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Social protection clusters in Sub-Saharan Africa

Abstract

Sub-Saharan Africa is expected to face the highest population growth rates leading up to 2060, yet this region faces uncertainties concerning how to cope with this demographic boom. Social protection has been a central theme in the political economic literature on advanced democracies, but little research has been focused on the current social protection systems in Sub-Saharan Africa. This study used a latent profile analysis to find four clusters of social protection regimes in the region. The clusters range from groups with strong social protection and positive welfare outcomes to a cluster with poor social protection and weak welfare outcomes.

Key words: social welfare policy, poverty/welfare reform, international comparisons, inclusion, access, and disparities; communities/neighbourhoods, informal sector employment evaluation research, quantitative research. Sub-Saharan Africa

Introduction

Sub-Saharan Africa (SSA), a region comprised of 48 countries, is undergoing significant demographic change. By 2060, the global population is expected to rise to 10 billion people, with 2.8 billion of these people living in Africa. While this number is predicted to be 5.2 billion people for Asia, Africa will be the region facing the highest increase in the global population due to presently high fertility rates and falling death rates (Canning et al., 2015).

Many economists are focused on how the region will take advantage of the potential demographic dividend, where a demographic shift across the region will provide African countries with a large working population with a low number of dependents (Drummond et al., 2014; Canning et al., 2015). While the quest to tackle this upcoming problem is being

undertaken by development economists, less emphasis has been placed on the current social protection systems in this region and their potential evolution.

Social protection and the welfare state have been central themes in the political economic literature for decades, notably after the seminal work by Esping-Andersen (1990) on the three typologies of welfare capitalism found in advanced democracies. This work has been extended to developing countries (Gough & Wood, 2004; Gough, 2013), but the focus, while it has briefly been extended to SSA, is largely placed at the global level, thus considers developing countries as a whole instead of at a regional level.

The predicted influx of people means that governments in SSA, many of which are fragile, will need to prepare for an increased capacity of protection systems and the inevitable strain on resources. On average, in the past decade the poverty gap in the region declined from 21.6 to 16.5%, life expectancies increased from 53.9 to 60.4 years, and literacy rates increased from 58.5 to 64.4%. Moreover, access to electricity increased by 12.3% and mobile phone subscribers (per 100 people) increased by 57.1 people¹. In order to continue this upward trend of well-being in the face of a demographic boom, it is necessary to understand the big picture of social protection in SSA: the diversity across the region, where social protection is high, and if this protection is leading to optimal welfare outcomes.

Understanding these features of Sub-Saharan African nations will shed light on how to handle the future demographic boom and which directions SSA countries are heading toward.

The recent uptake in government spending on new permanent and pilot social programmes suggests that the practice of social protection is being embedded into the framework of SSA institutions. In addition to the increase in social protection seen in SSA, encouraging advancements in technology show how these programmes can continue to grow.

¹ The data come from the World Bank Development Indicators. A decade is measured from 2006 to 2016, except for the poverty gap where it is measured from 2005 to 2013. The poverty gap is at US\$1.90 per day.

The region is a prime example of how new technologies are increasing access to services and driving down costs of this access. For example, South Africa listed the migration of social grant beneficiaries from cash payments to electronic payments as a priority for their national social protection system. Accessing these grants electronically decreases the costs of the social protection programmes and increases the coverage to beneficiaries. Already, over one half of the recipients access these benefits electronically, and the majority of these recipients are using a mobile phone to do so. This is a notable achievement because the social grant programme in South Africa is permanent and covers approximately 17.4 million beneficiaries (Pulver & Ratichek, 2011; SASSA, 2018). This shows how social protection can be extended and managed in a sustainable manner.

In order to understand the advancement of social protection at a regional level, this study used a latent profile analysis (LPA), or mixture modeling analysis, to divide 41 SSA² countries into different categories using the particular welfare mix and the welfare outcomes of each country. Social protection is defined in the study as policies and programmes implemented to reduce poverty and vulnerability by encouraging efficient labour markets, protecting individuals from risk, and building livelihood resilience in the face of shocks (Devereux & Sabates-Wheeler, 2004). The welfare mix is the combination of the sources of social protection received by an individual. This analysis found four different clusters which show the diversity of social protection in the region.

This article begins with a review of the current literature, then describes the LPA, discusses the results, and lastly provides a conclusion. The goals of this article are to evaluate the current state of social protection in SSA and examine the differences, if any, between the social protection systems in democratic countries and non-democratic (or less stable

² Only 41 out of the 48 SSA countries were used in the study due to data availability.

democratic) countries in SSA. Additionally, this paper attempts to formalize the various typologies of social protection in SSA within the political economic literature.

Literature review

The welfare state has played a central role in political economic analysis during the past few decades. Esping-Andersen (1990) constructively defined different welfare typologies, which sorted advanced democratic states into three ideal-types: liberal, corporatist, and social democratic.

While the nations within each category continue to evolve, perhaps even crossing over towards a different typology, the study of these welfare state groups has lead researchers to a greater understanding of social insurance and social protection institutional systems. When considering the welfare state of advanced democracies, it is essential to look at how the state interacts with the market and the household. However, when attempting to apply welfare state theories to developing countries, which may or may not be democratic, more elements must be considered.

The fundamental differences between advanced democracies and developing countries means a new typology (or typologies) must be defined for developing countries. Gough & Wood (2004) present the concept of an informal security regime (ISR). ISRs are compiled of informal labor that directly produce food and goods. This shows how livelihoods can replace the traditional formal labor market found in advanced democracies.

To complement the idea of ISRs, the authors highlight the ‘welfare mix’ concept, which includes all resources that may improve the welfare state in developing countries. In addition to the state, the market, and the resources of the household, when studying developing nations, one also must consider international organisations, non-governmental organisations, foreign aid, and remittances. All of these factors encompass the outside

resources an individual potentially benefits from. Thus, Gough and Wood (2004) devised a new way to view the welfare state in developing countries by introducing a typology that considers how developing countries differ from advanced democracies.

Using the concept of the welfare mix and the welfare outcomes resulting from this system, Gough (2004) conducted a cluster analysis on a sample of developing countries using determinants of the welfare mix and determinants of welfare outcomes. The welfare mix is composed of domestic public expenditure, comprised of public expenditure on education and health, domestic private health expenditure, and international spending, which includes aid and remittances. The welfare outcomes included are the human development index (HDI), poverty, literacy, and the Disability-Adjusted Life Expectancy (DALE), a measure of life expectancy. Using these variables provides a more direct measure of security in developing countries.

This analysis yielded four clusters, with three country outliers. The first cluster, actual or potential welfare state regimes, is composed of countries with strongly committed states and relatively high welfare outcomes. Kenya is the only country from SSA in cluster one. The second cluster, more effective informal security regimes, is defined by below-average state spending and low international flows, but with relatively positive welfare outcomes. No countries from SSA are found in this cluster. The third cluster, less effective informal security regimes, is made up of countries that have low levels of public spending and moderate international flows that lead to poor levels of welfare. Cameroon, Central African Republic, Madagascar, Tanzania, and Togo are found in this cluster. Finally, the fourth cluster, externally dependent insecurity regimes, is defined by countries dependent on international transfers, either aid or remittances, with very weak welfare outcomes. The majority of SSA countries are found here, including Benin, Burkina Faso, Burundi, Chad, Ethiopia, Ghana, Malawi, Mali, Mozambique, Senegal, and Uganda.

Gough (2013) repeated a different variation of this study using the variables public spending on education and health, social security contributions, immunisation against measles, secondary school enrollment of females, official aid, and remittances from overseas migrants for the welfare mix, and the variables life expectancy at birth and the illiteracy rate of the youth for welfare outcomes on 65 developing countries. The SSA countries included in this analysis were spread over five different clusters, showing an increased variety of social protection regimes in the region. Importantly, this study stresses that there should be a no 'one size model' applied for social protection systems in the developing world.

With a specific overview of Africa as a region, Bevan (2004) summarises and begins to analyse the concept of insecurity regimes (IRs) in Africa. IRs are characterised by states with no formal or informal security net, chronic conflict, and widespread suffering. Notably, Bevan included countries from North Africa in addition to countries from Sub-Saharan Africa, however, the bulk of the work focuses on SSA countries. Bevan used some descriptive statistics to aid in the argument, but did not complete a data analysis. One of the main conclusions from this work was that a 'quadrifurcated' welfare mix can be found in African countries and the current state of social protection and the welfare state in Africa is limited. A quadrifurcated system means that within one country, citizens face four different types of the welfare mix according to their socio-economic standing. According to this logic, African countries typically have an international elite relying on international markets to obtain positive outcomes, a middle class relying on a mixture of government and formal markets to obtain relatively positive outcomes, a section of the population depending on a variety of societal organisations and networks who obtain uncertain outcomes, and a fourth group of people who are excluded from the state that are faced with dreadful outcomes. Although the idea of a quadrifurcated welfare mix is observant, Bevan provided neither an

overall assessment of social protection in SSA, nor insight into potential SSA welfare typologies.

Fafchamps (2004) considered a different perspective. Rather than accepting the idea that Sub-Saharan African countries have informal labor markets, Fafchamps stated that it is the academics and researchers who are unable to understand how African markets act in practice. Due to this lack of comprehension, these scholars tend to call everything not following the rules of Western societies 'informal'. More strikingly, Fafchamps (2004) stated that many SSA countries may be even more market oriented than advanced countries. The logic behind this statement comes from the idea that in advanced Western economies, the bulk of transactions are done under the umbrella of a large firm or government. Contrary to this, SSA is comprised of many individual entrepreneurs conducting transactions that are determined by the present economic environment.

Due to this un-institutionalised concept of exchange in SSA, an entire ecosystem has emerged to reinforce the way of the African market place and trade. Lacking sufficient government regulators and the option of taking a business partner to court (as it is expensive and inefficient), SSA traders have adopted a flexible exchange system based on social networks to build trust between buyer and seller. Instead of having a formalised market with formalised institutions, entrepreneurs in SSA have created informal solutions.

Rodrik (2008) took this idea of informal solutions to elaborate on the formation of 'second-best' institutions. As developing countries face more institutional limitations, the development and resulting types of national institutions will be different than the ones in advanced nations. There is a strong bias toward 'best-practice' institutions in the developed world, notably by those running international organisations that provide advice and aid to developing countries. However, these best-practice institutions often result in sub-optimal outcomes and unintended circumstances in developing countries, as the realities of these

countries differ significantly from advanced democracies. Creating and sustaining second-best institutions combat sub-optimal outcomes and help create a productive system in developing countries. Thus, rather than trying to define developing economies within the existing welfare state literature, the second-best institution solution creates a new space entirely for explaining the emergence of different types of social protection systems in Sub-Saharan Africa.

At this point, the institutionalist literature has advanced greatly on the subject of social protection in developing countries. The idea of non-state sources of welfare found in the concept of the welfare mix overlap with the ideas presented by Fafchamps (2004) and Rodrik (2008) about how citizens of developing countries find other institutions, notably second-best institutions, to suit their needs. These concepts together show that a different way of thinking about social protection in developing states, especially in SSA, has emerged. However, apart from the aforementioned work by Bevan (2004) and Fafchamps (2004), little research has expanded to Sub-Saharan Africa.

Moreover, the work done by Bevan relied on statistics from the period 1975 to 1998, and did not complete any level of data analysis on the region. This article intends to further investigate social protection in SSA to first evaluate the claims of the welfare state clusters previously noted, and second to evaluate social protection in SSA.

Analysis

Updating the picture on social protection in Sub-Saharan Africa

As it stands currently, the work done on African social protection and welfare regimes is based on outdated data and anecdotes. While it is undeniable that the economic, political, and social histories of these countries have influenced the current political economic environment and welfare regime space today, relying on data coming from a vastly different political era is

not appropriate for making a modern analysis of social protection in SSA. While the date of the effective constitution is not the perfect proxy for measuring stability, only seven countries out of 41 used in the LPA have effective constitution dates before 1990, excluding revised constitutions. These recent constitution dates can be likened to a pattern of countries gaining independence and then going through a post-colonial instability phase before reaching national stability. A large portion of the literature focuses on these periods of instability, while the conclusions about social protection in SSA should rather come from a more recent era of government consolidation.

The various pieces of literature on the topic of social protection in developing countries, specifically in SSA, has emerged as many fractured pictures. While there are some similarities between the different findings, notably the clustering of Southern African countries³, which may be found simply due to regional transitivity, discrepancies stand. Even more importantly, as social protection in SSA is still evolving, there is no confirmation that these stated categories are indeed set in a group or within a specific trajectory. Thus, to confirm the standing results, as well as the path development trajectories in the previous work on social protection, it is necessary to pursue an updated analysis.

Latent profile analysis

A latent profile analysis, also known as mixture modeling, was performed in order to evaluate social protection in Sub-Saharan Africa. LPA is a statistical technique that classifies individuals, or in the case of this paper, countries, into latent classes or types. Oberski (2016, p. 1) explained the mixture modeling technique as ‘the art of unscrambling eggs: it recovers

³ Gough (2013) found that Botswana, Namibia, South Africa, and Zimbabwe all fell into one cluster, cluster D, in 2000. Barrientos, et al. (2010) also found a clustering of Southern African countries in their Southern African Model.

hidden groups from observed data'. LPA is often used in sociology, but has started to become more widespread in economics. For example, Jang and Hitchcock (2011) employed LPA to test the validity of the majority-consensus democracy classification by Lijphart (1999), using the original data from 36 countries, and Amable et al. (2012) analysed social blocs and the neo-liberal strategies of France and Italy using electoral surveys.

The data, described below, used in this LPA, are inspired by the work by Gough (2004), who used cluster analysis to map welfare regimes in the developing countries. The goal of the LPA in the present study was to find clusters within SSA using social protection variables, a civil society measure, welfare outcome variables, and the level of democracy. The LPA uses cross-sectional data. As the data required for this analysis are not consistently available across time, this study takes with data point from the most recent year available.

The social protection variables included government spending on education (as a % of GDP), government spending on health (as a % of GDP), and private spending on health (as a % of GDP). These variables together constitute the overall level of domestic spending. Following the setup by Gough (2004), in order to account for the international component of the welfare mix, the LPA included net transfers from abroad (as a % of GDP), which are likened to remittances, and international aid (as a % of GDP). These two variables compose the overall level of international spending for a country. The social protection variables all came from the World Bank database from the most recent year between 2005 and 2012.

While Gough (2004) considered aid and remittances as equals contributing to the international aspect of the welfare mix, this article stresses that they may have different implications for welfare outcomes. Remittances are the net transfers of income from non-

residents of a country to a resident of the respective country⁴, which typically happens when a family member moves abroad to find a better job, and then sends money back home to his or her family. Aid, on the other hand, is from foreign governments or official donors, given to domestic governments. However, as summarised in Fukuyama (2014), aid from donors, such as the World Bank, may end up in the hands of the officials in the receiving governments, and not transferred on to the citizens of the country. While this situation does not represent the general practice of aid to developing countries, the receiving government may, in certain circumstances, use aid corruptly.

To expand from the previous clustering work completed on developing countries, this analysis also included a core civil society index (CCSI)⁵ to measure the strength of civil society in a country. This is a new addition to the literature, coming from the Varieties of Democracy database. The civil society index measures the robustness of civil society, and the data are of the most recent years between 2012 and 2014 (Coppedge, 2016a).

In addition to the various types of social protection, which constitute the welfare mix, welfare outcomes were also included in the analysis. These variables include the Human Development Index, literacy rates among adults, poverty, as measured by the poverty gap at \$1.90 per day, and life expectancy. The HDI comes from the United Nations Development Programme (UNDP), while the literacy rate, poverty gap, and life expectancy come from the World Bank. The HDI data come from 2015 and the World Bank data come the most recent

⁴ Net current transfers from abroad is equal to the unrequited transfers of income from nonresidents to residents minus the unrequited transfers from residents to nonresidents. Data are in current U.S. dollars (World Bank, 2016).

⁵ The CCSI measures the robustness of civil society within a country (Coppedge, 2016b). The scope of civil society organisations extends to interest groups, labour unions, religiously inspired organisations engaged in civil or political activities, social movements, professional associations, and classic nongovernmental organisations (NGOs). Civil society organisations does not include businesses, political parties, government agencies, or religious organisations primarily focused on spiritual practices (Nur & Andersson, 2016).

year between 2005 and 2015⁶. To measure the level of democracy, the Polity IV index was used. The Polity IV Index uses a polity score that determines regime authority based on a scale ranging from -10 to +10 that is broken down into three categories: autocracies, anocracies, and democracies. According to the Polity IV index, a country is considered as democratic if it scores a six or higher.

Results

Four clusters were found from the LPA. The mean values for each respective variable categorised the clusters. The means for the variables can be compared against the means found in other clusters, thus giving an indication of the overall strength or weakness of a variable. To simplify the interpretation of these findings, the sample mean was subtracted from each cluster mean. This shows which variables were above average for a cluster and which variables were below average for a cluster. For example, in cluster one, the average amount of government expenditure on education was 6.18% of GDP, and the overall average is 4.61%. Thus, the number used for comparison was 1.56, allowing an easy interpretation that cluster one has an above average level of government expenditure on education. Once this is done for each variable, a general picture appears for the respective clusters. The modified means, shown in Table 1, are compiled using original data; however, in Figure 1 the standardised data for a clearer graphical comparison is used. The methodology behind the LPA and choosing the number of clusters is described in the Appendix. More details on the method of standardisation used can also be found in the Appendix.

Table 1 and Figure 1 to feature here

⁶ The data for the poverty gap for the Gambia come from 2003. This is an exception to the time frame noted in the article.

Cluster one stands out in this analysis due to the above average levels of domestic government spending. Both public expenditures on education and health were above average, with public education spending a full point and a half over the average level for the SSA region. While the public expenditures were high, private health expenditures were below average, and moreover the first cluster displayed the lowest averages for the region. Remittances and aid were both below average, and cluster one received the lowest international aid out of the four clusters. Cluster one had high levels of civil society, with an average score of 0.9 out of 1.0.

The above average domestic government spending, and low reliance on both private domestic spending and international spending, paired with a strong civil society, yielded the strong welfare outcomes in the SSA region. The HDI was above average, with an average score of 0.65. This score places cluster one in the ‘medium human development’ range (HDR UNDP, 2015). Cluster one also has the highest literacy rates, the lowest levels of poverty, and the highest life expectancy in the region. The level of democracy is the final distinguishing feature for cluster one. This group of countries scores the highest level of democracy in the region, with Botswana, Cabo Verde, Ghana, Kenya, Mauritius, Namibia, and South Africa labeled as democracies according to the Polity IV index. Gabon is the only country not considered as a democracy in cluster one. Together, this cluster of eight countries is characterised as having above average domestic expenditures and a strong civil society⁷

⁷ In cluster one the correlation between Polity IV and the CCSI is quite high, at 0.7028, suggesting that these two variables may be measuring the same thing (political empowerment and freedoms). However, as each cluster has its own set of means and covariates, the correlation differs across the four clusters. The average correlation across the four clusters is 0.5784, and while it is still high, there is a differentiation between the democracy index and the civil society index, such that maintaining both variables in this study serves a useful purpose. The two variables are indeed correlated, they are measuring different phenomena in developing countries.

that yields positive welfare outcomes without a reliance on international expenditures or private health expenditure.

Cluster two, which includes 13 countries, has below average domestic spending on public education, public health, and private health, and below average international spending. Cluster two has the lowest average levels of civil society out of the four found in this study. The HDI for cluster two is below average, but it is still the second highest in the region. Poverty is below average, and the life expectancy is average for the region. The literacy rate is slightly above average. This cluster has the worst democracy scores for the region.

Cluster two thus classifies a group of countries with low domestic and international spending, but with moderate welfare outcomes. This group of countries accomplishes this despite low levels of civil society and democracy.

Cluster three has above average levels of government education expenditure, but low levels of public health expenditure. Taken together, cluster three has slightly below average levels of government expenditure. Private health expenditure is also below average. Remittances are below average for cluster three, and the level of international aid is average for the region. When aid and remittances are combined, cluster three has below average levels of international expenditure. Cluster two and cluster three have similar trends in their spending in that both clusters have below average levels of government spending, private health spending, and international spending. However, the expenditure levels, both domestic and international, are lower for cluster two. Thus, cluster three is characterised as having moderate levels of domestic and international spending for the Sub-Saharan African region.

However, the moderate levels of spending do not translate into optimal welfare outcomes, indicating that cluster three has moderate levels of spending leading to poor outcomes. Cluster three has the lowest average for human development, as determined by the HDI. Further, the literacy levels in cluster three are the lowest for the SSA region and the life

expectancy is slightly below average. The poverty gap is slightly below the average, but the average poverty gap for cluster three rests at 13.19%.

The level of democracy is above average, with four out of seven countries scoring a six or higher on the Polity IV index. Also, the civil society index is above average for the region. The combination of democratic rule and a strong civil society does not seem to promote optimal welfare outcomes for cluster three.

Interestingly, the countries in cluster three also resemble geographical and historical clusters, with all seven of the countries belonging to ex-French West African colonies. The underlying similarities for this group of countries may, therefore, extend beyond the welfare mix and welfare outcome variables used in this study.

Lastly, cluster four, which includes 13 countries, has above average domestic government expenditures and domestic private health expenditures. The levels of private health spending are the highest in the region. The international expenditure is also high, with leading levels of aid and remittances in the region. The CCSI is below average, but democracy is slightly above average, with eight out of the 13 countries in the cluster labeled as democracies according to the Polity IV index.

The resulting welfare outcomes from this particular welfare mix are poor. The literacy levels are above average, but cluster four faces the worst levels of poverty in the region, as well as the lowest life expectancy. Also, the HDI is below average.

The third cluster has moderate levels of spending and poor outcomes, while the fourth cluster has high levels of spending, notably international spending, and poor outcomes. Besides the level of spending, which is the defining factor between cluster three and four, these countries have similar levels of democracy, and similar levels of civil society strength, with cluster four having a lower CCSI, but not a drastically low level for the regional average.

The main findings from the LPA show that democracy has an ambiguous overall effect on social protection and welfare outcomes. The best-performing cluster, cluster one, has the highest levels of democracy, and indeed is comprised of democratic countries barring one country. However, the clusters three and four have above average levels of democracy for the entire SSA region, but poor welfare outcomes and cluster two has moderate welfare outcomes but is not democratic. Thus, the best performing group of countries in terms of welfare state outcomes also happens to be the most democratic, but this relation does not follow in a linear path. However, it is shown that democracy does enter into the welfare mix equation for achieving optimal welfare outcomes.

Another key finding concerns civil society. The high levels of civil society aids in creating favorable welfare outcomes for cluster one. This finding directly contrasts the ideas presented on the role of community and civil society in SSA by Bevan (2004), who stated that civil society is not an important feature in African nations. Specifically, Bevan stated that communities in SSA are ‘probably as much involved in the generation of insecurity and illfare as they are in rectifying it’ (Bevan, 2004, p. 99). While it is clear that the CCSI plays a favourable role in generating positive outcomes for cluster one, there is no evidence linking communities to higher insecurity found in this analysis for the other clusters either.

The last main finding comes from the lack of evidence to support the quadrifurcated welfare system. The idea behind the quadrifurcated system is that four different socio-economic groups comprise the national welfare space. First, the best performing cluster has higher public spending on health than private spending. If a quadrifurcated system was in place, countries should have high levels of private health spending, as the international elite are said to rely on international markets⁸ for their favorable outcomes and the middle class

⁸ The data do not specify if the payments made internationally would be included in the private health variable, but this variable also includes payments on private health insurance, which may fall into this category.

rely on a mix of government and private national markets for their favorable outcomes. This reliance on private spending would be reflected by high private health spending, which is not found from this analysis. The lack of private spending, conversely, could be due to the lack of available resources of individuals and households, but if this is the case, this still does not constitute a quadrifurcated system, and does not explain the relatively good welfare outcomes of cluster one.

Additionally, the countries with the highest private spending are Sierra Leone and Liberia, with private spending at 9.2 and 6.9%, respectively, of GDP. In Sierra Leone, high levels of donor spending characterise the health system. When private citizens do pay for their health care without the help from donor organisations, it is largely in the form of community-pooled loans, meaning that groups of people contribute their money together in order to cover out of pocket expenses needed by one of the community members ('Analytical summary: Health financing system'). In Liberia, a country that recently had its entire health care system destroyed by civil war, the private health care system also does not cater to an elite population. Rather, the need to quickly and efficiently re-built the health care system led to the creation of the National Health Policy (NHP) in 2007. The goal of the NHP is to deliver basic health to all Liberians, free of charge. In order to do this, the NHP harnessed all means possible, and thus engaged the public sector, the private sector, NGOs, and international organisations. While the government and NGOs in Liberia attempt to provide free service to Liberians, the private sector still plays an important role due to the lack of infrastructure. In some instances, the poorest Liberians thus have no option other than the private sector to obtain health services (Lee, et al, 2011). Specifically, Lee, et al. (2011)

Regardless, if there was a strong enough middle class using private domestic health services (large enough to make up a socio-economic group within the quadrifurcated system), this would drive private health spending up.

found that the poorest 20% of Liberians spend up to 17% of their yearly income on private health services.

After unpacking the private health care statistics, no evidence of an elite population using high quality private services emerges from the countries with the highest levels of private spending. Instead, it seems rather that two countries, recently recovering from civil wars, are using all means possible to spread access to health care across their countries. This idea is backed up by the relatively moderate Gini coefficients measuring inequality in Sierra Leone and Liberia, which are 34.0 and 36.5, respectively.

Conclusion

This study evaluated the current literature on social protection in Sub-Saharan Africa, and then extended it by using updated data, a latent profile analysis, and case studies. The results indicate that four different clusters can currently be found in SSA. These clusters are defined by the welfare mix of a nation and by its welfare outcomes. The welfare mix includes public expenditure on education and health, private expenditure on health, international aid receipts, international remittances, and civil society strength. The HDI, literacy levels, poverty levels, and life expectancy measure the welfare outcomes. The LPA also includes a democracy level that indicates the overall freedoms of a country in order to witness how the level of democracy fits into the picture on social protection systems in SSA.

Cluster one can be characterised as a group of democratic countries, with one exception, with above average domestic expenditures and a strong civil society leading to positive welfare outcomes with minimal international expenditures or private health expenditure. Cluster two is comprised of a group of undemocratic countries with low domestic and international expenditure, but that still achieves moderate welfare outcomes. Cluster three is formed by a group of states with above average levels of democracy and

moderate levels of domestic and international spending for the Sub-Saharan African region, yet poor welfare outcomes. Lastly, cluster four is characterised by a moderately democratic group of countries with high levels of spending, especially international spending, and poor outcomes.

This study neglected to assign certain labels to these clusters, and instead has relied solely on descriptions to explain each profile. This tactic was chosen because, while it is clear that some countries have adequate social protection systems that lead to positive welfare outcomes, these countries are still building their welfare regimes. Due to this, these clusters may change over time as trials become permanent programmes, and permanent programmes become institutionalised. Instead, what this article emphasises is that diverse welfare mixes and resulting welfare outcomes can be found in SSA. Notably, the countries that have strong government expenditures, a strong civil society, and little reliance on international institutions have the highest welfare outcomes.

The LPA showed that democracy is a key component for cluster one, but provides ambiguous results with respect to the other clusters. Other findings from this study include the lack of support for the quadrifurcated welfare theory, which states that four different welfare systems exist for different socio-economic groups within one country. The results also suggest that civil society positively influences welfare outcomes in a country. This component of the welfare mix has been traditionally dismissed as an important part of the overall welfare system in SSA.

This study shows that the unique social protection mixes seen in the region have become a permanent feature of a group of SSA nations. This can be seen in the positive welfare outcomes for these countries. Governments, with the important help of civil society, have succeeded in obtaining relatively positive welfare outcomes in a number of SSA countries. However, despite these optimistic findings for some SSA countries, notably those

found in cluster one, the majority of the SSA region are facing inadequate social protection and poor welfare outcomes. Even though many of these Africa countries share similar characteristics, it is critical that these nations are not grouped together before careful analytical thought, as it is clear that differences between SSA countries exist.

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Appendix:

Table A12 shows the data used in this study and the cluster membership of each country.

Table A1 to feature here

The latent profile analysis was computed using the *mclust* package in R. *Mclust* is a contributed package to R that is based on finite normal mixture modeling. It is used for model-based clustering, classification, and density estimation. Each variable used in the LPA was first standardised by dividing by its respective range. This standardisation technique adopted in this study follows the results of Milligan and Cooper (1988). Milligan and Cooper, after comparing various standardisation methods, concluded that the standardisation method of dividing a variable by its range leads to the most optimal recovery of the underlying cluster structure.

This study replaced the standard maximum likelihood estimation (MLE) technique by a maximum a posteriori (MAP) estimate due to the potential presences of singularities in the analysis. Following Fraley and Raftery (2007), the presence of singularities of some starting values, some models, and some numbers of components may lead the MLE technique to fail. The MAP estimate avoids the problems of these singularities if present within the analysis by including a prior estimate on the parameters of the model, and provides comparable results to MLE if singularities are not an issue.

The methodology for the selection of the number of clusters is quite straightforward when using the R programming package, *mclust*. The *mclust()* function in R chooses the

optimal number of clusters, while performing the cluster analysis, by selecting the highest Bayesian Information Criteria (BIC) value from a variety of different models and clusters.

Figure A1 (Appendix) shows the BIC values from a one-cluster model to a nine-cluster model, and Figure A2 shows the BIC values from a one-cluster model to a nine-cluster model using the standardised values of the variables and `priorControl()`, which controls for the potential singularities. The selected number of clusters for this study is shown by the highest BIC from Figure A2, which is a four-cluster ‘VII’, or ‘spherical, unequal volume’, model.

Figures A1 and A2 to feature here