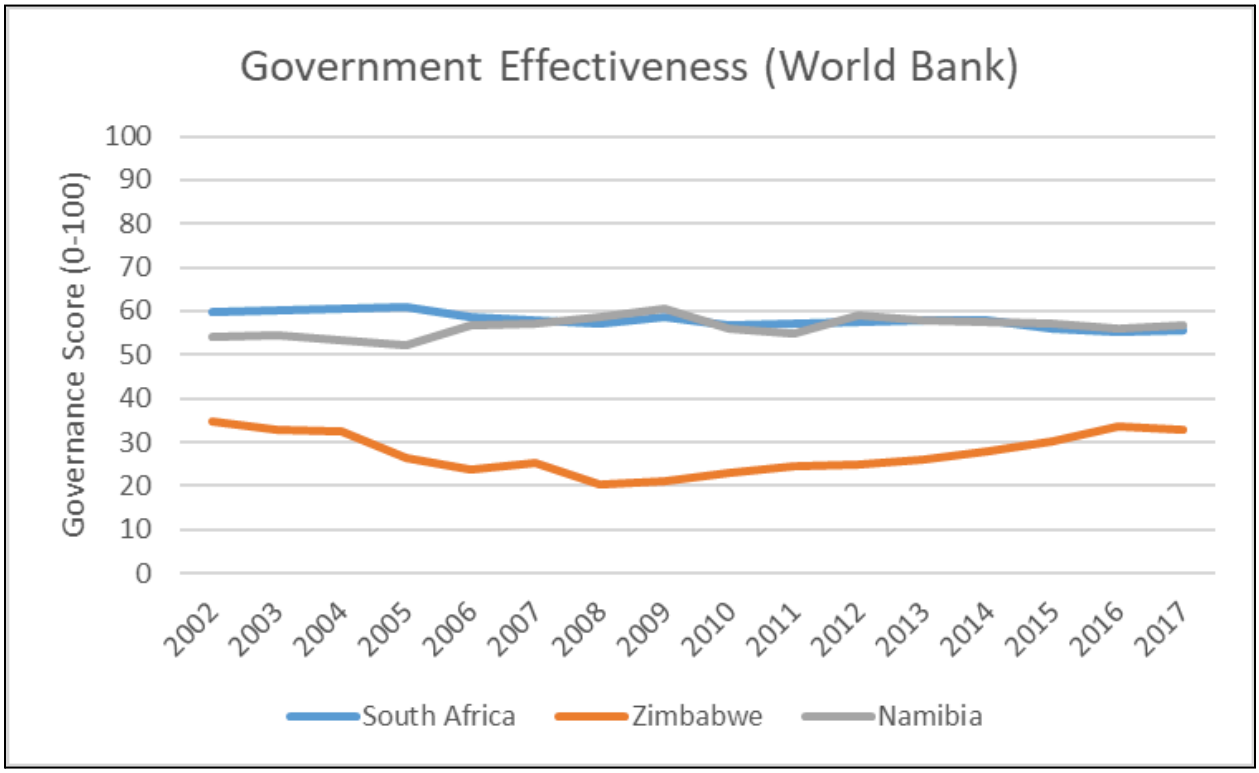

Figure 9: Country Government Effectiveness Governance Score 2002 to 2017 (World Bank 2025)

As visible from figure 9, government effectiveness is at relative parity between South Africa and Namibia, with South Africa holding a score of 55.67 and Namibia a score of 56.56 as of 2017, not significantly different from each other.[20] Meanwhile, Zimbabwe holds a governance score of only 32.7, indicating a comparatively poor government effectiveness.[20]

Regulatory Quality:

The Regulatory Quality indicator as explained by the World Bank's definition encompasses *"perceptions of the government's ability to design and implement policies and regulations that promote private sector development."*[20] Essentially what this score describes is how well a government can design and enforce regulations for the private sector, with higher scores indicating market friendly, predictable, and transparent regulations, and lower scores indicating excessive unnecessary regulation or ineffective regulation.

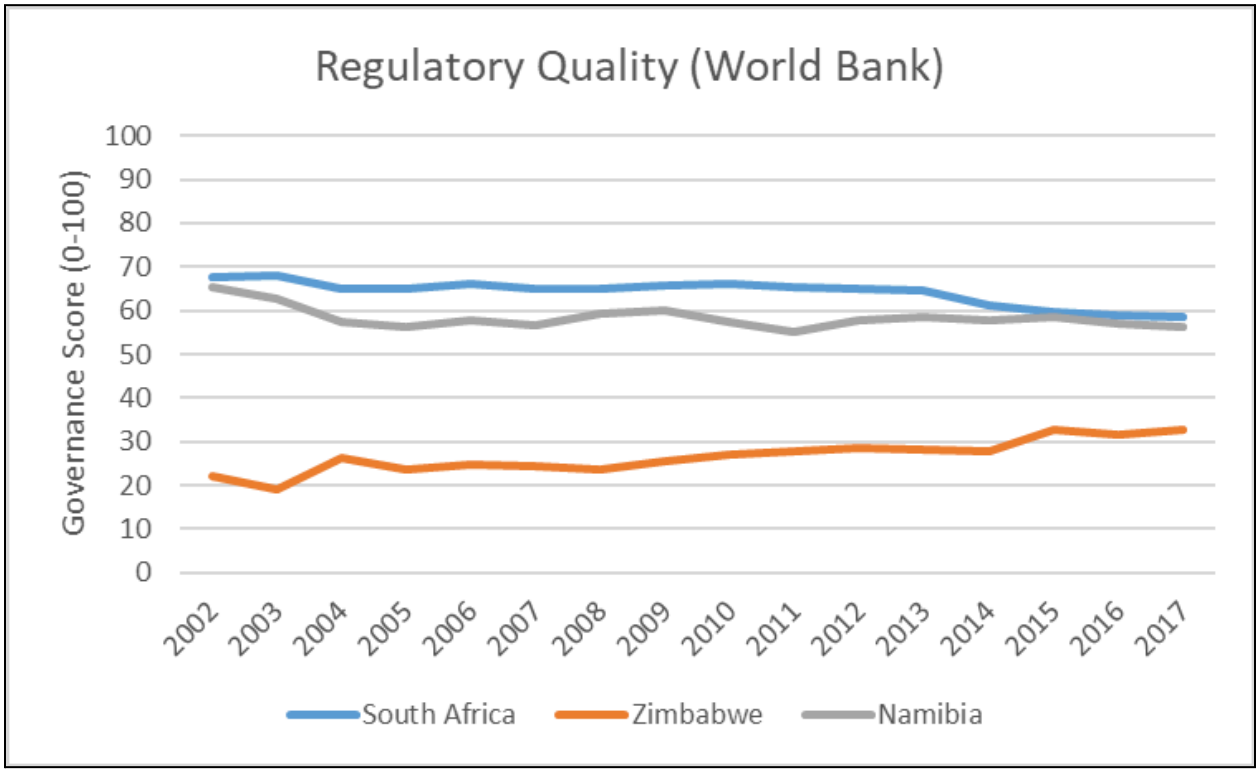

Figure 10: Country Regulatory Quality Governance Score 2002 to 2017 (World Bank 2025)

As visible from figure 10, for Regulatory Quality South Africa and Namibia have parity, with South Africa holding a score of 58.49 and Namibia a score of 56.37, both as of 2017, while Zimbabwe has a comparatively poor, though improving, regulatory quality, only around 32.9.[20]

Rule of Law:

The Rule of Law indicator as explained by the World Bank's definition encompasses *"perceptions of the extent to which agents respect and follow the rules of society, including contract enforcement, property rights, the police, courts, and the likelihood of crime and violence."*[20] Essentially what this score describes is how well society upholds the law and enforces justice, with higher scores indicating strong legal institutions and legal rights, and lower scores indicating weak law enforcement and high crime.

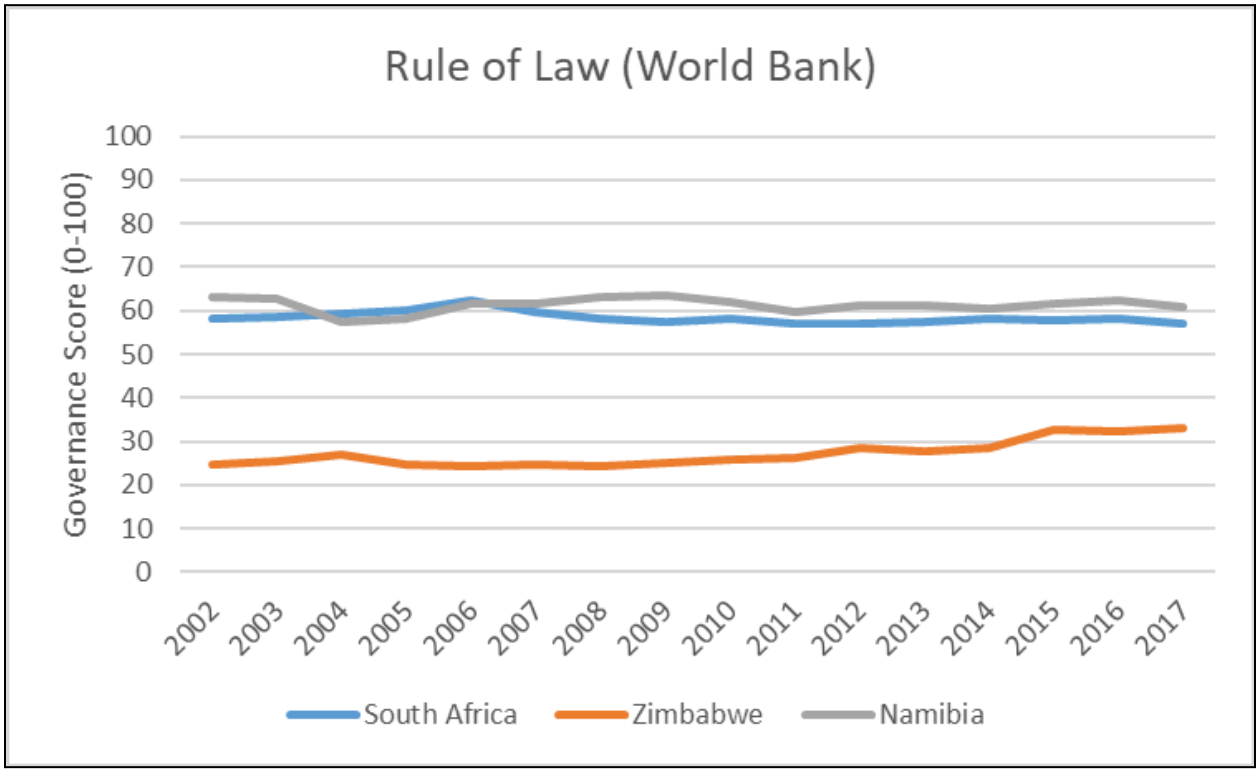

Figure 11: Country Rule of Law Governance Score 2002 to 2017 (World Bank 2025)

As visible from figure 11, like most other governance indicators, for rule of law both South Africa and Namibia have relatively similar governance scores, with South Africa holding a score of 57.21 and Namibia a score of 60.76, both as of 2017, while Zimbabwe only has a rule of law governance score of 33.2, that while comparatively low, is improving.[20]

Control of Corruption:

Finally, the Control of Corruption indicator as explained by the World Bank's definition encompasses *"perceptions of the extent to which public power is used for private gain, including both petty and grand corruption, as well as capture of the state by elites and private interests."*[20] Essentially what this score describes is how effective a government can prevent public power being used for personal gain, with higher scores indicating high government integrity and lower scores indicating pervasive bribery and corruption.

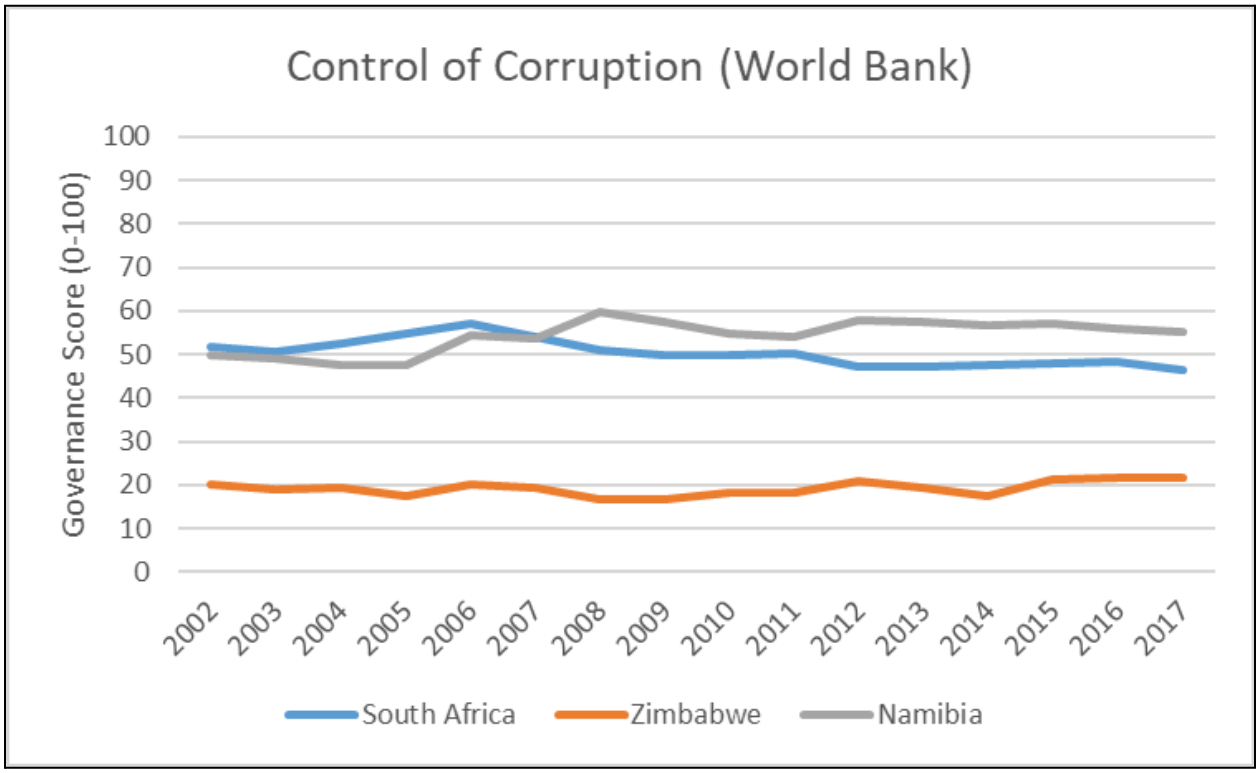

Figure 12: Country Control of Corruption Governance Score 2002 to 2017 (World Bank 2025)

As seen in figure 12, for control of corruption both South Africa and Namibia have similar governance scores, though the separation between them is slightly larger than for others,

as of 2017 hold governance scores of 46.24 for South Africa and 55.29 for Namibia, a gap wide enough to be considered different, while Zimbabwe has the comparatively low score of 21.7.[20]

Overall the pattern between governance indicators is quite similar. Both South Africa and Namibia tend to have similar governance scores above or around 50, while Zimbabwe always has lower governance scores, usually but not always below 40.[20] Given the global average for each indicator tends to have a score around 50, this pattern indicates generally average to good governance from both Namibia and South Africa on most levels the indicators examine, often having scores within a short range of each other. Meanwhile Zimbabwe has relatively poor governance, both when compared to South Africa and Namibia and the global average. The differences between Namibia and Zimbabwe are especially notable given, according to the World Bank, are in the same economy group of lower middle income.[24] Now while this does not mean Namibia and Zimbabwe have identical economic conditions, as they both have notably different GDP per capita, it is still notable that Namibia is able to hold parity on many of these scores with South Africa, ultimately indicating economic conditions are not the ultimate determining factor in country performance.

Multiple Regression Results

This section contains the results of 3 separate multiple regressions performed, showing the relationship between the six Worldwide Governance Indicators and each country's proportion of HIV/AIDS spending sourced from government sources, with the governance indicators acting as the independent, predictor variables for the dependent, spending proportion variable. All multiple regression results were performed using the Microsoft Excel data analysis tools. Before each of the results are analyzed, it should be noted that any results with a p-value equal to or less than 0.05 will be considered statistically significant, meaning there is an equal or less than 5% chance the results are not due to random chance, and so it can be concluded there is a relationship between the variables. In addition for r squared, which indicates the percentage of variance in HIV/AIDS spending proportion from government sources which can be explained by the predictor values, adjusted r squared will be prioritized over the unaltered r squared as it is adjusted to account for the increases in r squared due to the inclusion of additional predictor variables, lowering the value for additional predictor variables.

South Africa:

South Africa Multiple Regression Results:

Multiple r	r squared	Adj. r squared	Standard Dev.	Observations
0.960605667413386	0.922763248266717	0.871272080444528	0.0229479421119906	16

					95% Confidence Interval	
Variable	*Coefficients*	*SE*	*t stat*	*p-value*	*Lower*	*Upper*
Intercept	1.437969	0.743579	1.933848	0.085146	-0.24412	3.120061
Voice and Accountability	-0.00048	0.014641	-0.03266	0.97466	-0.0336	0.032642

					95% Confidence Interval	
Variable	*Coefficients*	*SE*	*t stat*	*p-value*	*Lower*	*Upper*
Political Stability	-0.02415	0.00405	-5.96201	0.000212	-0.03331	-0.01499
Government Effectiveness	0.013451	0.005729	2.348028	0.043445	0.000492	0.02641
Regulatory Quality	-0.00991	0.003723	-2.66194	0.025963	-0.01833	-0.00149
Rule of Law	-0.0013	0.013405	-0.09708	0.924789	-0.03163	0.029023
Control of Corruption	0.015484	0.006495	2.383968	0.04096	0.000791	0.030177

From these regression results, the multiple r value, representing multiple correlation, is around .96, which indicates that the relationship between South Africa's proportion of HIV/AIDS spending from government sources and the governance indicators is strong. The value for adjusted r squared value is around 0.87, indicating 87% of the variance in South Africa's proportion of HIV/AIDS spending from government sources can be explained by the variation in governance indicators. For the individual predictor values, only the indicators of political stability, government effectiveness, regulatory quality, and control of corruption were statistically significant. For political stability, an increase of 1 governance score is predicted to result in a decrease of around 2.4% in the proportion of HIV/AIDS spending from government sources. For government effectiveness, an increase of 1 governance score is predicted to result in an increase of around 1.3% in the proportion of HIV/AIDS spending from government sources. For regulatory quality, an increase of 1 governance score is predicted to result in a decrease of around 1% in the proportion of HIV/AIDS spending from government sources. Finally, for control of corruption, an increase of 1 governance score is predicted to result in an increase of around 1.5% in the proportion of HIV/AIDS spending from government sources.

Zimbabwe:

Zimbabwe Multiple Regression Results:

Multiple R	R squared	Adj. R squared	Standard Dev.	Observations
0.933092206	0.870661064	0.784435107	0.036880932	16

					95% Confidence Interval	
Variable	*Coefficients*	*SE*	*t stat*	*p-value*	*Lower*	*Upper*
Intercept	0.392854	0.238784	1.645231	0.134332	-0.14731	0.93302
Voice and Accountability	-0.00443	0.014084	-0.31481	0.760085	-0.03629	0.027426
Political Stability	-0.00511	0.006609	-0.77389	0.458843	-0.02007	0.009837
Government Effectiveness	0.015458	0.003775	4.095391	0.002695	0.00692	0.023997
Regulatory Quality	-0.00307	0.00824	-0.37253	0.71812	-0.02171	0.015571
Rule of Law	-0.00497	0.01256	-0.39608	0.701275	-0.03339	0.023438
Control of Corruption	-0.00437	0.009312	-0.4691	0.650154	-0.02543	0.016697

From these regression results, the multiple r value, representing multiple correlation, is around .93, which indicates that the relationship between Zimbabwe's proportion of HIV/AIDS spending from government sources and the governance indicators is strong. The value for adjusted r squared value is around 0.78, indicating 78% of the variance in Zimbabwe's proportion of HIV/AIDS spending from government sources can be explained by the variation in governance indicators. For the individual predictor values, only the indicator of government effectiveness was statistically significant. For government effectiveness, an increase of 1 governance score is predicted to result in an increase of around 1.5% in the proportion of HIV/AIDS spending from government sources.

Namibia:

Namibia Multiple Regression Results:

Multiple R	R squared	Adj. R squared	Standard Dev.	Observations
0.956046648	0.914025193	0.856708654	0.039245682	16

					95% Confidence Interval	
Variable	*Coefficients*	*SE*	*t stat*	*p-value*	*Lower*	*Upper*
Intercept	2.131135	0.625961	3.404582	0.007816	0.715113	3.547157
Voice and Accountability	0.004582	0.006988	0.655713	0.528413	-0.01123	0.02039
Political Stability	-0.01699	0.005453	-3.11623	0.012394	-0.02933	-0.00466
Government Effectiveness	-0.0308	0.012605	-2.44318	0.03717	-0.05931	-0.00228
Regulatory Quality	0.021787	0.00925	2.355327	0.042929	0.000862	0.042712
Rule of Law	-0.02074	0.011893	-1.74398	0.115129	-0.04764	0.006163
Control of Corruption	0.022211	0.007215	3.078614	0.013169	0.00589	0.038531

From these regression results, the multiple r value, representing multiple correlation, is around .96, which indicates that the relationship between Namibia's proportion of HIV/AIDS spending from government sources and the governance indicators is strong. The value for adjusted r squared value is around 0.86, indicating 86% of the variance in Namibia's proportion of HIV/AIDS spending from government sources can be explained by the variation in governance indicators. For the individual predictor values, only the indicators of political stability, government effectiveness, regulatory quality, and control of corruption were statistically significant, so these are the values which will be further investigated. For political stability, an

increase of 1 governance score is predicted to result in a decrease of around 1.7% in the proportion of HIV/AIDS spending from government sources. For government effectiveness, an increase of 1 governance score is predicted to result in a decrease of around 3.1% in the proportion of HIV/AIDS spending from government sources. For regulatory quality, an increase of 1 governance score is predicted to result in an increase of around 2.1% in the proportion of HIV/AIDS spending from government sources. And for control of corruption, an increase of 1 governance score is predicted to result in an increase of around 2.2% in the proportion of HIV/AIDS spending from government sources.

Discussion

Now that the multiple regressions have been performed for each country, what can be gathered from these results? First the results of the multiple r, representing the correlation between the 6 governance indicators and self-sufficiency for each country. Throughout all the results multiple r was high for each country, with South Africa having a multiple r of .96, Zimbabwe having a multiple r of .93, and Namibia having a multiple r of .96. These results indicate a strong linear relationship between the WGI and self-sufficiency throughout all cases, with WGI able to predict self-sufficiency reliably. The results from adjusted R squared were also similar throughout cases, with a high % of variance in self sufficiency able to be explained by WGI. These results ultimately point towards the usefulness of the regression models themselves, using WGI as predictors of self-sufficiency.

On the subject of the individual WGI as predictors, it was political stability, regulatory quality, and control of corruption which were statistically significant for the South Africa and Namibia model only, and government effectiveness which was significant for the South Africa, Namibia, and Zimbabwe model, indicating these are the variables of importance in predicting self sufficiency. Meanwhile the WGI which were not statistically significant as predictors for any model include voice and accountability and rule of law. The reason for these indicators specifically not being statistically significant could be that these indicators are measuring very broad perceptions of society as a whole, while the other indicators are more so focused on the government and its abilities itself. It is also important to mention that the statistical significance of each indicator varies between models, so it is very possible that for other country models not examined here that they would have different indicators as statistically significant.

In addition, the size of coefficient values and whether they were positive or negative varied between cases and between coefficients. Specifically for political stability, increases were predicted to result in a slight decrease of self-sufficiency in South Africa and Namibia, for regulatory quality a decrease in self-sufficiency in South Africa but increase in Namibia, for control of corruption an increase in self-sufficiency in South Africa and Namibia, and for government effectiveness an increase in self-sufficiency for South Africa and Zimbabwe, but a decrease in Namibia. The possible reasons for the differing directions of coefficients between countries vary, but could be due to the fact that the proportion of spending from government sources and WGI scores do not vary greatly over time within each country case, staying relatively flat throughout 2002 to 2017.

In addition it is very much possible that while higher governance ability allows for countries to become more self-sufficient, it also garners more foreign aid due to their increased reputability. This ties back to a point made in the literature, as in Neel et al. (2024) and their interviews with key informants, specifically those involved in aid delivery, there is a general distrust among donor governments towards local governments primarily out of fear of inefficiency, mismanagement, or corruption.[12] If a government is seen as effective, it could be that both they are able to source for themselves a high level of domestic funding for HIV/AIDS programs, while also attracting donor governments due to their governance abilities, ultimately affecting the self-sufficiency score used by this thesis, being the percentage of all HIV/AIDS spending sourced from domestic government sources.

Overall the high correlation between self-sufficiency and WGI, along with certain individual indicators being significant throughout, indicate a strong relationship between both the WGI and self-sufficiency, along with the individual components of political stability, government

effectiveness, regulatory quality, and control of corruption. Looking back towards the literature, the high correlation results are not unexpected, given that the articles examined make frequent points towards the importance of strong government institutions in managing the HIV/AIDS epidemic, something the WGI would be indicating from the results of the multiple regression.

Looking back at each individual country case, it is apparent that from the HIV/AIDS incidence and prevalence data, the HIV/AIDS spending data, and the WGI scores, both South Africa and Namibia have had extremely similar responses to the HIV/AIDS epidemic, one that could be generally considered self-sufficient. Meanwhile Zimbabwe had a much radically different incidence and prevalence trajectory, lower HIV/AIDS spending and self-sufficiency, along with overall poorer scores in all the WGI, indicating a poor epidemic and unsustainable response. These results are especially important given the shared lower-middle income economy status both Namibia and Zimbabwe share, as they differ greatly in response, with Namibia much more like South Africa, a much wealthier nation, ultimately indicating that country wealth is not the final decider in whether a country can have a sustainable HIV/AIDS response.

The results of this thesis have implications for both international relations and public health, more specifically in their shared subject of DAH. More focus in foreign aid needs to be dedicated to strengthening country governance and capacity, given the high correlation between WGI and self-sufficiency. That way in the absence of foreign DAH, governments can still be expected to manage their HIV/AIDS epidemics suitably. In addition the recommendations made by the literature in improving the current foreign aid system need to be considered further by donor countries, as the alternative of simply ending aid altogether is not sensible.

Conclusion

So what conclusions can be drawn from this thesis and its findings? For one the United States has historically been a major contributor to the fight against HIV/AIDS globally, but given that commitment and aid from the United States is waning, reliant countries need to become self-sufficient in their handling of this HIV/AIDS epidemic. Ultimately foreign aid does not last forever, and eventually a country will need to make the transition towards domestic support, as aid dependency creates reliance on outside powers and can dramatically end (as seen by the US). Southern African countries are disproportionately affected by HIV/AIDS, with the region having similar historical backgrounds and epidemic trajectories.

From the multiple regressions performed on Southern African countries in this thesis, it is evident that Worldwide Governance Indicators can be used to predict country self-sufficiency, more specifically the governance indicators of political stability, regulatory quality, control of corruption, and government effectiveness, given these were the variables with consistent statistical significance. The results of the multiple regressions highlight the need for strong domestic government institutions, as the correlation between governance indicators and self-sufficiency make clear their connection.

Given the findings of this thesis, future policy there needs to be more emphasis on strengthening governance capabilities and domestic institutions more so than temporary support for disease surveillance or delivery of supplies. Both IHME data and other literature makes clear foreign aid cannot be expected to continue indefinitely, and given the correlation between governance indicators and self-sufficiency along with the stated importance of domestic institutions in the literature, strengthening government capabilities and governance ability both in general and in handling the HIV/AIDS pandemic is the clearest path forward.

Finally for future study, it is worth taking these methods of multiple regression with WGI and self-sufficiency, and create a model which uses all country recipients of HIV/AIDS support in a single period, which could create results which could be applied more universally. Ultimately this thesis brings credibility to the claim made in the introduction, that self-sufficiency is vital for the HIV/AIDS response in Southern Africa, that strong domestic institutions are vital for self-sufficiency, and that ultimately a country's self-sufficiency can be predicted with governance indicators.

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