HIV and Socioeconomic Vulnerability in Zimbabwe

Introduction

Zimbabwe is a country with a high prevalence of HIV/AIDS. Not only is the country showing high rates of HIV, but also there is awareness that HIV is becoming a disease of the poor. It is clear that the prevalence of the epidemic and people's capacity to cope with it vary between groups of different socioeconomic profiles. In that context, it is highly likely that people with low socioeconomic status, even with improved access to life-saving antiretroviral drugs, face the double burden of the disease and poverty.
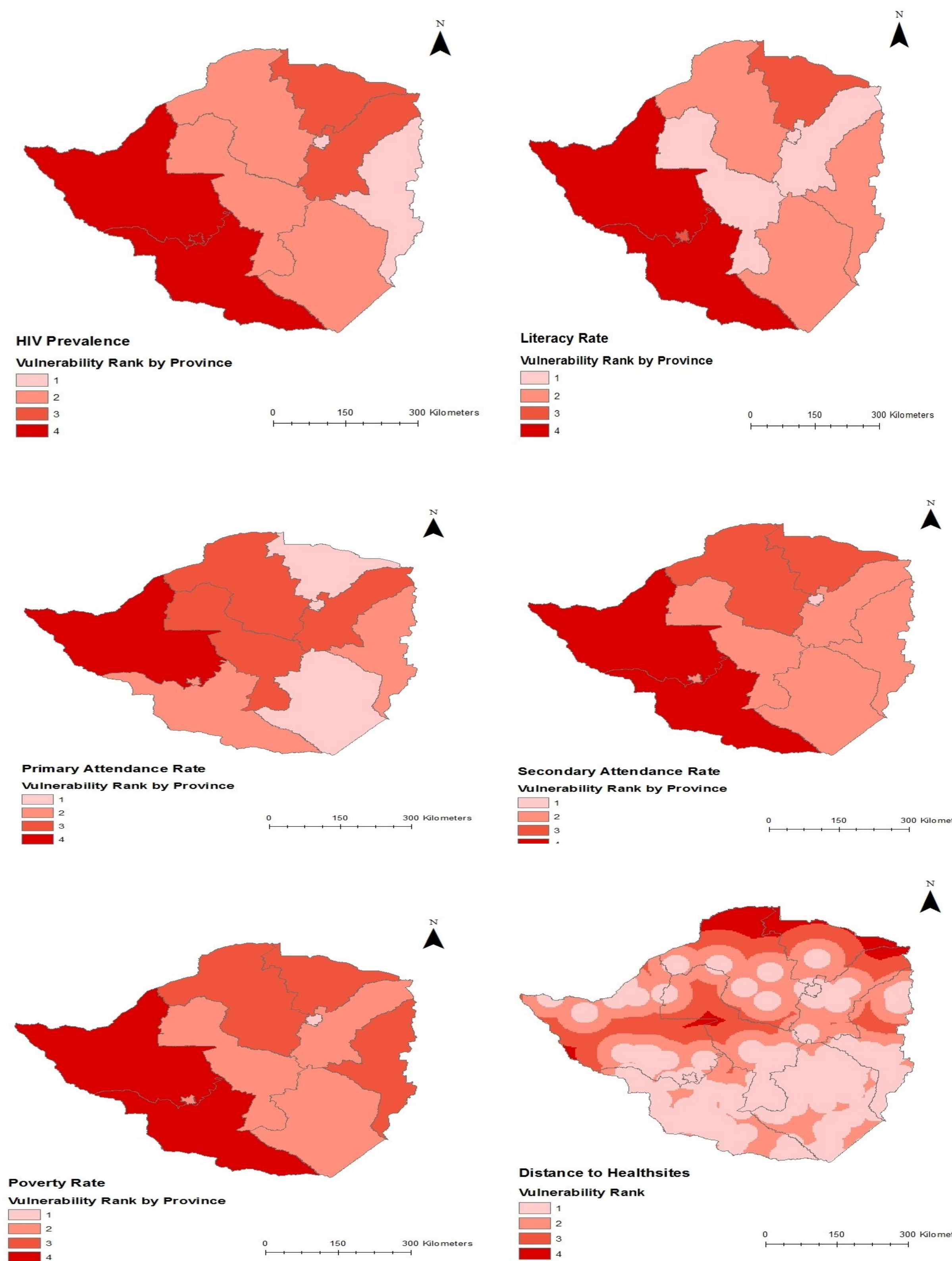
In this project, I will analyze where the most vulnerable populations live in Zimbabwe to help inform spatially-targeted HIV programs in the country. Specifically, the project intends to answer the following spatial questions: a) Where are clusters of high HIV prevalence in Zimbabwe? In other words, where are 'hotspots' and 'coldspots' of HIV prevalence? b) Where are they concentrated? c) Where are the provinces most vulnerable to HIV infection? d) Does the level of HIV infection have a positive correlation with socioeconomic vulnerabilities of Zimbabweans? e) Are the vulnerable areas in close proximity to health sites for access?
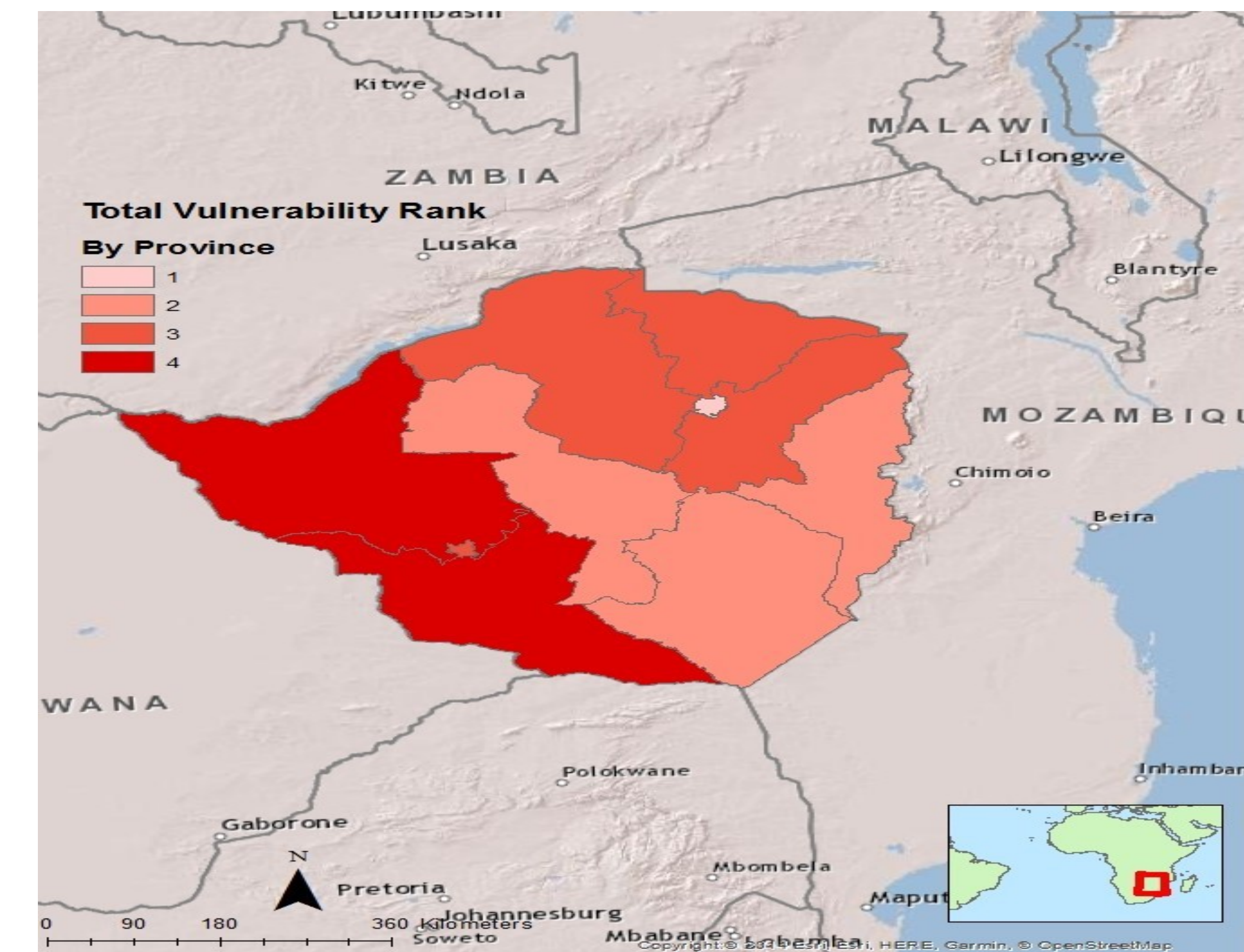
Methodology

To answer these spatial questions, I will take the following steps. Firstly, I will create a cumulative vulnerability score by province based on the following variables: "poverty rate," "literacy rate," "primary attendance rate," and "secondary attendance rate." The cumulative vulnerability score will serve as a proxy for vulnerability to HIV in Zimbabwe. Secondly, I will map HIV prevalence in 2016 at the province level in the country. Lastly, by using Euclidean distance to health sites and then ranking the distance raster using the raster reclassify tool, I will identify areas that are close to health sites. Most data for HIV prevalence and the vulnerability variables were tabular data, which I cleaned and joined to the administrative boundaries

HIV prevalence and vulnerabilities by province

HIV Prevalence Vulnerability Rank by Province

Literacy Rate Vulnerability Rank by Province

Primary Attendance Rate Vulnerability Rank by Province

Secondary Attendance Rate Vulnerability Rank by Province

Poverty Rate Vulnerability Rank by Province

Distance to Healthsites Vulnerability Rank

HIV Prevalence and Total Socioeconomic Vulnerability

- HIV Prevalence
- Total Vulnerability Scores

Total Vulnerability by Province

Total Vulnerability Rank By Province

Limitations

There are two main limitations. Firstly, as to measurement of distance, I used Euclidean distance from a residence to the closest health site. Although it is a good proxy for geographic access in the absence of better alternatives, there are limits in using Euclidean distance as no one travels in a straight line from place to place. Next, the vulnerability variables used in this project might not be well representative of the socioeconomic vulnerability in the country, which might be better captured by other HIV-exacerbating variables that are more relevant.

Conclusion

The composite vulnerability scores clearly show where the most vulnerable province is in Zimbabwe, bearing the double burden of HIV prevalence and low socioeconomic status. The results thus show which province is in need of better targeted HIV policy and programming attention.