Understanding Inclusive Growth in Africa's Fragile States: Any Role for Fragility and Financial Inequalities?*

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Abstract

This study conducts an empirical analysis of the effects of fragility and financial inequalities on inclusive growth of African countries. In order to achieve this, we developed a unified measure of inclusive growth which is decomposed into growth and distributional components which capture the 2 dimensions of inclusive growth: income growth and income distribution. We explicitly captured the fragile status of African countries by using an index of fragility and also measured financial inequalities using new data on financial inclusion. The results of econometric estimations showed that fragility has had a negative, though statistically weak effect on inclusive growth. The results also showed that financial inequalities matter for inclusive growth, as we saw that financial inclusion positively affects inclusive growth while private credit negatively affects inclusive growth. This suggests that private credit is skewed in favour of the rich, showing that private credit is a form of financial inequality.

Keywords: fragile states, financial inclusion, inclusive growth

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1. Introduction

The concept of fragile states has been at the forefront of the development agenda for the past decade and half. Early attention on failing or fragile states came from donor agencies with each agency adopting its own definition of the concept. In recent times, fragile states have received a lot of attention because of their possible 'spillover effects' (Rice, 2005). It has been advanced that failing states have become the single most important problem for international order (Fukuyama, 2004). Since the September 11, 2001 attacks, U.S. policy makers have shifted their thoughts about these countries from a humanitarian angle to a more strategic focus, as such countries pose threats from a wide spectrum of angles, such as terrorism, international crime, mass migration, humanitarian catastrophes, and regional instability (Patrick, 2006). The discussion on failed or fragile states were initially focused on conflict and post conflict economies (Collier and Hoeffler, 1998). However, the concept of fragility has broadened, as all states are fragile in some respects and states move in and out of fragility (Moreno Torres and Anderson, 2004).

There is no universally agreed definition of fragility. Indeed, the very idea of classifying countries as failing or fragile has often been queried, and has been seen as politically sensitive, suspicious, and capable of damaging relationships with governments (Stewart and Brown, 2010). Patrick (2006) identifies 4 realms for assessing state fragility: security, political, economic and social welfare realms. Fragility implies failure, or high risk of failing along 3 dimensions: authority failures, socioeconomic entitlement failures, and legitimacy failures (Stewart and Brown, 2010).

Fragility or fragile situations can be said to be periods when states or institutions lack the capacity, accountability, or legitimacy to mediate relations between citizen groups and between citizens and the state, making them vulnerable to violence (World Bank, 2011, p.xvi). Fragility refers to the situation where a state has weak capacity to carry out basic governance functions and lacks the ability to develop mutually constructive relations with society (Jones, 2013, p.1). A state is fragile when it is unable to provide for basic human security or create the public goods and conditions needed for gains in human development. Fragility is low capacity and poor state performance with respect to security and development (Cilliers and Sisk, 2013, p.7).

States classified as fragile are more vulnerable to internal and external shocks such as economic crises or natural disasters. When compared to other low income countries, the group of fragile

states are characterised by slower economic growth, higher incidences of poverty, and persistent inequality (Jones, 2013). Citizens of weak and failing states will experience higher levels of poverty, malnourishment, lower life expectancy, higher gender discrimination, lower access to basic infrastructural and social-welfare facilities (Patrick, 2006). Their abysmal rates of economic growth and inequality means that fragile states have not been able to achieve inclusive growth, and such a situation leads to increased unemployment and marginalisation of many groups in society. This inability to achieve inclusive growth in fragile states has adverse consequences for social and political stability, and ensures a vicious cycle of poverty, inequality and slow growth (Jones, 2013, p.2). Fragile states have a higher probability of violence and humanitarian crises, and are 15 times more prone to civil war than OECD countries (Collier and Hoeffler, 2004).

Africa has the largest number/proportion of fragile states in the world, with 4 out of every 5 fragile states around the world found in Africa (Jones, 2013). 17 of Africa's 54 countries are classified as fragile, implying that about a third of African countries are fragile (Jones, 2013). Per capita incomes of SSA's fragile states have lagged behind those of their non-fragile counterparts since the late 1990s, and such gaps have widened over time (Andrimihaja et al., 2011). Such countries are caught in the fragility trap of low growth and poor governance which are brought about by political instability and violence, insecure property rights, and corruption (Andrimihaja et al., 2011). Getting out of this fragility trap requires countries to strengthen institutions and stem violence and conflict. Also, such countries need to achieve faster economic growth and reduce poverty and inequality, that is, inclusive growth. Thus, fragility and inclusive growth are key issues on the agenda for these African countries.

Inequality has been identified as an important cause of violent conflict and fragility, and there are vertical and horizontal inequalities (Stewart, 2010). While vertical inequality refers to inequality among individuals or households, horizontal inequalities are inequalities among groups (Stewart, 2010). Inequalities can have economic, social, political or cultural dimensions, and irrespective of the dimension it takes, inequality makes some people better off than others, and this leads to unequal distribution of resources. Consequently, growth is not inclusive and the benefits of growth will only be enjoyed by some sections of the population. In such situations where fragility exists, assessment of economic performance needs to go beyond the broad measure of economic growth to more inclusive measures of growth.

In recent times, there has been a shift from mere focus on economic growth to attention placed on inclusive growth. This has come with the realisation that growth needs to be inclusive before it can be sustainable and effective in reducing poverty (Berg and Ostry, 2011). Thus, inclusive growth refers to the pace and distribution of economic growth, and thus, incorporates growth and equity in a unified framework (Anand et al., 2013a). Inclusive growth is growth that not only creates new economic opportunities but also one that ensures equal access to the opportunities created for all segments of society, particularly for the poor (Ali and Son, 2007). There have been only few cases where inclusive growth has been achieved and this can be attributed to many instances of slow growth in some countries, and rising inequality in others (Anand et al., 2013b). This has been compounded by the fact that a number of important growth determinants (education, openness, financial depth) have been associated with higher inequality (Anand et al., 2013b, p.4). Consequently, sustainable growth strategies must necessarily comprise equity and equality of opportunity (Commission on Growth and Development, 2008).

Based on the foregoing, inclusive growth needs to be stimulated in fragile countries and in order to do this, inequalities have to be reduced. One important dimension of inequality in African countries is financial inequality, which is unequal access to and ownership of financial assets. The ability of poor households – who constitute a high proportion of the population in fragile states - to access and use financial services goes a long way in stimulating economic growth and reducing income inequality and poverty (GFDR, 2014). Thus, reducing or eliminating financial inequality through inclusive finance can play a big role in the drive to stimulate inclusive growth in Africa's fragile states.

Following from the above, this study conducts an empirical investigation of how fragility and financial inequalities affect inclusive growth in African countries. We make 3 contributions to existing research. Firstly, rather than considering economic growth, we examine inclusive growth. We develop a unified measure of inclusive growth which integrates income growth and income distribution into one single measure. Thus, we are able to adequately assess not just increased opportunities arising from economic growth, but we are also able to see how those new opportunities are distributed to all segments of the population. Secondly, by focusing on Africa's fragile states, this study examines possible ways in which one of Africa's biggest challenges – inequality and fragility – can be surmounted. Thirdly, rather than focusing on financial development, we measure financial inequality using new user-based individual-level

data on financial inclusion. The individual-level nature of the data which is from the perspective of users of financial services allows us to disaggregate financial inclusion by key respondent characteristics. The results will provide insight to, and prove useful in designing policies aimed at promoting inclusive growth in Africa's fragile states.

2. Literature Review

Theoretical expositions of how financial inequality affects growth and inequality have typically been done in the context of examining how financial exclusion and lack of access to finance can lead to poverty traps and inequality (GFDR, 2014). A number of studies have developed models where financial exclusion shapes the dynastic transmission of wealth, human capital and investment opportunities, which in turn determine the persistence of inequality (Demirguc-Kunt and Levine, 2009). Financial exclusion shapes the persistence of inequality through human capital, savings and investment opportunities.

Under Becker and Tomes (1979, 1986), parents investment in human capital of their children determines the persistence of relative incomes across generations. It is socially efficient for children with high ability endowments to receive the most schooling. Also, the children of high ability parents tend to have greater abilities than the children of low-ability parents, but the relative difference in ability tends to shrink from generation to generation. With perfect credit markets, high ability people get schooling irrespective of parental wealth. Human capital is a function of ability only and the economy attains the socially efficient allocation of schooling. That is, an individual's economic opportunities are determined solely by her abilities, not by parental wealth. Since ability regresses to the mean and individuals can borrow to finance education, initial dynastic wealth differences tend not to persist. However, imperfect credit markets increase the persistence of cross-dynasty differences in human capital, with corresponding implications for the persistence of cross-dynastic differences in income and wealth. Even if ability tends to regress toward the mean, there will be a slower reduction in cross-dynasty human capital differences if access to schooling is constrained by parental wealth. Children from rich parents with comparatively low abilities receive more schooling than comparatively high-ability children from poor families. Thus, financial market imperfections can exert a profound impact on economic welfare by hindering the ability of poor families to develop the human capital of their children. This increases the cross-dynasty

persistence of relative incomes; and reduces the economic opportunities of individuals born into poor dynasties.

Galor and Zeira's (1993) model shows that even if there are identical innate abilities across dynasties, imperfect financial markets can still increase cross-dynastic relative income differences. With imperfect credit markets and a fixed cost associated with schooling, it is only the rich who can self-finance investment in human capital. Therefore, imperfect credit markets disproportionately impede the accumulation of human capital by the poor. Consequently, cross-dynastic relative income differences arise out of financial market imperfections. Aggregate levels of human capital accumulation and growth are determined by the interaction of financial market imperfections and the initial distribution of wealth. If the distribution of initial wealth is highly skewed, then few people accumulate human capital, and this reduces aggregate efficiency, slows growth, and cross-dynasty inequality is strengthened. In the presence of financial market frictions, the initial distribution of wealth is crucial for both long-run growth and the persistence of inequality. As the financial system improves, the poor can borrow to invest in human capital, accelerating aggregate growth and reducing income inequality.

Financial inclusion can also affect the ability of individuals to become entrepreneurs and this affects income distribution and inequality (Piketty, 1997, 2000; Banerjee and Newman, 1993). With imperfect financial markets, and faced with the fact that there are fixed costs associated with becoming an entrepreneur, the initial distribution of wealth dictates which people can obtain external finance and set up businesses. Thus, the initial distribution of wealth influences total output and the future distribution of income. Financial market imperfections perpetuate barriers to becoming an entrepreneur, thereby increasing poverty and leading to higher income inequality. Low wealth prohibits entrepreneurship, thereby perpetuating the dynasty's relatively low income level, and reducing overall level of economic efficiency. If everyone is very poor, there is only subsistence self-employment because nobody can afford to be an entrepreneur, so that there is a low level of inequality and slow growth. Furthermore, with some initial inequality, the rich become entrepreneurs, hire workers, and obtain high returns, so that growth is accompanied by widening income differences. Well-functioning financial markets, however, diminish the link between investment in a project and the wealth of the project owner (Banerjee and Newman, 1993).

The specific channels through which financial inclusion can affect inclusive growth depends on a number of factors, including the level of financial development, infrastructure, location (rural or urban dwellers), documentation, and fees. The channels through which financial inclusion benefits households can be organised along 5 dimensions (Accion International, 2009; IFC, 2011).

Firstly, financial inclusion helps in facilitating economic transactions. Households residing especially in rural areas or areas of conflict are faced with lack of payment services. In many cases, they have to travel long distances to access such services. This imposes costs in a myriad of ways: travelling costs, time costs; and there are also security concerns. In many cases, such costs and security issues discourage such households from accessing financial services, thereby inhibiting economic activities. Secondly, financial inclusion assists households in improving their quality of life. Access to financial services opens up avenues for households to access health care, education, and housing products, thereby improving their quality of life.

Thirdly, financial inclusion helps to protect households against vulnerabilities. Poor households are particularly susceptible to shocks and vulnerabilities that arise from illness, theft, and the likes, and access to financial services such as savings, credit, and insurance help to mitigate these shocks. Fourthly, and closely related to the previous channel, financial inclusion can help households to withstand unpredictability and volatility in incomes. The seasonal nature of incomes of many rural dwellers means that incomes are subject to wild upward or downward swings which can adversely affect their welfare. With financial inclusion, availability of savings and credit helps households to smooth consumption, thereby improving their welfare.

Finally, financial inclusion can help entrepreneurs within households to make productivity-enhancing investments. Apart from obtaining savings and credit for household use, these financial services can also be obtained to invest in productive assets, thereby generating income, employment, and boosting inclusive growth.

3. Data

3.1 Measure of Fragility

Fragility leads to economic and political instability in any country. In this study, we measure fragility using the Fragile States Index (FSI) developed by Fund for Peace (FFP). Although there are other measures of fragility, especially the Country Policy and Institutional Assessment (CPIA) of the World Bank, we make use of the FSI because it covers a broad range of factors depicting fragility of a country (Economic Commission for Africa, 2012). FSI is an annual ranking of 178 nations based on their levels of stability and pressures they face. The index is based on FFP's proprietary conflict assessment system tool (CAST) analytical platform (Fund For Peace, 2016a, 2016b). The CAST analytical platform is used to assign scores based on three indicators: social; economic; political and military indicators. The three indicators are further broken down into twelve key indicators. Social indicators comprise of: (i) demographic pressures; (ii) group grievance; (iii) refugees and internal displaced persons (IDPs); and (iv)human flight and brain drain. Economic indicators are comprised of: (i) uneven economic development and (ii) poverty and economic decline. Political and military indicators are broken into: (i) state legitimacy; (ii) public services; (iii) human rights and rule of law; (iv) security apparatus; (v) factionalised elites; and (vi) external intervention (Fund for Peace, 2016a, 2016b).

Overall, the indicators provide us with information on the extent to which a country is fragile. Scores are assigned to each country in an ascending order of fragility, thereby indicating that high scores denote instability while low scores imply greater stability experienced. The scores range from 0 to 120. This is based on a maximum score of 10 in each of the twelve indicators. Based on FSI, countries are classified into 4 different categories based on their overall scores:

i. Alarm category (colour red) – for countries with scores between 90 and 120;
ii. Warning category (colour yellow-orange) – for countries with scores between 60 and 89.9;
iii. Stable category (colour green) – for countries with scores between 30 and 59.9;
iv. Sustainable category (colour blue) – for countries with scores between 0 and 29.9.

For the purpose of this study, we classify countries with FSI scores in the alarm category as fragile, while countries in the sustainable, stable and warning categories are classified as non-fragile. Table 1 contains the summary index of the FSI for African countries between 2007 and

2014. It is seen that no African country was in the sustainable category throughout this period. Only 1 country (Mauritius) was in the stable category. Thus, virtually all African countries were either classified in the warning or alarm categories. This highlights the high incidence of, or proneness to fragility of African countries. It is seen from the Table that some countries such as Somalia, South Sudan, Sudan, Congo Democratic Republic (CDR), Central African Republic (CAR), Chad, Cote d'Ivoire, Guinea, Guinea Bissau and Zimbabwe had very high FSI scores over the period. It can be inferred that these countries are the most fragile amongst their peers.

While the fragility index is not particularly volatile for individual countries and we do not witness wild upswings or downswings, it can be observed that the index rose in some countries (indicating rising fragility), while it fell in some other countries (falling fragility). The fragility index rose over time in countries such as Cameroon, Comoros, Djibouti, Eritrea, The Gambia, Ghana, Libya, Madagascar, Mali, Mozambique, Senegal, South Africa and Tunisia. Fragility fell over time in some other countries such as Cape Verde, Congo Republic, Cote d'Ivoire, Morocco, Sao Tome, Seychelles, Sierra Leone, and Zimbabwe. In addition, it is seen that some countries moved across the warning and alarm categories over time. Countries such as Egypt, Eritrea and Mauritania moved from the warning to the alarm category, while countries such as Malawi and Sierra Leone moved from the alarm to warning category. Thus, it is observed that over the period, most countries did not move out of the category they were in.

In order to gain deeper insight into the fragility index, Table 2 presents the mean of all 12 components of the FSI between 2007 and 2014. From Table 2, on average, demographic pressures (DP) contribute the most to fragility conditions of African countries while refugees and internally displaced persons (RIDP) contribute the least to fragility conditions. Considering that both components are social indicators, it can be deduced that social indicators are an important source of volatility in the fragility index.

3.2 Dependent Variable: Inclusive Growth

This study deviates from existing research by making use of inclusive growth as our outcome variable of interest. This is a novel approach because analysis of economic growth and poverty/inequality have typically been done separately (Anand et al., 2013b). However, it has been suggested recently that analysis of these two concepts should not be separated as Okun's (1975) trade-off between equity and efficiency might not be existent (Berg and Ostry, 2011).

While growth has been shown to be beneficial to the poor (Dollar and Kraay, 2002), there is no guarantee of equitable benefits from such growth and higher inequality can arise as growth can exclude poor or maginalised groups (Ali and Son, 2007). High income inequality can limit the poverty reducing effects of growth and can also reduce the growth rate itself (Ali and Son, 2007, p.11). Thus, it is important to not just conduct analysis for economic growth, but also for inequality as well, and such analysis should be done using a unified measure of inclusive growth.

In this study, inclusive growth refers to both the pace and the distribution of economic growth. This view is based on the assumption that for growth to be inclusive, there should be growth in (i) output level - the pace of growth and (ii) growth in the distribution of income. Inclusive growth as used in this study is computed based on the changes recorded in output level and income distribution. We follow Ali and Son (2007) and Anand et al. (2013b) in measuring inclusive growth using the social opportunity function which is similar to the social welfare function from consumer choice literature. Then, the underlying social welfare function must satisfy 2 properties to capture these features: (i) it must be increasing in its argument to capture the growth component; and (ii) it must satisfy the transfer property to capture the distributional component, where any transfer of income from a poor person to a richer person reduces the value of the function (Anand et al., 2013b, p.5).

This measure of inclusive growth is based on the concept of a concentration curve. Following Ali and Son (2007) and Anand et al. (2013b) we define a generalized concentration curve, called a social mobility curve, S^C, such that:

$$S^c \approx \left(y_1, \frac{y_1+y_2}{2}, \frac{y_1+y_2+y_3}{3}, \dots, \frac{y_1+y_2+\cdots+y_n}{n}\right) \quad (1)$$

where n is the number of persons in the population with incomes $y_1, y_2, \dots, y_n$, with y_1 being the poorest person and y_n the richest person

Equation (1), which is a generalized concentration curve, is a cumulative distribution of a social mobility vector $S \approx (y_1, y_2, y_3, \dots, y_n)$ with an underlying function $W = W(y_1, y_2, y_3, \dots, y_n)$. The population is arranged in the ascending order of their income, that is, $y_2 > y_1, y_3 > y_2, \dots, y_n > y_{n-1}$. The social mobility curve satisfies the 2 properties mentioned above to capture growth and distribution dimensions. Since S^C satisfies the transfer property, a superior income distribution will always have a higher generalized concentration curve. Similarly, since it is

increasing in its argument, higher income will also have a higher generalized concentration curve (Anand et al., 2013b, p.6). Based on the above identified characteristics of the social mobility curve, when two social mobility curves do no intersect, the degree of inclusiveness can be ascertained through the ranking of the social mobility curves. A higher social mobility curve indicates that the recorded growth is inclusive.

To facilitate econometric analysis, Ali and Son (2007) and Anand et al. (2013b) present the generalized concentration curves in continuous time. Let $\bar{y}_i$ be the average income of the bottom i percent of the population where i varies from 0 to 1 and $\bar{y}$ is the mean income. Plotting $\bar{y}_i$ for different values of i gives a social mobility curve. Since a higher curve implies greater social mobility, growth is inclusive if the social mobility curve moves upwards at all points. However, there may be degrees of inclusive growth depending on: (i) how much the curve moves up (growth); and (ii) how the distribution of income changes (equity). This feature of the social mobility curve is the basis of the integrated measure of inclusive growth.

To capture the magnitude of the change in income distribution, we use a simple form of the social mobility function by calculating an index (or social mobility index) from the area under the social mobility curve:

$$\bar{y}^* = \int_i^1 \bar{y}_i di \qquad (2)$$

where $\bar{y}_i$ is the average income of the bottom i percent of the population, where i varies from i to 1, the proportion of the population: i=1/n, 2/n,…, 1. $\bar{y}^*$ is the social mobility index (SMI), which measures the average income in the economy: $\bar{y}_i=\frac{\sum_{i=0}^{n} y_i}{i}$ y_i=income share per quintile multiplied by real GDP per capita.

The greater the $\bar{y}^*$, the greater is the income. If the income of everyone in the population is the same (i.e. if income distribution is completely equitable) then $\bar{y}^*$ will be equal to $\bar{y}$. If $\bar{y}^*$ is lower than $\bar{y}$, it implies that the distribution of income is inequitable. So, the deviation of $\overline{y*}$ from $\bar{y}$ is an indication of inequality in income distribution. $\bar{y}$ denotes the average income in the economy.

Ali and Son (2007) use this feature of social mobility index ($\bar{y}^*$) and propose an income equity index (IEI), which is the ratio of SMI to average income as expressed in Equation (3). The concept of IEI (ω) illustrates income distribution in relation to inclusive growth, and takes the

value of 1 when $\bar{y}^*=\bar{y}$, and zero when it is totally unequal, a situation where all the income in the economy is earned by only one person. Thus, the value of income equity index (ω) ranges from zero (0) to one (1). For a completely equitable society, ω = 1. Thus, higher values of ω (closer to one) represents higher income equality

$$\omega = \frac{\bar{y}^*}{\bar{y}} \tag{3}$$

Equation (3) can be rearranged as follows:

$$\bar{y}^* = \omega * \bar{y} \tag{4}$$

Inclusive growth requires increasing $\bar{y}^*$, which could be achieved by: (i) increasing $\bar{y}$, i.e. increasing average income through growth; (ii) increasing the equity index of income, ω, through increasing equity; or (iii) a combination of (i) and (ii). Hence, the extent of changes in both output level and income equity index, influence the extent of inclusiveness. Differentiating Equation (4), we arrive at:

$$d\bar{y}^* = \omega * d\bar{y} + d\omega * \bar{y} \tag{5}$$

Where $d\bar{y}^*$ is the change in the degree of inclusive growth (or change in the social mobility index). Growth is more inclusive if $d\bar{y}^* > 0$. It also allows us to decompose inclusive growth into income growth and change in equity. The first term is the contribution of increase in average income (keeping income distribution constant) while the second term is the contribution of changes in the income distribution (keeping the average income unchanged).

Inclusive growth depends on the sign and magnitude of the 2 terms. This can be depicted in an inclusiveness matrix, which is presented in Table 3. If both terms are positive ($d\bar{y} > 0$, d ω > 0), growth is unambiguously inclusive. Similarly, if both terms are negative ($d\bar{y} < 0$, d ω < 0), growth is unambiguously non-inclusive. However, there could be trade-off between $\bar{y}$ and ω. If the first term is positive but the second term is negative, higher social mobility is achieved at the expense of reduction in equity. Similarly, if the first term is negative but the second term is positive, then higher social mobility is achieved at the cost of contraction in average income.

By dividing Equation (5) by $\bar{y}^*$, we have

$$\frac{d\bar{y}^*}{\bar{y}^*} = \frac{d\bar{y}}{\bar{y}} + \frac{d\omega}{\omega} \tag{6}$$

Equation (6) presents the fundamental relation integrating growth and equity into 1 measure of inclusive growth (percent change in $\bar{y}^*$). It decomposes inclusive growth into income growth ($\bar{y}$) and percentage change in equity (ω).

This measure of inclusive growth is in line with the absolute definition of pro-poor growth, but not the relative definition. Under the absolute definition, growth is considered to be pro-poor as long as poor people benefit in absolute terms, as reflected in some agreed measures of poverty. In contrast, under the relative definition, growth is pro-poor if and only if the incomes of poor people grow faster than those of the population as a whole, that is, inequality declines. By focusing on inequality, the relative definition could lead to suboptimal outcomes for both poor and non-poor households. For example, a society attempting to achieve pro-poor growth under the relative definition would favour an outcome characterized by average income growth of 2 percent where the income of poor households grew by 3 percent, over an outcome where average growth was 6 percent, but the incomes of poor households grew by only 4 percent. Our dynamic measure of inclusive growth permits us to focus on inequality but distinguish between countries where per capita income growth was the same for the top and the bottom of the pyramid by accounting for the pace of growth.

3.3 Financial Inclusion

Until recently, little was known about access to and use of financial services by different households in African countries. More generally, although there is evidence concerning the importance of financial inclusion and the use of bank accounts, little is known about the reach of the financial sector across countries (Allen et al., 2012, p.3). Studies have had to make use of country-level proxies (such as the number of bank accounts per capita), drawing on data collected from bank regulators and supervisors (Allen et al., 2012). However, such studies are problematic, not only because the proxies used have significant limitations (for example, the number of accounts per capita might overestimate the percentage of the population with an account because some people have more than 1 account or accounts may be owned by foreigners), but more importantly, the fact that the data used are aggregated at the country level makes it impossible to assess how the impact of policies varies across individual characteristics, such as income (Allen et al., 2012, p.3).

These data constraints have been mitigated in recent times with the availability of new data on financial inclusion. The data on financial inclusion is from the Global Financial Inclusion

(Global Findex) Database which provides a new set of indicators that measure how adults in 148 economies save, borrow, make payments, and manage risk (Demirguc-Kunt and Klapper, 2012). The indicators are constructed by surveying more than 150,000 nationally representative and randomly selected adults age 15 and above in 148 economies in 2011 (Demirguc-Kunt and Klapper, 2012). These individuals have characteristics representative of 97 percent of the world's adult population during the 2011 calendar year.

The database includes over 40 indicators related to account ownership, payments, savings, borrowing, and risk management. The indicators are broadly classified along 3 dimensions. The first set of indicators is concerned with ownership and use of an account at a formal financial institution. Questions under this category relate to the mechanics of account usage (frequency of use, mode of access); their purpose (receipt of payments from work, government, or family); barriers to their use, and alternatives to formal accounts (mobile money) (Demirguc-Kunt and Klapper, 2013, p.283). The second set of indicators is concerned with saving behaviour. Questions under this category relate to general saving behaviour, and on the use of formal accounts and community-based methods to save. The data distinguishes between deliberate saving (whether formal or not), and cases where people simply consume less than their income (Demirguc-Kunt and Klapper, 2013, p.284). The third set of indicators is concerned with borrowing. Data is collected on the sources of borrowing (formal and informal), the purposes of borrowing (mortgage, emergency or health, etc), and use of credit cards (Demirguc-Kunt and Klapper, 2013, p.284).

In line with the 3 classifications of the Global Findex Database, our analysis measures financial inclusion along 3 dimensions. For the first dimension, we measure financial inclusion based on ownership and use of accounts and we make use of 1 indicator: ownership of an account. For the second dimension, we measure financial inclusion using 1 indicator: savings at a financial institution. For the third dimension, we measure financial inclusion using 1 indicator: loans obtained from a financial institution.

4. Calculation and Evolution of Inclusive Growth

4.1 Inclusive Growth: Description by Inclusiveness Matrix and Fragility Status

Inclusive growth refers to the pace and distribution of economic growth, and thus, incorporates growth and equity in a unified framework (Anand et al., 2013a). In this section we provide information on the degree to which growth in fragile and non-fragile African countries has been inclusive. We were able to achieve this by making use of the percentage change in $\bar{y}^*$, since increase in $\bar{y}^*$ suggests inclusiveness.

For this study, we examined 34 African countries[1]. Our sample was selected based on data availability. Anand et al. (2013b) have discussed the problems associated with cross-country comparisons of inequality. Such problems include poor data reliability, lack of coverage and inconsistent methodology (Anand et al., 2013b, p. 10). The dataset on income share across income groups is not obtainable at regular intervals and for all countries. We have made use of data on income share across income groups from the World Bank Povcal database.

Following equation (5), we decomposed inclusiveness into its 2 components: income growth and equity growth. In order to examine the contribution of each of these components, we present the results in Table 4. It is seen from Table 4 that income growth is positive in most of the countries (31 countries) while equity growth is positive in 19 countries. Consequently, we observe that inclusive growth is positive in 29 countries. Inclusive growth is negative in 5 countries: Benin, Burundi, Cote d'Ivoire, Madagascar, and Togo. It is interesting to note that combining equity growth with income growth has different effects in different countries. In some countries that have recorded fast rates of income growth, the inclusion of equity growth has somewhat dampened inclusive growth (Botswana, Djibouti). In other countries such as Burkina Faso, Ethiopia, Mali, Namibia, Sierra Leone, Tunisia, and Zambia, combining equity growth with income growth has led to even faster rates of inclusive growth. This suggests that growth has been inclusive in most of these African countries.

In order to gain better intuition into how inclusive growth has been, Figure 1 presents a scatter diagram of inclusive growth in these African countries based on the inclusiveness matrix in Table 3. It is seen that at least 1 country falls under each of the 4 categories of the inclusiveness

[1] Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Congo Democratic Republic, Congo Republic, Cote d'Ivoire, Djibouti, Ethiopia, Ghana, Guinea, Kenya, Lesotho, Madagascar, Malawi, Mali, Morocco, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Swaziland, Tanzania, Togo, Tunisia, Uganda, Zambia.

matrix. However, most of the countries fall into 2 quadrants: Quadrants 1 and 2. 16 countries are in Quadrant 1: Ethiopia, Mali, Uganda, Lesotho, Namibia, Burkina Faso, Tunisia, Sierra Leone, Zambia, Niger, Mauritania, Senegal, Guinea, Kenya, CAR, and Malawi. Based on Table 3, we can say that growth in these countries is unambiguously inclusive. 14 countries are in quadrant 2: Botswana, Djibouti, Mauritius, Morocco, Nigeria, Ghana, Rwanda, Congo Republic, South Africa, Cameroon, Benin, Tanzania, Congo Democratic Republic and Togo. Contrary to conclusions about the countries in quadrant 1, for countries in quadrant 2, we have higher per capita income growth at the expense of equity growth. 2 countries (Cote d'Ivoire and Burundi) are in quadrant 3 while only 1 country (Madagascar) is in quadrant 4. It can be said that growth is unambiguously non-inclusive in Madagascar while equity growth is achieved at the expense of income growth in Cote d'Ivoire and Burundi. Thus, in about half of the countries in our sample, growth has been unambiguously inclusive.

Furthermore, in Figure 2 and Table 5, we examine the nature of the growth in income distribution and growth in income based on the fragility status of the countries. We categorised countries as either fragile or non-fragile based on the average of the score of the FSI over the period 2007-2014. The choice of this period is guided by complete data availability for all the countries. As noted previously, we have classified countries with FSI scores in the alarm category as fragile, while countries in the sustainable, stable and warning categories are classified as non-fragile. Based on this, we see from Table 5 that 14 countries can be classified as fragile while 20 countries are non-fragile. The mean rate of inclusive growth for fragile countries is 2.3% while for non-fragile countries it is 2.8%. Thus, inclusive growth is higher in non-fragile countries than in fragile states.

Figure 2 presents fitted lines depicting the relationship between growth in real GDP per capita and growth in equity, in fragile and non-fragile states. The Figure shows that income growth and equity growth have a clear positive relationship in non-fragile states. In fragile states, the relationship though slightly positive, is rather flat. A closer look at the slope for fragile and non-fragile states reveals that increase in real GDP per capita is associated with higher growth in equity in non-fragile states than fragile states. This suggests that, increase in income is equitably distributed in non-fragile states than fragile states. The implication of this is that growth in average income is more pro-poor in non-fragile states compared to fragile states.

4.2 Inclusive Growth: Social Mobility Curves

In this section, we delve further into the inclusiveness of growth by providing information on the nature of the social mobility curves (i.e. indifference curve) of these African countries. This is carried out with the purpose of understanding the nature of the shift in the social mobility curve over time, in relation to the inclusiveness of the African countries. Figure 3 presents the social mobility curves for fragile countries while the social mobility curves for non-fragile countries are presented in Figure 4.

In Figure 3, it is seen that most of the fragile countries experienced an increase in average income over time, as evidenced by the upward shift of the social mobility curves in later years. Only 2 countries – Burundi and Cote d'Ivoire – had falling average incomes over time. Some countries such as Ethiopia, Malawi, Sierra Leone and Uganda had large upward shifts of their social mobility curves, showing considerable improvements in average incomes over time. In terms of the degree of equity of such increases in average incomes, it is also seen from Figure 3 that growth is more equitable in some countries while it is not in others. It is seen that growth in income was more beneficial to the rich than the poor in countries such as Congo Democratic Republic, Ethiopia, Kenya, Malawi and Uganda. In these countries, higher average income was achieved as a trade-off with income distribution. On the other hand, growth in income has been pro-poor in countries such as Guinea, Niger and Sierra Leone; and to a lesser extent in CAR and Nigeria. The social mobility curves for these countries show that the increase in average income they experienced is pro-poor, that is, equity was not traded-off to achieve higher average income. This suggests that both the rich and the poor benefit from higher average income.

In Figure 4, it is seen that most of the non-fragile countries also experienced an increase in average income over time. The countries in which average incomes increased are: Botswana, Burkina Faso, Djibouti, Ghana, Lesotho, Mali, Mauritania, Mauritius, Morocco, Namibia, South Africa, Swaziland, Tanzania, Tunisia and Zambia. Only 1 country had a fall in average incomes across all income levels. For Benin, average incomes increased for the poor and fell for the rich, while the converse was the case in Togo and Rwanda where average incomes fell for the poor but increased for the rich. The social mobility curves show that average income growth was more beneficial to the rich than the poor in countries such as: Botswana, Burkina Faso, Lesotho, Mali, Morocco, Namibia, South Africa, and Tunisia. For these countries, higher average incomes are achieved at the expense of higher inequity. In these countries, the benefits

of increase in average income are enjoyed more by the rich. On the other hand, average income growth favours the poor in countries such as: Benin, Djibouti, Ghana, and Mauritius.

5. Research Methodology

This study examines the effects of fragility and financial inequalities on inclusive growth in African countries. In order to achieve this, we will estimate the following general model:

$$IG_i = FINC_i \propto + FRAG_i\delta + z_i\beta + \varepsilon_i \qquad (7)$$

where IG is inclusive growth; FRAG is the measure of fragility; FINC is a vector of financial inclusion measures; z is a vector of growth and inequality determinants; ε_i is a normally distributed error term with zero mean and variance equal to 1.

FRAG, our measure of the fragility status of countries is derived from Fragile States Index (FSI) developed by The Fund for Peace. As outlined previously, the FSI assigns scores based on 3 indicators which are then broken down into 12 components. A summary index of fragility for a country in each year is a summation of the 12 components. Because scores are assigned to each country in an ascending order of vulnerability, higher FSI indicates higher fragility, and vice versa. We extract 3 variables from the FSI to measure fragility. Firstly, we take the average of the composite FSI index for each country over the period 2007 to 2014. Secondly, we use the classification of the FSI to derive a dummy variable of fragility which takes the value of 1 if a country is in the Alarm Category, and the value of 0 if the country is in any other category. Thirdly, we follow McKay and Thorbecke (2016) in deriving an amended fragility index by excluding development components from the FSI index. There is a circular relationship between fragility and development. On one hand, underdevelopment breeds fragility. On the other hand, fragility hampers development (McKay and Thorbecke, 2016). 3 components of the FSI index are outcomes of fragility – demographic pressures, uneven development, poverty and economic decline. While these components could be classified as fragility indicators, they can also be seen as consequences of development. We follow McKay and Thorbecke (2016) in constructed an alternative fragility index by excluding these components from the FSI index. This is done by adding up only the remaining 9 components of the FSI index.

As outlined previously, we will measure financial inclusion along the 3 dimensions of classification in the Global Findex Database. Thus, FINC, the vector of financial inclusion measures comprises of 3 variables: (i) ownership of an account; (ii) savings at a financial institution; and (iii) loans obtained from a financial institution. These variables are included separately in the model.

We include a set of growth and inequality determinants which are macroeconomic fundamentals and structural factors that are expected to drive inclusive growth (Anand et al., 2013). Following other studies (Dollar and Kraay, 2003; Anand et al., 2013) the variables contained in the vector z are: trade openness, education, financial development, and investment.

We have a situation where the variables are measured at different frequencies. Our primary variables of interest – fragility and financial inclusion – do not vary sufficiently over time. Full data on fragility is only available over the period 2007 to 2015, while the data on financial inclusion is only available for 2011 and 2014. Our dependent variable, inclusive growth is available at irregular frequencies depending on the country surveys carried out. Thus, different countries have surveys for different years and these are provided at irregular frequencies. Our control variables, the macroeconomic series are the only variables with consistent time series dimension. Following other studies (La Porta et al., 1998; La Porta et al., 1999; Beck et al., 2003; Djankov et al., 2007), we cater for these differences in frequency of variables by using averages of the variables with a time dimension so as to obtain a single observation for each variable. Thus, we have one observation for each variable and estimation is by cross-sectional analysis.

Although the model specified in equation (7) posits that financial inclusion affects inclusive growth, it is also possible that inclusive growth affects financial inclusion. Thus, it is possible that as people move out of poverty, then they have more financial resources and consequently, have the need and ability to access financial services. Also, overall growth of the economy, which is also a component of inclusive growth, leads to an expansion of the financial sector, thereby leading to more exposure to financial services by households and businesses. The implication of this is that it could be difficult to extract causality between inclusive growth and financial inclusion. In light of this, we conducted instrumental variable estimation to address the potential endogeneity bias arising from the possible reverse causality between inclusive growth and financial inclusion. We follow previous research in finance-growth literature to

examine the effect of the exogenous impact of financial inclusion on inclusive growth (Beck et al., 2004 and Clarke et al., 2006).

Following from this, we make use of instrumental variables estimation, using a number of instrumental variables. Our first instrumental variable is legal origins. Beck et al (2004) showed that private property rights are best protected in British common law countries than French civil, Scandinavian civil or Social law countries. The protection of property rights stimulate private contracting as it restores people's confidence in the financial institution (Beck et al, 2004, p. 20). The resulting effect of protection of property right is an increase in the reach of the financial sector, that is, the financial sector becomes more inclusive.

Our second instrumental variable is longitude – the distance of the country's capital to the equator. The decision to use financial services has been observed to be influenced by the confidence people have in the financial institution. People's confidence in the financial institution is influenced by the level of institutional quality obtainable in the country (La Porta et al, 1999). Beck et al (2004) showed that institutional development is influenced by natural resource endowments. In the literature, longitude and latitude have been identified as geographical factors that can be used as proxies for resource endowment. In addition, Horvath and Zeynalov (2014) showed that longitude and institutions are negatively related but uncorrelated with inclusive growth.

6. Empirical Results

6.1 Preliminary Investigation: Inclusive Growth and Fragility

We first conduct some preliminary investigation of the relationship between inclusive growth and fragility. Table 6 contains the results of regressions using only fragility indicators. We have used the 12 components of the FSI and also made use of the composite FSI index (FSI), FSI dummy (FSID) and amended FSI index (FSI2). It is observed from Table 6 that all fragility measures are negative, implying a negative relationship between fragility and inclusive growth. Considering that the fragility measures increase in order of fragility, these results indicate that rising fragility has led to a fall in inclusive growth in these African countries. However, only 2 of the fragility variables are significant - legitimacy of the state (LS) and public services (PS),

which are both political/military indicators. However, public services is only weakly significant at the 10% level. We delve a bit further into state legitimacy and public services.

State legitimacy is identified as corruption and lack of representativeness in the government which directly undermines social contract (Fund for Peace, 2016c). It comprises pressures and measures related to: corruption, government effectiveness, political participation, electoral process, level of democracy, illicit economy, drug trade, protests and demonstrations, and power struggles (Fund for Peace, 2016c). Public services is defined as the provision of health, education, and sanitation services, among others (Fund for Peace, 2016c). It includes pressures and measures related to: policing, criminality, education provision, literacy, water and sanitation, infrastructure, quality healthcare, telephony, internet access, energy reliability, and roads (Fund for Peace, 2016c). Upon examination of the components of state legitimacy and public services, it is not surprising that these 2 components were significant as they are comprised of measures which have been found many studies to significantly impact growth and poverty. Variables such as corruption, education, infrastructure, and health have been severally found to be important drivers of growth. Thus, it is reasonable, that lack of these variables, as captured by their fragility indicators, would significantly negatively affect inclusive growth.

6.2 Inclusive Growth: Effects of Fragility and Financial Inclusion

The empirical results of examining the effects of fragility and financial inclusion on inclusive growth in African countries are presented in Tables 7 to 8. Tables 7 and 8 contain, respectively, the results of OLS and IV estimations using the fragility measures, financial inclusion measures, and macroeconomic variables.

Looking at the results from the instrumental variables regression in Table 8, similar to what was obtained in Table 6, fragility has a negative relationship with inclusive growth. All 3 measures of fragility - composite fragility index, dummy variable for fragility, and amended fragility index - are negative. However, fragility is only significant in estimations where loans is the measure of financial inclusion, while it is insignificant in the others. Thus, our results offer some evidence, albeit weak, that fragility is detrimental to inclusive growth in African countries.

The results in Table 8 show that financial inclusion has had a positive effect on inclusive growth. The variables capturing having an account, and having savings, at a financial institution are statistically significant at the 1% and 5% levels. Thus, it can be deduced that reducing financial inequalities through improved financial inclusion will positively affect inclusive growth in African countries. These results are similar to what is obtained using OLS in Table 7 as both having an account and savings are significantly positively related to inclusive growth.

The results also give some interesting insights into how macroeconomic variables affect inclusive growth. The results in Tables 7 and 8 show a significant positive effect of investment on inclusive growth. This is hardly surprising, as investment has been found to exert a robust positive effect on growth (Levine and Renelt, 1992).

It is seen from both Tables 7 and 8 that private credit has exerted a significant negative effect on inclusive growth in these African countries. These results for private credit are a bit surprising as private credit has been found by many studies to exert a significant positive effect on economic growth. Pasali's (2013) synthesis paper surveyed over 100 papers of the finance-growth nexus and concluded that financial sector depth has a statistically significant and economically meaningful positive effect on economic growth (Pasali, 2013, p.3). This has been attributed to the fact that the financial system performs a number of functions which enables it attract deposits and ensure a better and more efficient allocation of resources, thereby leading to growth of the economy.

However, our results are in line with some other studies who have called for caution in universally accepting the results of such studies who found a significant positive effect of financial development on economic growth. Ram (1999) and Andersen and Tarp (2003) re-estimated respectively, King and Levine (1993) and Levine et al. (2000) results splitting the samples into groups based on income levels and regions. Their results showed that splitting the samples in such manner did not support a significant effect of financial development on economic growth. Thus, when distribution of income is taken into account, as we have done using inclusive growth, the effect of private credit on growth breaks down.

The fact that our results show that private credit has exerted a significant negative effect on inclusive growth illuminates our understanding of private credit and how it is distributed to the different segments of society. These results suggest that private credit is mainly given to the

rich, while the poorer sections of society are left without credit. When high credit in a financial system is skewed in favour of the wealthiest individuals and largest firms in the society, then, we have a situation where the measure of credit is capturing financial inequality, and not financial development (GFDR, 2014). Thus, we can also infer that private credit in this case is capturing financial inequalities.

6.3 Does Fragility impede Financial Inclusion in Africa?

Combining the results for financial inclusion and private credit provides a powerful assessment of the effects of financial inequalities on inclusive growth. On one hand, financial inclusion strongly supports inclusive growth; while on the other hand, financial exclusion strongly inhibits inclusive growth. This calls for further investigation, which is done in this section.

Limited financial inclusion and low financial sector development have been found to be prevalent in fragile states (Sile, 2013). While 23% of adults in Africa have access to a bank account, only 14% of adults in Africa's fragile states have access to a bank account (Sile, 2013). Fragility fosters high instability and vulnerability, thereby leading to poor-functioning financial systems. Weak formal financial institutions are common in fragile states. These lead to economic instability and the attendant lack of opportunities for individuals acts as both a catalyst and consequence of insecurity (Demirguc-Kunt et al., 2013). The lack of formal savings and credit systems limits the ability of individuals to make investments and smooth consumption, and this often worsens conflicts (Demirguc-Kunt et al., 2013). An inclusive financial sector can help to bring fragile states back on the pact of financial stability and growth (Sile, 2013).

Fragile situations can be detrimental to financial inclusion in a number of ways. Fragility leads to an unstable macroeconomic environment evidenced by for example, high inflation and unemployment rates, and these affect the ability of financial institutions to offer affordable and appropriate products (Sile, 2013). Also, fragility affects the sustainability of financial institutions as seen through repeated bankruptcies which lead people away from formal to informal financial arrangements (Sile, 2013). Fragile states face an uncertain environment which is not conducive to long term investment. This results in excessive risk averse behaviour and finance is supplied to a limited group. Fragility also increases incidences of destroyed infrastructure and displayed or lay-off of professional staff (Sile, 2013). All these have the

effect of limiting financing opportunities for the poor and micro and small enterprises. Thus, poverty and economic growth are curtailed.

Following from the foregoing and the results of estimations in Tables 7 and 8, it would be interesting to examine how fragility has affected financial inclusion in African countries. This is particularly interesting because the estimated results show that financial inclusion positively affects inclusive growth. Thus, it is possible that tackling fragility could improve financial inclusion, and this would subsequently promote inclusive growth.

Figure 5 presents various measures of financial inclusion and broader financial development and financial access measures for fragile and non-fragile African countries. The figure shows that non-fragile countries have better financial indicators than fragile countries, thereby suggesting a detrimental effect of fragility on financial inclusion, access and development. The figure shows that while 25% of adults in non-fragile countries have an account at a financial institution, only 14% of adults in fragile countries have an account. Thus, fragility accounts for a 78% drop in ownership of accounts at financial institutions. 11% and 9% of adults save in respectively, non-fragile and fragile African countries. Curiously, there is a higher proportion of adults who have loans in fragile than non-fragile countries. The converse would have been the case, where people obtain loans more from informal networks than formal financial institutions. Such informal arrangements help to avoid collateral requirements, high borrowing costs, and cumbersome paperwork. The finding that more people take loans in fragile countries could be explained by the fact that people prefer obtaining loans from formal financial institutions due to the higher level of security that formal institutions provide in such unstable environments.

Figure 5d shows that financial development is considerably lower in fragile countries. The ratio of credit provided to the private sector to GDP is 28% in non-fragile countries while it is 11% in fragile countries. Figure 5 shows that financial access variables which measure the supply side of the financial sector are particularly poor in fragile countries. There are only 4 bank branches per 1000km^2 in fragile countries while there are 29 in non-fragile countries. There are 3 ATMs per 100,000 adults in fragile countries while there are 14 in non-fragile countries. Thus, financial indicators on both the demand and supply side are better in non-fragile countries. This suggests debilitating effects of fragility on the financial sector.

We delve further into the relationship between financial inclusion and fragility by plotting scatter diagrams in Figures 6 to 8. Figures 6 and 7 show a negative relationship between financial inclusion (measured by account ownership and savings at a financial institution) and fragility. These corroborate what was observed from Figure 5 and show that fragility leads to a situation where financial inclusion is constrained. Thus, the ability of financial inclusion to affect inclusive growth will be inhibited more in fragile countries. Figure 8 presents a positive relationship between loans and fragility. As discussed previously, this suggests that heightened fragility is driving people towards formal financial institutions because of their relative safety and protection, as opposed to informal networks. This highlights a paradox of financial development in fragile countries – the insecurity and uncertainty brought about by fragility make it very imperative to have safe and secure mechanisms and institutions for conducting financial transactions (Demirguc-Kunt et al., 2013). In many cases, weak or absent legitimate financial institutions compound recovery after conflicts.

7. Conclusion and Policy Implications

This study has examined the effects of fragility and financial inequalities on inclusive growth in African countries. We deviated from existing studies by not studying income growth but rather examined inclusive growth, which incorporates both the pace and the distribution of economic growth. Inclusive growth comprises of 2 components: (i) output level - the pace of growth and (ii) growth in the distribution of income. We measure fragility using the Fragile States Index (FSI) developed by Fund for Peace (FFP). The FSI is an annual ranking of 178 nations based on their levels of stability and pressures they face. The FSI assigns scores from 1 to 10 for 12 key indicators: demographic pressures, group grievance, refugees and internal displaced persons (IDPs), human flight and brain drain, uneven economic development, poverty and economic decline, state legitimacy, public services, human rights and rule of law, security apparatus, factionalised elites, and external intervention. Based on 34 countries that we had data for on inclusive growth, 14 were found to be fragile while 20 were non-fragile. The data on financial inequalities are financial inclusion data obtained from the Global Financial Inclusion (Findex) Database.

Empirical estimations showed a negative relationship between fragility and inclusive growth. It was also found that financial inclusion has had a positive effect on inclusive growth.

Interestingly, private credit had a negative effect on inclusive growth. This suggests that credit is skewed in favour of the rich and the poor are not able to assess credit. Thus, private credit is a form of financial inequality. Further analysis showed that fragility adversely affects account ownership and savings at financial institutions.

Achieving inclusive growth is important for African countries to achieve sustained development. Fragility plays a big role in hampering inclusive growth. However, building inclusive and effective financial systems can help to mitigate problems posed by fragility by fostering long term investment, infrastructure development, and employment. While fragility hinders financial inclusion, financial inequalities and instability can also exacerbate fragility. Financial instability and inequalities increase vulnerability to ongoing conflict (Baddeley, 2011). Also, financial instability fosters general uncertainty, thus creating fertile grounds for conflict (Baddeley, 2011). Undeveloped financial institutions and limited availability of finance contribute to vicious circles of conflict and underdevelopment. Thus, there are feedback effects between fragility, financial inclusion and inclusive growth. This makes it imperative to devise mechanisms for promoting financial inclusion and thereby alleviate fragility and promote inclusive growth.

This can be achieved through a number of policy actions. Firstly, effective but pragmatic regulation is essential. Regulation can help to promote innovation and entice new entrants. However, if designed poorly, regulation can discourage investment and hinder growth and poverty reduction (FSD Africa/Mercy Corps, 2017). A case in point are know your customer (KYC) regulations which are crucial for risk mitigation. However, when KYC rules are too bureaucratic and costly, they can limit the uptake of financial products and services. For example, tiered KYC rules have been used to have different levels of rules in proportion to the risk (FSD Africa/Mercy Corps, 2017). Another example relates to transactions costs. African banks typically have high account fees, high minimum balances, and restrictive documentation requirements. Current account fees are over 4 percent of monthly income across African countries, while it is less than 3 percent in comparable non-African developing countries (Beck et al., 2011). Remittance costs to Africa are more than twice the global average (Watkins and Quattri, 2014). Regulatory reforms are needed to bring down such prohibitive costs which are reflective of low competition and poorly developed infrastructure.

Secondly, specialised financial services need to be provided for refugees and internally displaced populations (IDP). The population of refugees and IDPs in Sub-Saharan Africa is

estimated at 19 million, the largest in the world (FSD Africa/Mercy Corps, 2017). These refugees and IDPs need access to finance but are largely faced with undeveloped, informal and small-scale financial services. Formal financial institutions lending to refugees and IDPs is very limited (FSD Africa/Mercy Corps, 2017). Formal financial institutions can engage in joint market analysis and information sharing on refugees and IDPs so as to reduce the costs of such activities. Segmentation tools can be designed for refugees and IDPs which will help to identify specific target groups, their financial needs, and the types of products they need.

Third, liquidity and partial credit guarantee schemes which are already widely in use to protect from natural disasters and climate shocks can be adapted for fragile countries. Fragility often results in liquidity shortages both on the demand and supply sides. On the demand side, liquidity can be scarce if customers withdraw en masse for a variety of urgent needs. This could lead to a run on banks. On the supply side, liquidity shortages arise as a result of higher loan defaults and concurrent massive withdrawals by customers (FSD Africa/Mercy Corps, 2017). These liquidity shortages can be mitigated by development actors through provision of liquidity, stress tests, technical assistance, and savings and credit product developments.

Also, there is need for development of credit rating agencies and better risk assessment departments in banks as this would ensure effective risk assessment of borrowers and limit the problem of moral hazard that banks are trying to avoid. Finally, policies are needed to forge closer links between formal and informal financial intermediaries, eliminating fragmentation in the financial markets and enhance integration and efficiency.

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Table 1: Fragile States Index (FSI) - African Countries (2007-2014)

Countries/Year	2007	2008	2009	2010	2011	2012	2013	2014
South Sudan	NA	NA	NA	NA	NA	108.4	110.6	112.9
Somalia	111.1	114.2	114.7	114.3	113.4	114.9	113.9	112.6
Central African Republic	101.0	103.7	105.4	106.4	105.0	103.8	105.3	110.6
Congo (D. R.)	105.5	106.7	108.7	109.9	108.2	111.2	111.9	110.2
Sudan	113.7	113.0	112.4	111.8	108.7	109.4	111.0	110.1
Chad	108.8	110.9	112.2	113.3	110.3	107.6	109.0	108.7
Zimbabwe	110.1	112.5	114.0	110.2	107.9	106.3	105.2	102.8
Guinea	101.3	101.8	104.6	105.0	102.5	101.9	101.3	102.7
Cote d'Ivoire	107.3	104.6	102.5	101.2	102.8	103.6	103.5	101.7
Guinea Bissau	88.8	91.3	94.8	97.2	98.3	99.2	101.1	100.6
Nigeria	95.6	95.7	99.8	100.2	99.9	101.1	100.7	99.7
Kenya	91.3	93.4	101.4	100.7	98.7	98.4	99.6	99.0
Ethiopia	95.3	96.1	98.9	98.8	98.2	97.9	98.9	97.9
Niger	91.2	94.5	96.5	97.8	99.1	96.9	99.0	97.9
Burundi	95.2	94.1	95.7	96.7	98.6	97.5	97.6	97.1
Uganda	96.4	96.1	96.9	97.5	96.3	96.5	96.6	96.0
Eritrea	85.5	87.4	90.3	93.3	93.6	94.5	95.0	95.5
Liberia	92.9	91.0	91.8	91.7	94.0	93.3	95.1	94.3
Cameroon	89.4	91.2	95.3	95.4	94.6	93.1	93.5	93.1
Mauritania	86.7	86.1	88.7	89.1	88.0	87.6	91.7	93.0
Egypt	89.2	88.7	89.0	87.6	86.8	90.4	90.6	91.0
Rwanda	89.2	88.0	89.0	88.7	91.0	89.3	89.3	90.5
Sierra Leone	93.4	92.3	92.1	93.6	92.1	90.4	91.2	89.9
Mali	75.5	75.6	78.7	79.3	79.3	77.9	89.3	89.8
Congo (Republic)	93.0	93.4	93.1	92.5	91.4	90.1	90.0	89.6
Malawi	92.2	92.9	93.8	93.6	91.2	88.8	89.2	89.1
Burkina Faso	89.7	89.9	91.3	90.7	88.6	87.4	90.2	89.0
Libya	69.3	70.0	69.4	69.1	68.7	84.9	84.5	87.8
Togo	86.6	86.8	87.2	88.1	89.4	87.5	87.8	87.8
Angola	84.9	83.8	85.0	83.7	84.6	85.1	87.1	87.4
Djibouti	80.3	80.0	80.6	81.9	82.6	83.8	85.5	87.1
Zambia	80.6	81.6	84.2	83.9	83.8	85.9	86.6	86.2
Mozambique	76.9	76.8	80.7	81.7	83.6	82.4	82.8	85.9
Swaziland	81.3	80.0	82.4	82.8	82.5	83.5	85.6	85.8
Equatorial Guinea	88.2	88.0	88.3	88.5	88.1	86.3	86.1	85.3
Comoros	77.8	79.6	86.3	85.1	83.8	83.0	84.0	85.1
Gambia	76.0	76.9	79.0	80.2	80.9	80.6	81.8	83.1
Madagascar	76.5	76.7	81.6	82.6	83.2	82.5	82.7	83.1
Senegal	66.9	70.9	74.2	74.6	76.8	79.3	81.4	82.8
Tanzania	79.3	79.1	81.1	81.2	81.3	80.4	81.1	80.8
Algeria	75.9	77.8	80.6	81.3	78.0	78.1	78.7	78.8
Lesotho	81.2	81.7	81.8	82.2	80.4	79.0	79.4	78.6
Benin	72.0	72.8	75.5	76.8	80.0	78.6	77.9	78.2
Tunisia	65.6	65.6	67.6	67.5	70.1	74.2	76.5	77.5
Sao Tome	78.6	78.3	76.7	75.8	74.5	73.9	74.6	75.8
Morocco	76.0	75.8	77.1	77.0	76.3	76.1	74.3	74.4
Cape Verde	81.1	80.7	78.5	77.2	75.8	74.7	73.7	74.1
Gabon	73.3	75.0	74.4	75.3	75.3	74.6	72.9	72.2
Namibia	71.3	72.9	75.6	74.5	71.7	71.0	70.4	71.5
Ghana	61.9	64.6	66.2	67.1	67.7	67.5	69.1	70.7
South Africa	57.4	62.7	67.4	67.9	67.6	66.8	67.6	66.6
Botswana	66.4	65.9	68.8	68.6	67.9	66.5	64.0	64.5
Seychelles	71.3	69.5	67.7	67.9	67.0	65.1	64.0	63.7
Mauritius	42.7	42.4	44.7	44.4	44.2	44.7	44.5	46.1

Source: Fund for Peace.

Table 2: Fragile States Index - Mean of the 12 Components -All African Countries, 2007-2014

Countries	DP	RIDPs	GG	HF	UD	PED	LS	PS	HR	SA	FE	EI
Algeria	6.2	6.6	7.7	5.6	6.8	5.0	7.4	6.4	7.5	7.1	6.7	5.6
Angola	8.7	7.1	6.3	5.6	9.1	4.7	8.3	8.2	7.4	6.1	7.2	6.7
Benin	7.7	6.2	3.9	6.6	7.3	7.2	6.4	8.3	5.3	5.6	5.0	7.0
Botswana	8.8	6.1	4.3	5.6	7.4	6.0	5.0	6.2	4.8	3.8	3.1	5.5
Burkina Faso	9.0	6.3	5.8	6.4	8.6	7.9	7.8	8.8	6.6	7.3	7.5	7.7
Burundi	9.0	8.6	7.6	6.4	8.2	8.4	7.8	8.8	7.8	7.3	7.8	8.8
Cameroon	7.9	7.3	7.5	7.7	8.4	6.4	8.7	8.0	7.8	7.8	8.7	6.9
Cape Verde	7.4	4.3	4.4	8.3	6.5	6.9	6.8	7.1	5.8	5.7	5.9	7.9
Central African Republic	8.9	9.3	8.8	5.9	9.0	8.1	9.1	9.0	8.7	9.6	9.3	9.4
Chad	9.3	9.4	9.3	8.0	9.0	8.2	9.7	9.6	9.5	9.5	9.8	8.9
Comoros	7.2	4.0	5.4	6.5	6.2	7.8	7.9	8.3	6.7	7.3	7.5	8.3
Congo, D.R.	9.7	9.6	9.0	7.6	9.0	8.4	8.9	9.1	9.4	9.7	9.0	9.6
Congo, Republic	8.5	7.8	6.4	6.3	8.1	7.6	8.7	8.7	7.7	7.3	6.9	7.8
Cote d'Ivoire	8.2	8.5	9.1	7.9	7.9	8.0	9.2	8.2	8.7	8.9	9.1	9.7
Djibouti	8.0	6.9	6.0	5.2	6.7	6.7	7.5	7.4	6.6	6.5	7.2	8.1
Egypt	7.3	6.5	8.2	5.8	7.4	7.2	8.8	6.1	8.8	6.7	8.5	7.8
Equatorial Guinea	8.2	2.6	6.8	7.1	9.0	4.4	9.5	8.1	9.4	8.2	8.4	5.9
Eritrea	8.5	7.1	6.0	6.9	6.4	8.4	8.6	8.3	8.4	7.6	7.8	8.0
Ethiopia	9.3	8.2	8.3	7.2	8.2	7.8	7.6	8.1	8.5	7.9	8.8	7.8
Gabon	6.8	5.8	3.2	5.9	7.7	5.4	7.6	6.9	6.6	5.6	7.1	5.6
Gambia	7.4	6.0	4.1	6.6	6.9	7.5	7.7	7.1	7.4	5.8	6.4	7.0
Ghana	6.8	5.2	5.2	7.7	6.6	5.6	5.1	7.4	4.6	3.0	4.3	5.4
Guinea	8.2	7.7	8.1	8.2	8.4	8.8	9.7	8.9	8.9	9.0	9.1	7.7
Guinea Bissau	8.4	7.1	5.7	7.4	8.3	8.5	8.8	8.7	7.8	8.8	8.6	8.4
Kenya	8.8	8.5	8.5	7.9	8.3	7.3	8.6	7.9	7.4	7.7	8.8	8.1
Lesotho	8.9	4.7	5.1	6.5	6.1	8.5	6.8	8.4	6.1	5.6	7.0	6.9
Liberia	8.4	8.6	6.4	6.8	8.1	8.3	6.9	8.8	6.5	6.9	8.1	9.2
Libya	5.8	4.5	6.3	4.2	6.9	5.3	7.7	5.5	8.5	6.8	7.5	6.4
Madagascar	8.4	4.1	5.2	5.2	7.6	7.6	6.8	8.6	5.9	6.5	7.4	7.8
Malawi	9.0	6.3	5.9	8.2	8.3	8.8	7.9	8.5	7.3	5.3	7.7	8.3
Mali	8.8	5.5	6.5	7.6	6.8	8.1	5.3	8.4	5.3	6.8	4.3	7.3
Mauritania	8.4	6.9	7.7	5.3	6.7	7.7	7.2	8.2	7.2	7.7	8.0	7.6
Mauritius	3.7	1.6	3.5	2.9	5.4	4.2	4.7	4.1	3.7	3.5	3.2	3.8
Morocco	6.4	6.5	6.7	6.6	7.3	6.1	7.1	6.2	6.6	5.7	6.2	4.6
Mozambique	8.6	3.6	4.8	7.6	7.6	7.9	7.4	8.5	6.9	6.4	5.7	6.4
Namibia	7.1	5.4	5.5	7.2	8.7	6.3	4.5	7.0	5.5	5.3	3.5	6.3
Niger	9.5	6.8	8.2	6.2	7.6	8.8	8.4	9.3	7.8	7.7	7.8	8.3
Nigeria	8.3	6.0	9.6	7.8	9.1	6.8	9.0	9.0	8.3	9.3	9.5	6.2
Rwanda	8.8	7.4	8.5	7.2	7.4	7.1	7.4	7.3	7.7	5.2	8.1	7.4
Sao Tome and Principe	7.3	4.3	4.9	7.5	6.2	7.8	7.0	7.1	4.9	5.8	6.3	6.8
Senegal	7.6	6.2	6.1	6.0	7.0	6.5	5.9	7.4	6.1	6.1	5.0	5.9
Seychelles	6.0	4.1	5.0	4.9	6.7	4.9	6.9	4.0	5.8	6.1	6.0	6.8
Sierra Leone	8.8	7.5	6.5	8.2	8.5	8.5	7.6	8.7	6.6	5.9	7.8	7.3
Somalia	9.6	9.8	9.4	8.5	8.0	9.4	9.8	9.8	9.8	9.9	10.0	9.7
South Africa	8.1	6.7	5.4	4.2	8.3	4.9	5.2	5.8	4.4	4.4	5.4	2.8
South Sudan	8.8	10.0	10.0	6.6	8.9	8.2	9.3	9.7	9.5	9.7	9.9	10.0
Sudan	8.8	9.8	9.9	8.6	9.0	7.3	9.7	9.2	9.7	9.7	9.9	9.7
Swaziland	9.0	4.4	3.9	6.0	6.6	8.2	8.7	7.7	7.9	6.5	7.0	7.3
Tanzania	8.1	7.1	6.2	6.1	6.6	7.1	6.4	8.3	6.1	5.6	5.8	7.2
Togo	7.9	6.4	5.4	6.8	7.6	7.9	7.8	8.2	7.7	7.5	7.6	6.8
Tunisia	5.4	3.7	6.0	5.2	6.7	5.2	7.1	5.5	7.8	6.7	6.9	4.6
Uganda	8.7	8.8	8.2	6.6	8.3	7.4	8.0	8.2	7.8	8.3	8.4	7.9
Zambia	9.1	7.1	5.6	7.1	7.6	8.1	7.8	7.9	6.1	5.2	5.7	7.0
Zimbabwe	9.4	8.6	8.8	9.3	9.2	9.3	9.4	9.3	9.3	9.0	9.6	7.5

Source: Fund for Peace. Notes: DP is Demographic Pressures, RIDP is Refugees and IDPs, GG is Group Grievance, HF is Human Flight, UD is Uneven Development, PED is Poverty and Economic Decline, LS is Legitimacy of the State, PS is Public Services, HR is Human Rights, SA is Security Apparatus, FE is Factionalized Elites while EI is External Intervention

Table 3: Inclusiveness Matrix

Income growth	**Equity growth**	**Quadrant**	**Conclusion**
$d\bar{y} > 0$	$d\omega > 0$	1	Unambiguously inclusive
$d\bar{y} > 0$	$d\omega < 0$	2	Higher per capita income at the expense of equity
$d\bar{y} < 0$	$d\omega > 0$	3	Higher equity is achieved at the cost of average income contraction.
$d\bar{y} < 0$	$d\omega < 0$	4	Unambiguously non-inclusive

Source: Anand et al., (2013b, p. 11)

Table 4: Inclusive growth: Equity growth, growth in real GDP per capita, and Inclusive growth

Countries	Equity growth	Growth in real GDP per capita (US$ 2010)	Inclusive growth	Initial year	Final year
Mali	2.4	5.2	7.6	1984	2009
Ethiopia	1.2	5.8	7	1995	2010
Uganda	0.4	5.3	5.7	1989	2012
Burkina Faso	1.3	4.2	5.5	1994	2014
Namibia	0.9	4.1	5	2003	2009
Botswana	-0.5	5.3	4.8	1985	2009
Malawi	2.9	1.5	4.5	1997	2010
Mauritius	-0.1	4.4	4.3	1987	2014
Sierra Leone	1.4	2.9	4.3	2003	2011
Lesotho	0.1	4.1	4.2	1986	2012
Tunisia	0.5	3.6	4.2	1985	2010
Zambia	1.3	2.4	3.7	1991	2010
Morocco	-0.1	3.6	3.5	1984	2006
Central African Republic	2.6	0.4	3	1992	2011
Congo Democratic Republic	0	2.9	2.8	2004	2012
Djibouti	-0.7	3.5	2.8	2002	2013
Swaziland	1.4	1.3	2.7	1994	2009
Tanzania	-0.1	2.6	2.5	1991	2011
Senegal	1.6	0.8	2.4	1991	2011
Guinea	1.7	0.4	2.1	1991	2012
Mauritania	1	1	1.9	2006	2012
Nigeria	-0.3	2	1.7	1985	2009
Ghana	-0.7	2.3	1.6	1987	2005
Kenya	1.5	0.1	1.5	1992	2005
Congo Republic	-0.7	2	1.3	2005	2011
Cameroon	-0.4	1.5	1.1	1996	2014
Rwanda	-1.1	2.1	1.1	1984	2013
South Africa	-0.5	1.6	1.1	1993	2011
Niger	0.1	0.5	0.6	1992	2014
Madagascar	-0.3	-0.1	-0.4	1997	2012
Benin	-1.1	0.4	-0.6	2003	2011
Cote d'Ivoire	0.2	-1.1	-1	1985	2008
Togo	-1.6	0.6	-1	2006	2011
Burundi	0.2	-2.5	-2.3	1992	2006

Table 5: Inclusive Growth in Fragile and Non-Fragile states

Fragile states		Non-Fragile states	
Countries	**Inclusive growth**	**Countries**	**Inclusive growth**
Ethiopia	7.0	Mali	7.6
Uganda	5.7	Burkina Faso	5.5
Malawi	4.5	Namibia	5.0
Sierra Leone	4.3	Botswana	4.8
Central African Republic	3.0	Mauritius	4.3
Congo Democratic Republic	2.8	Lesotho	4.2
Guinea	2.1	Tunisia	4.2
Nigeria	1.7	Zambia	3.7
Kenya	1.5	Morocco	3.5
Congo Republic	1.3	Djibouti	2.8
Cameroon	1.1	Swaziland	2.7
Niger	0.6	Tanzania	2.5
Cote d'Ivoire	-1.0	Senegal	2.4
Burundi	-2.3	Mauritania	1.9
		Ghana	1.6
		Rwanda	1.1
		South Africa	1.1
		Madagascar	-0.4
		Benin	-0.6
		Togo	-1.0
Mean	2.3	Mean	2.8
Standard deviation	2.5	Standard deviation	2.2
Minimum	-2.3	Minimum	-1.0
Maximum	7.0	Maximum	7.6

Table 6: OLS Estimates: Fragility and Inclusive Growth in African Countries

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Demographic Pressure	-0.056														
	(0.264)														
Refugees & IDPs		-0.231													
		(0.221)													
Group Grievance			-0.165												
			(0.230)												
Human Flight & Brain Drain				-0.046											
				(0.281)											
Uneven Econ. Development					-0.204										
					(0.335)										
Poverty & Econ. Decline						-0.129									
						(0.280)									
State Legitimacy							-0.462**								
							(1.752)								
Public Services								-0.407*							
								(0.227)							
Human Rights									-0.298						
									(0.281)						
Security Apparatus										-0.188					
										(0.182)					
Factionalised Elites											-0.320				
											(0.196)				
External Intervention												-0.242			
												(0.233)			
FSI													-0.031		
													(0.023)		
FSID														-0.521	
														(0.828)	
FSI Amended															-0.041
															(0.028)
Constant	3.077	4.150***	3.704**	2.313	4.179	3.557*	6.014***	5.826****	4.669**	3.868***	4.848***	4.333**	5.242**	2.832***	5.186***
	(2.061)	(1.440)	(1.554)	(1.812)	(2.523)	(1.912)	(1.752)	(1.638)	(1.965)	(1.189)	(1.376)	(1.594)	(1.904)	(0.494)	(1.766)
Observations	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
R^2	0.001	0.029	0.014	0.001	0.006	0.004	0.081	0.042	0.033	0.019	0.066	0.027	0.033	0.013	0.041

Table 7: OLS Estimates: Fragility, Financial Inclusion, Macroeconomic variables and Inclusive Growth in African Countries

	1	2	3	4	5	6	7	8	9	10	11	12
ACCOUNT	0.076**			0.077***			0.074**			0.069**		
	(0.030)			(0.027)			(0.029)			(0.029)		
SAVINGS		0.143***			0.150***			0.142**			0.136**	
		(0.511)			(0.050)			(0.051)			(0.050)	
LOAN			-0.003			-0.014			-0.005			-0.001
			(0.038)			(0.037)			(0.037)			(0.038)
FSI	-0.002	-0.013	-0.049									
	(0.040)	(0.038)	(0.041)									
FSID				-0.062	-0.221	-0.144						
				(0.953)	(0.956)	(1.128)						
FSI2							-0.010	-0.021	-0.061			
							(0.047)	(0.044)	(0.048)			
LS										-0.235	-0.286	-0.448
										(0.365)	(0.350)	(0.386)
INVESTMENT	2.864***	2.934***	1.379	2.858***	2.974***	1.904	2.800***	2.879***	1.334	2.575**	2.673***	1.185
	(0.896)	(0.876)	(1.159)	(0.890)	(0.859)	(1.371)	(0.927)	(0.900)	(1.151)	(0.971)	(0.945)	(1.289)
TRADE	0.244	0.364	0.320	0.243	0.396	0.430	0.215	0.345	0.307	0.295	0.474	0.687
	(0.847)	(0.804)	(0.975)	(0.839)	(0.791)	(0.998)	(0.849)	(0.804)	(0.973)	(0.869)	(0.805)	(1.038)
CREDIT	-1.369**	-1.075*	-1.041*	-1.372**	-1.036*	-0.649*	-1.391**	-1.089*	-	-	-1.137*	-
	(0.623)	(0.569)	(0.504)	(0.646)	(0.555)	(0.378)	(0.620)	(0.558)	1.035**	1.433**	(0.567)	0.915**
									(0.471)	(0.631)		(0.421)
ENROL	-3.004*	3.068*	-1.721	-3.004*	-3.050*	-1.326	-3.007*	-3.080*	-1.704	-2.943*	-3.017*	-1.583
	(1.633)	(1.585)	(1.754)	(1.631)	(1.572)	(1.729)	(1.637)	(1.588)	(1.744)	(1.583)	(1.525)	(1.659)
Constant	8.810	8.587	11.792	8.666	7.016	3.362	9.658	9.086	11.593	11.038	9.864	8.927
	(10.284)	(10.099)	(10.890)	(8.062)	(7.701)	(8.160)	(10.088)	(9.873)	(10.522)	(8.927)	(8.768)	(9.276)
Observations	34	34	30	34	34	30	34	34	30	34	34	30
R^2	0.333	0.348	0.164	0.333	0.347	0.125	0.334	0.351	0.170	0.346	0.365	0.172

Notes. 1. Dependent variable is inclusive growth

2. Values in () are heteroscedastic-consistent standard errors

3. *, ** and *** indicates statistical significance at the 10%, 5% and 1% levels respectively

4. FSI is FSI composite index, FSID = dummy variable for fragility, 1 if fragile and 0 otherwise, FSI2 is amended FSI index based on McKay and Thorbecke, LS is Legitimacy of the State, ACCOUNT is ownership of account at a financial institution (% adults); SAVINGS is savings at a financial institution (% adults); LOANS is Loan in the past year (% adults), INVEST is gross fixed capital formation, TRADE is trade openness, CREDIT is domestic credit to private sector, ENROL is primary school enrolment.

Table 8: IV Estimates: Fragility, Financial Inclusion, Macroeconomic variables and Inclusive Growth in African Countries

	1	2	3	4	5	6	7	8	9	10	11	12
ACCOUNT	0.187**			0.176**			0.184**			0.167**		
	(0.083)			(0.073)			(0.085)			(0.077)		
SAVINGS		0.266***			0.264***			0.260**			0.247**	
		(0.102)			(0.096)			(0.102)			(0.098)	
LOAN			0.124*			0.150			0.120*			0.129*
			(0.074)			(0.091)			(0.072)			(0.075)
FSI	0.047	0.002	-0.098*									
	(0.056)	(0.039)	(0.055)									
FSID				-0.204	-0.406	-1.439						
				(0.923)	(0.834)	(1.482)						
FSI2							0.036	-0.012	-0.111*			
							(0.063)	(0.044)	(0.062)			
LS										-0.073	-0.304	-0.893*
										(0.390)	(0.301)	(0.462)
INVESTMENT	3.051**	3.120**	-0.090	2.521*	2.922**	-0.093	2.921**	2.986**	-0.091	2.515*	2.619**	-0.683
	(1.358)	(1.214)	(1.998)	(1.355)	(1.198)	(2.384)	(1.373)	(1.212)	(1.982)	(1.357)	(1.209)	(2.114)
TRADE	0.820	0.786	0.785	0.548	0.698	1.113	0.731	0.720	0.807	0.591	0.850	1.653
	(1.156)	(1.022)	(1.316)	(1.090)	(0.985)	(1.480)	(1.152)	(1.008)	(1.310)	(1.052)	(0.951)	(1.380)
CREDIT	-2.837**	-1.695**	-1.121	-3.123**	-1.800**	-0.493	-	-1.767**	-1.044	-	-	-0.982
	(1.141)	(0.704)	(0.829)	(1.284)	(0.752)	(0.860)	2.951**	(0.705)	(0.812)	3.021***	1.912***	(0.789)
							(1.199)			(1.147)	(0.694)	
ENROL	-5.544**	-4.836***	-3.898**	-5.632***	-4.836***	-3.623*	-	-	-3.810*	-5.477**	-	-3.626*
	(2.141)	(1.667)	(1.974)	(2.158)	(1.677)	(2.137)	5.589**	4.854***	(1.940)	(2.115)	4.786***	(1.914)
							(2.192)	(1.668)			(1.638)	
Constant	14.413	12.917	22.548*	22.636**	14.500*	9.423	17.519*	14.868*	20.602*	22.131**	17.092**	17.122*
	(10.044)	(8.824)	(12.666)	(11.349)	(7.905)	(9.561)	(10.125)	(8.567)	(11.727)	(9.756)	(7.617)	(10.026)
Observations	31	31	28	31	31	28	31	31	28	31	31	28
Sargan test	[0.520]	[0.850]	[0.510]	[0.543]	[0.806]	[0.619]	[0.511]	[0.854]	[0.543]	[0.538]	[0.710]	[0.759]

Notes. 1. Dependent variable is inclusive growth

2. Values in () are heteroscedastic-consistent standard errors

3. *, ** and *** indicates statistical significance at the 10%, 5% and 1% levels respectively

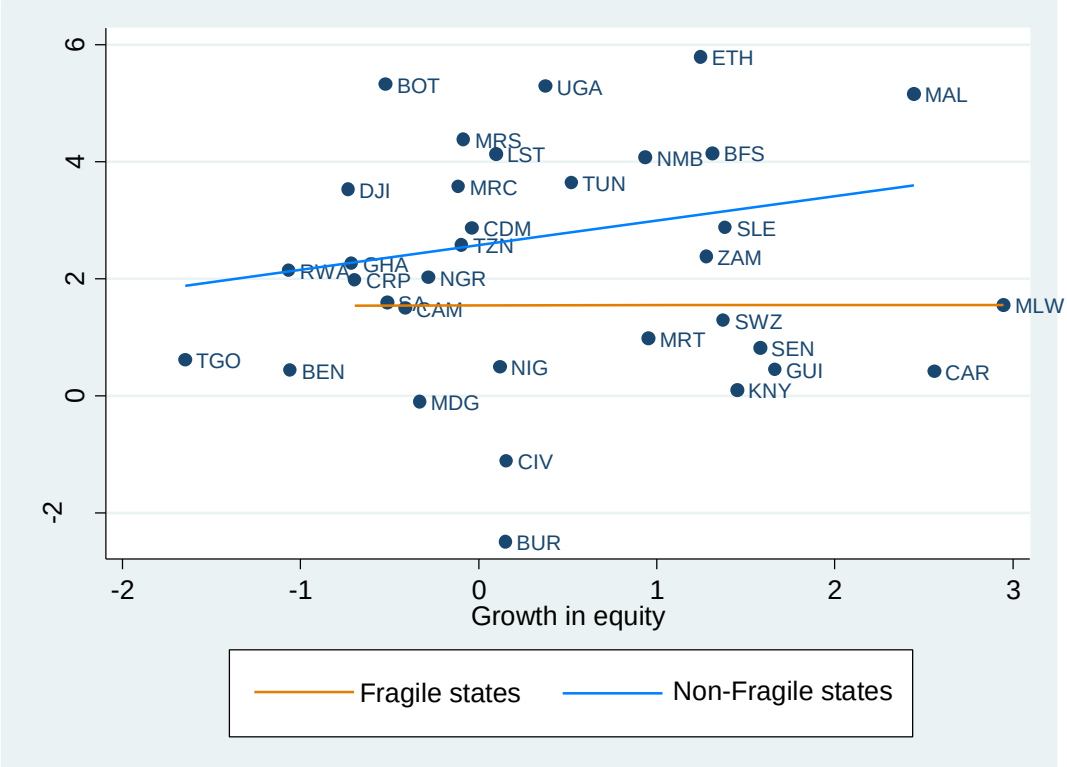
4. FSI is FSI composite index, FSID = dummy variable for fragility, 1 if fragile and 0 otherwise, FSI2 is amended FSI index based on McKay and Thorbecke, LS is Legitimacy of the State, ACCOUNT is ownership of account at a financial institution (% adults); SAVINGS is savings at a financial institution (% adults); LOANS is Loan in the past year (% adults), INVEST is gross fixed capital formation, TRADE is trade openness, CREDIT is domestic credit to private sector, ENROL is primary school enrolment.

5. Instruments used are legal origins, longitude

Figure 1: Inclusive Growth: Distribution according to the Inclusiveness Matrix

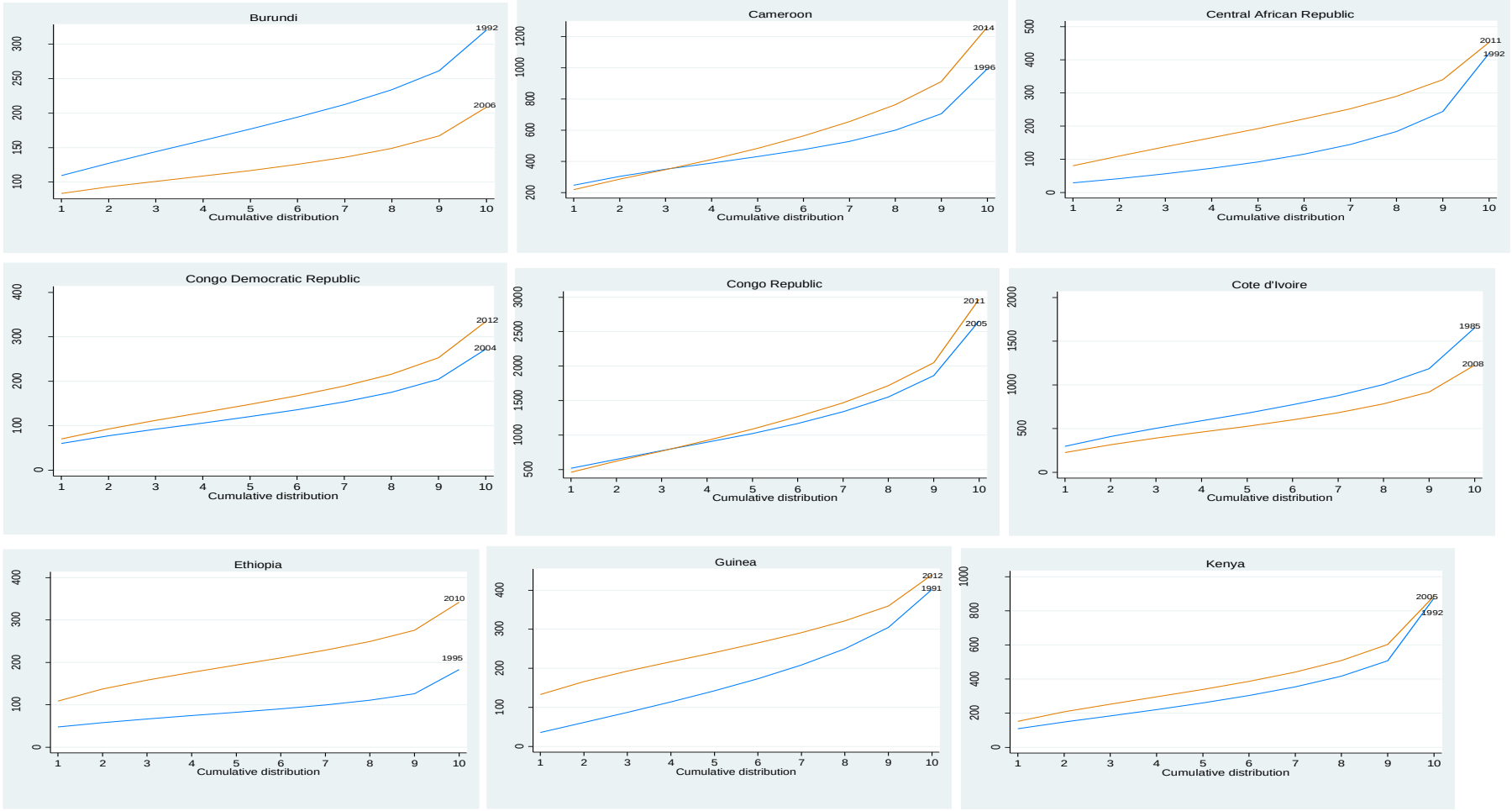
Note: 1. The chart measures proportionate average annual change.
2. The period used is from 1984 to the latest available data and the actual value of growth in average income and equity, see Table 4 for details on time series period chosen.
3. The value in the chart corresponds to the quadrant in the inclusive matrix in Table 3.
4. The countries abbreviations are as follow BEN is Benin, BOT is Botswana, BFS is Burkina Faso, BUR is Burundi, CAM is Cameroon, CAR is Central African Republic, CDM is Congo Democratic Republic, CRP is Congo Republic, CIV is Cote d'ivoire, DJI is Djibouti, ETH is Ethiopia, GHA is Ghana, GUI is Guinea, KNY is Kenya, LST is Lesotho, MDG is Madagascar, MLW is Malawi, MAL is Mali, MRT is Mauritania, MRS is Mauritius, MRC is Morocco, NMB is Namibia, NIG is Niger, NGR is Nigeria, RWA is Rwanda, SEN is Senegal, SLE is Sierra Leone, SA is South Africa, SWZ is Swaziland, TZN is Tanzania, TGO is Togo, TUN is Tunisia, UGA is Uganda, ZAM is Zambia.

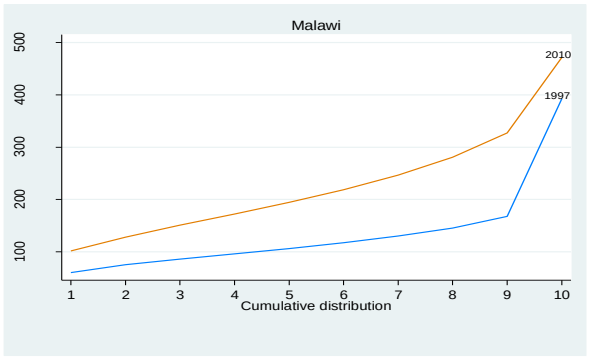
Figure 2: Inclusive Growth: distribution according to Fragility Status

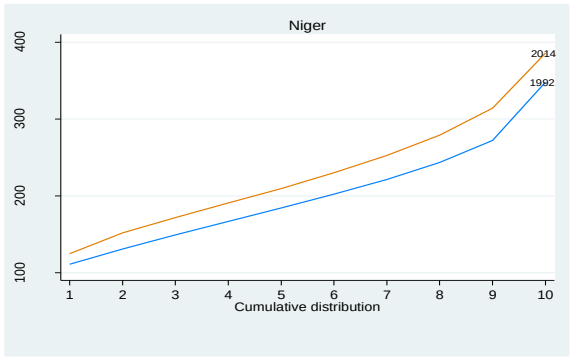


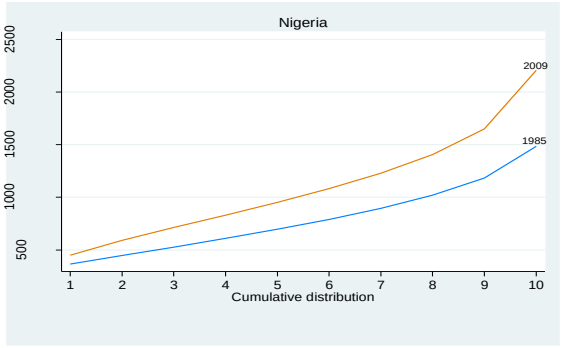
Note: 1. The chart measures proportionate average annual change.
2. The period used is from 1984 to the latest available data and the actual value of growth in average income and equity, see Table 4 for details on time series period chosen.
3. The countries abbreviations are as follow BEN is Benin, BOT is Botswana, BFS is Burkina Faso, BUR is Burundi, CAM is Cameroon, CAR is Central African Republic, CDM is Congo Democratic Republic, CRP is Congo Republic, CIV is Cote d'ivoire, DJI is Djibouti, ETH is Ethiopia, GHA is Ghana, GUI is Guinea, KNY is Kenya, LST is Lesotho, MDG is Madagascar, MLW is Malawi, MAL is Mali, MRT is Mauritania, MRS is Mauritius, MRC is Morocco, NMB is Namibia, NIG is Niger, NGR is Nigeria, RWA is Rwanda, SEN is Senegal, SLE is Sierra Leone, SA is South Africa, SWZ is Swaziland, TZN is Tanzania, TGO is Togo, TUN is Tunisia, UGA is Uganda, ZAM is Zambia.

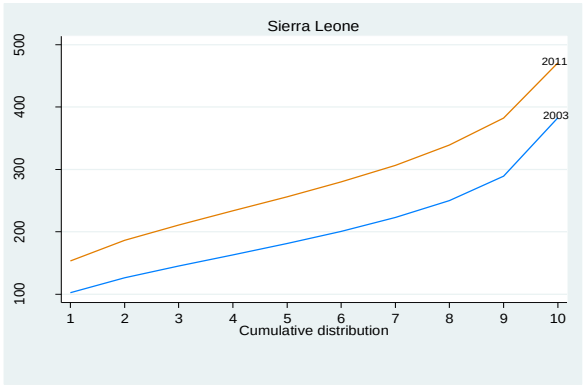
Figure 3: Social Mobility Curves for Fragile Countries




Malawi
100
200
300
400
500
2010
1997
1 2 3 4 5 6 7 8 9 10
Cumulative distribution


Niger
100
200
300
400
2014
1992
1 2 3 4 5 6 7 8 9 10
Cumulative distribution


Nigeria
500
1000
1500
2000
2500
2009
1985
1 2 3 4 5 6 7 8 9 10
Cumulative distribution


Sierra Leone
100
200
300
400
500
2011
2003
1 2 3 4 5 6 7 8 9 10
Cumulative distribution

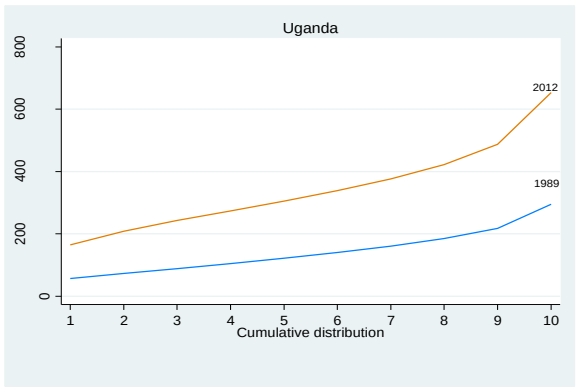
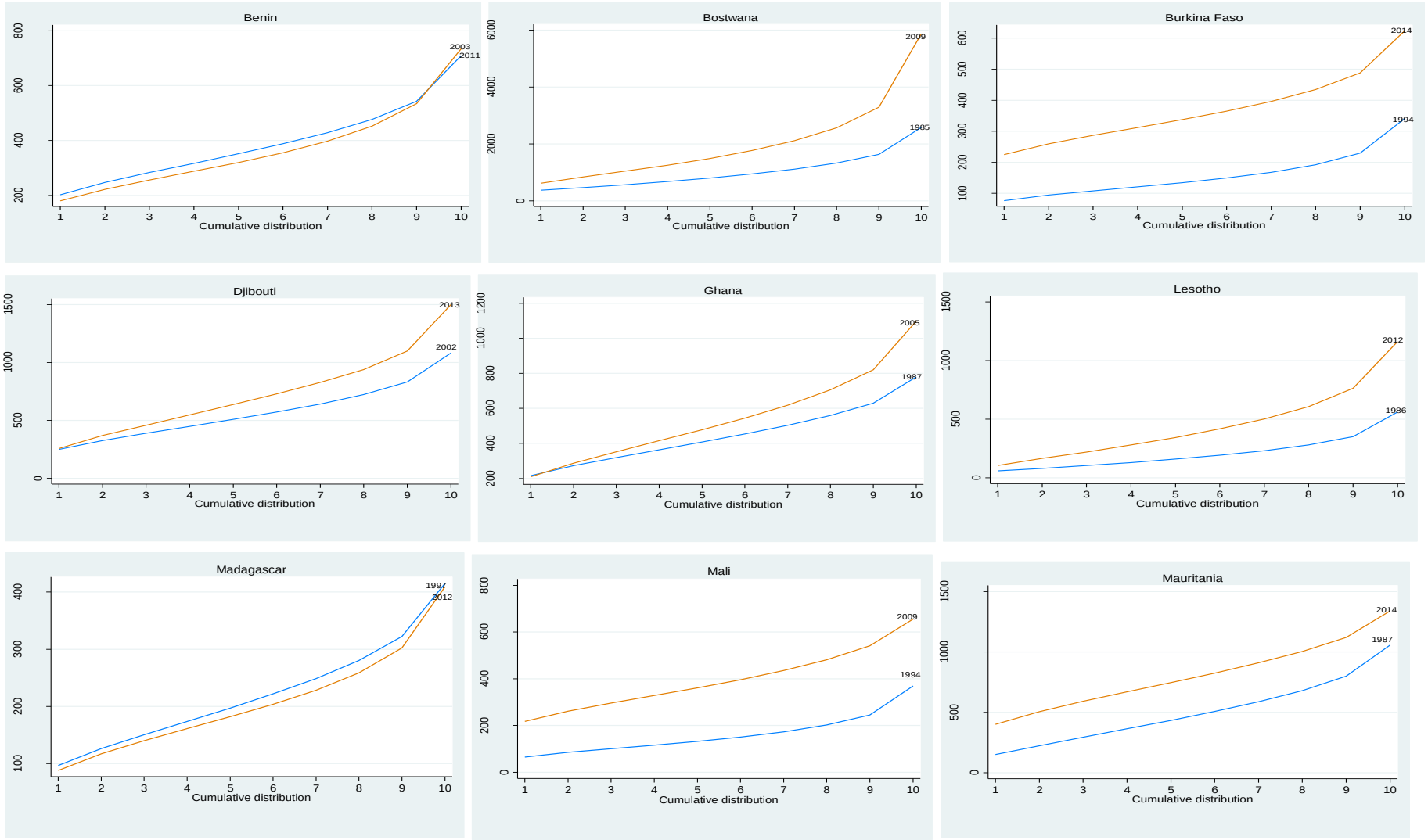
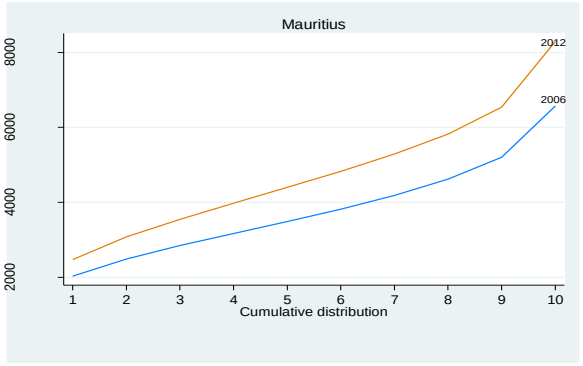
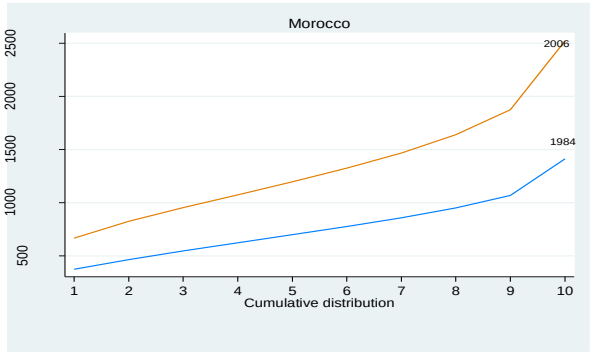
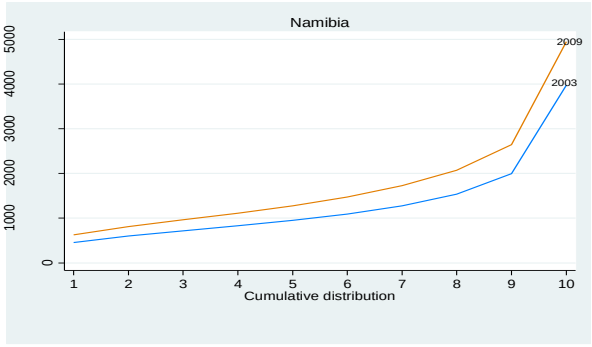

Uganda
0
200
400
600
800
2012
1989
1 2 3 4 5 6 7 8 9 10
Cumulative distribution

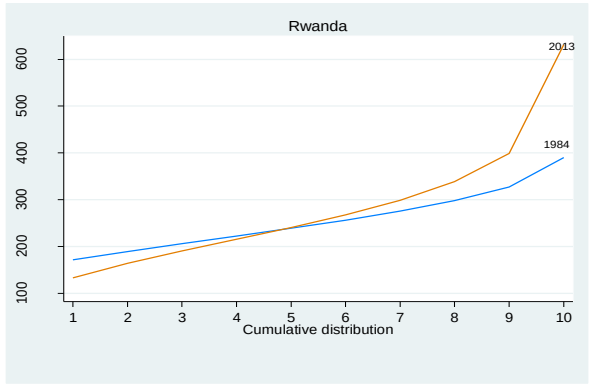
Figure 4: Social Mobility Curves for Non-Fragile Countries

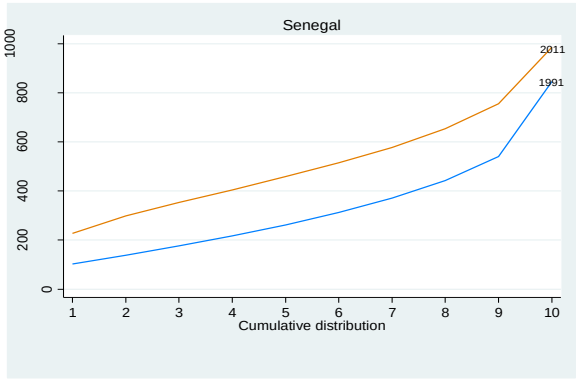


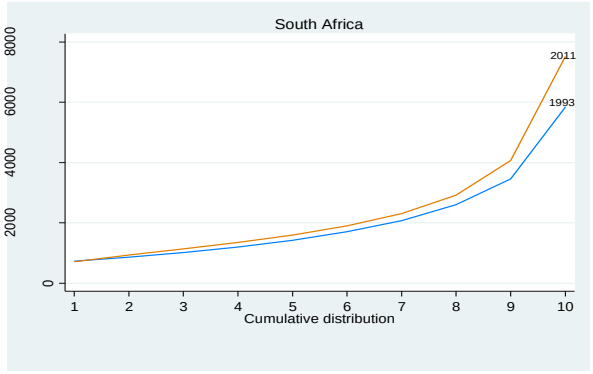

Mauritius
2012
2006
2000
4000
6000
8000
1 2 3 4 5 6 7 8 9 10
Cumulative distribution

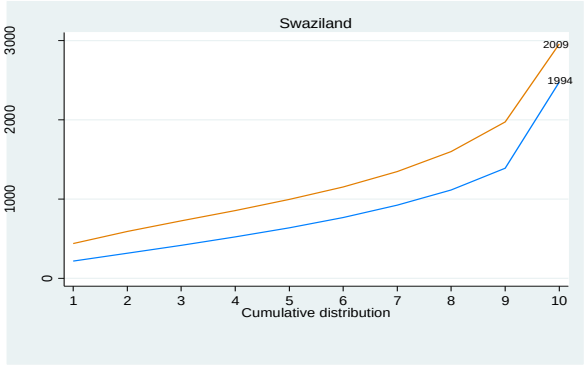

Morocco
2006
1984
500
1000
1500
2000
2500
1 2 3 4 5 6 7 8 9 10
Cumulative distribution

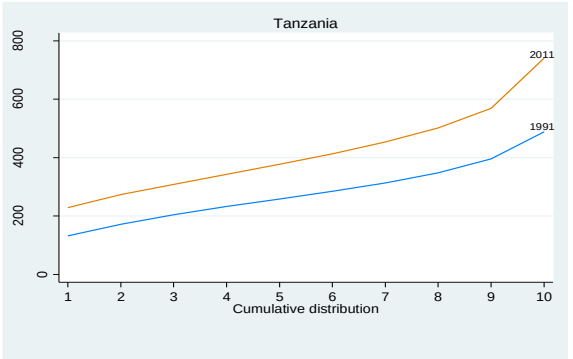

Namibia
2009
2003
0
1000
2000
3000
4000
5000
1 2 3 4 5 6 7 8 9 10
Cumulative distribution

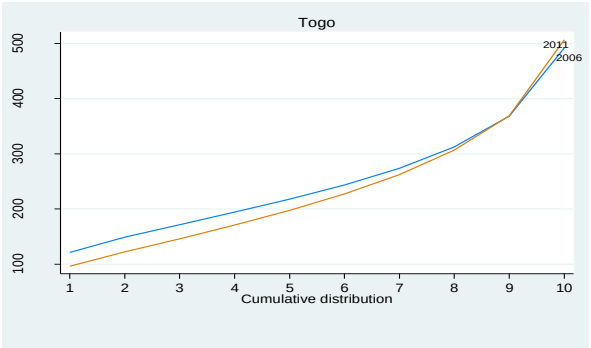

Rwanda
2013
1984
100
200
300
400
500
600
1 2 3 4 5 6 7 8 9 10
Cumulative distribution

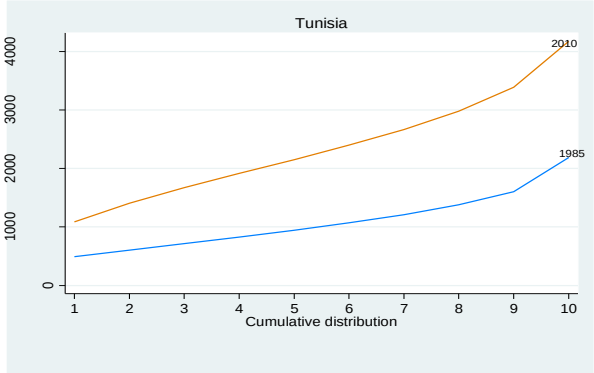

Senegal
2011
1991
0
200
400
600
800
1000
1 2 3 4 5 6 7 8 9 10
Cumulative distribution


South Africa
2011
1993
0
2000
4000
6000
8000
1 2 3 4 5 6 7 8 9 10
Cumulative distribution


Swaziland
2009
1994
0
1000
2000
3000
1 2 3 4 5 6 7 8 9 10
Cumulative distribution


Tanzania
2011
1991
0
200
400
600
800
1 2 3 4 5 6 7 8 9 10
Cumulative distribution


Togo
2011
2006
100
200
300
400
500
1 2 3 4 5 6 7 8 9 10
Cumulative distribution


Tunisia
2010
1985
0
1000
2000
3000
4000
1
2
3
4
5
6
7
8
9
10
Cumulative distribution

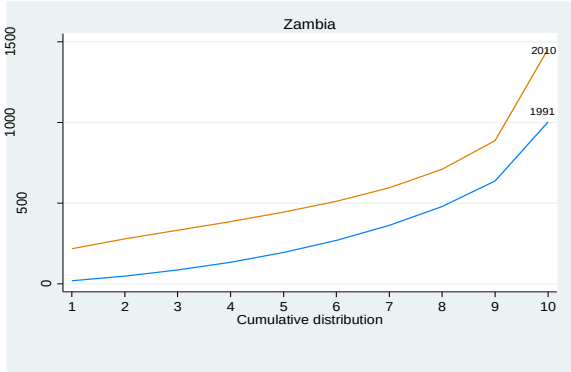
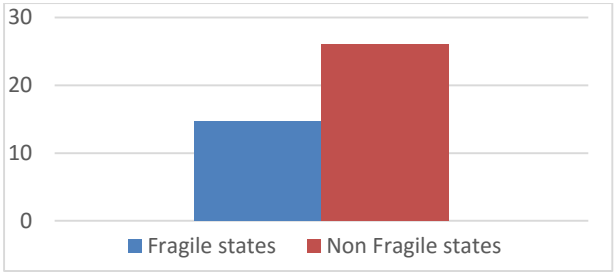
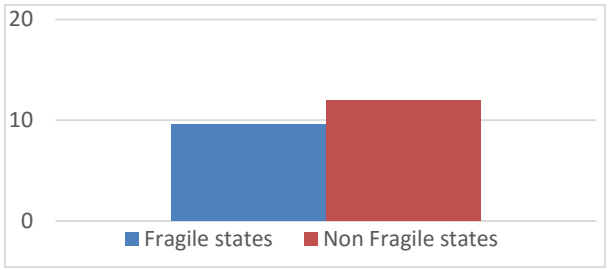

Zambia
2010
1991
0
500
1000
1500
1
2
3
4
5
6
7
8
9
10
Cumulative distribution

Figure 5: Financial Inclusion in Fragile and Non-fragile African States

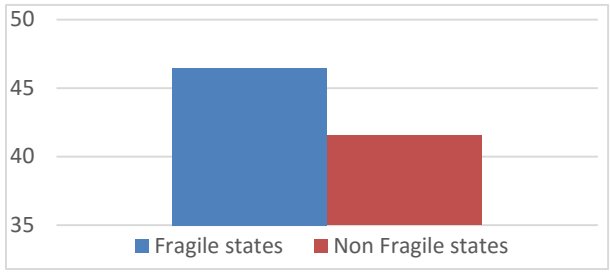
a) Account at Financial Institution (% of adults)



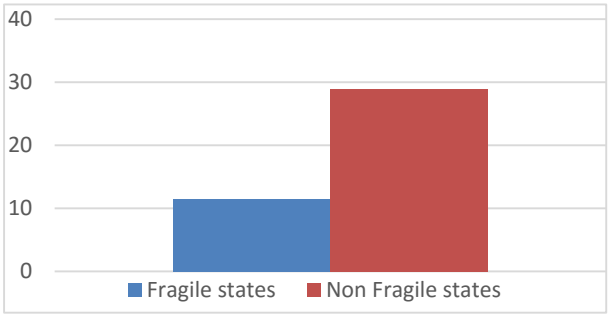
b) Saved in a Financial Institution (% of adults)



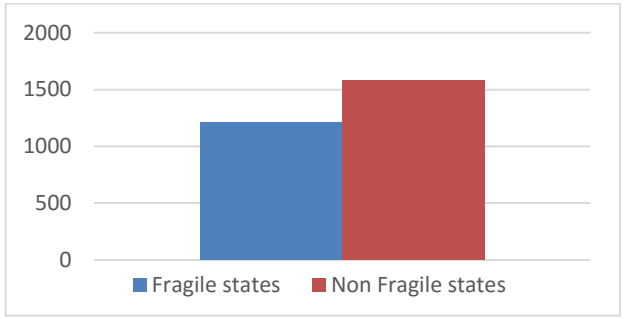
c) Loan in the past year (% of adults)



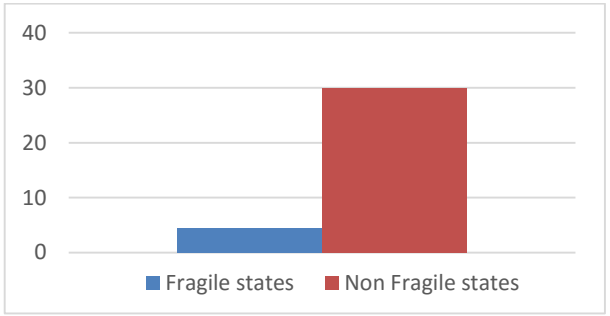
d) Domestic credit to private sector (% of GDP)



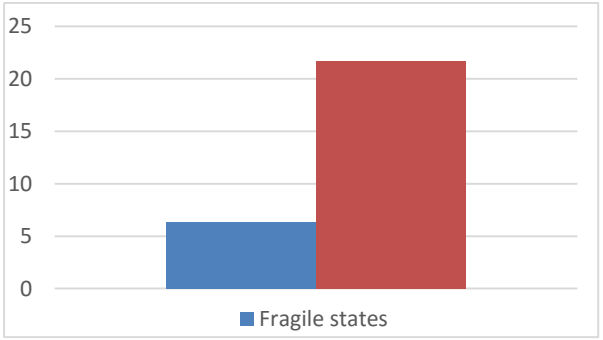
e) Number of Bank Branches



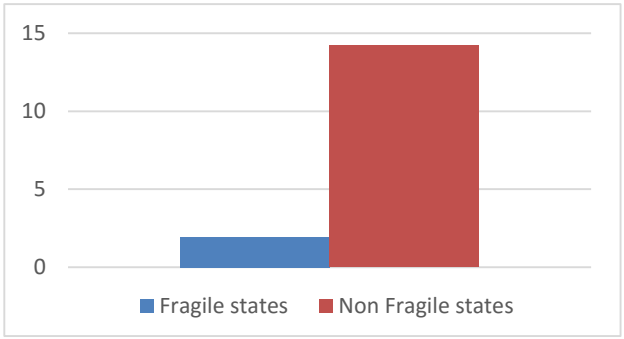
f) Bank Branches per 1,000 km^2



g) Bank Branches per 100,000 adults



h) ATMs per 1,000 km^2



i) ATMs per 100,000 adults

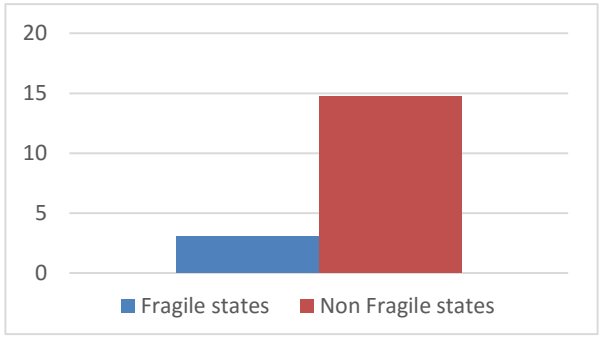
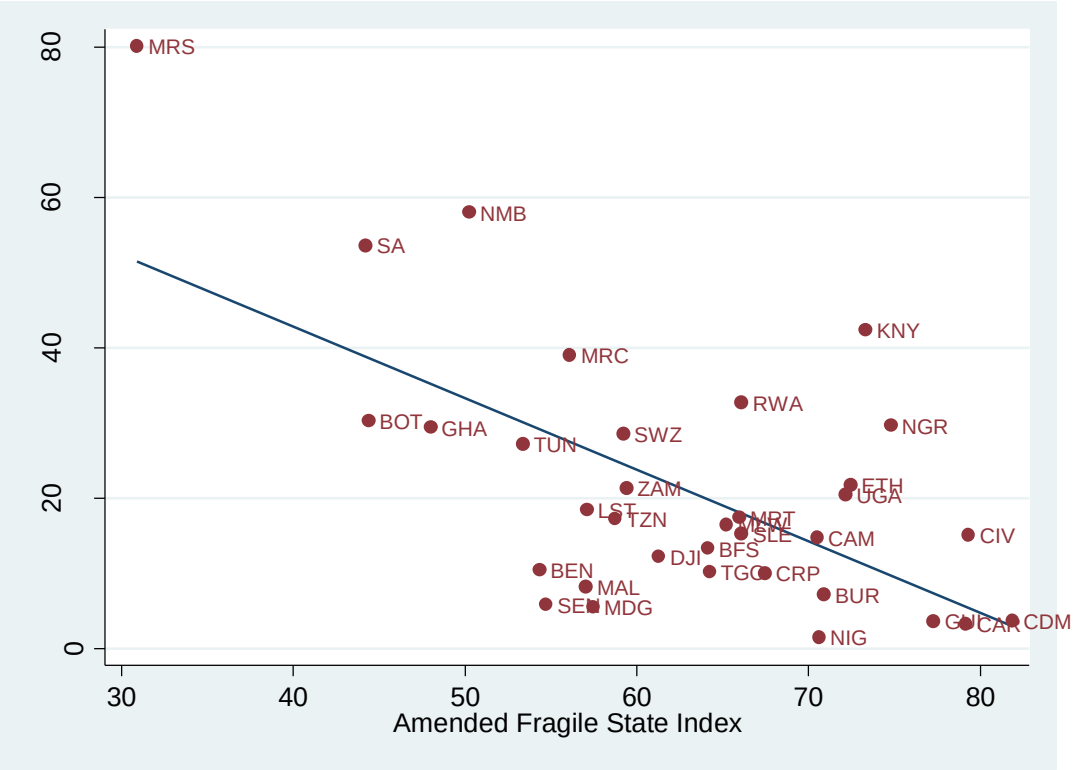
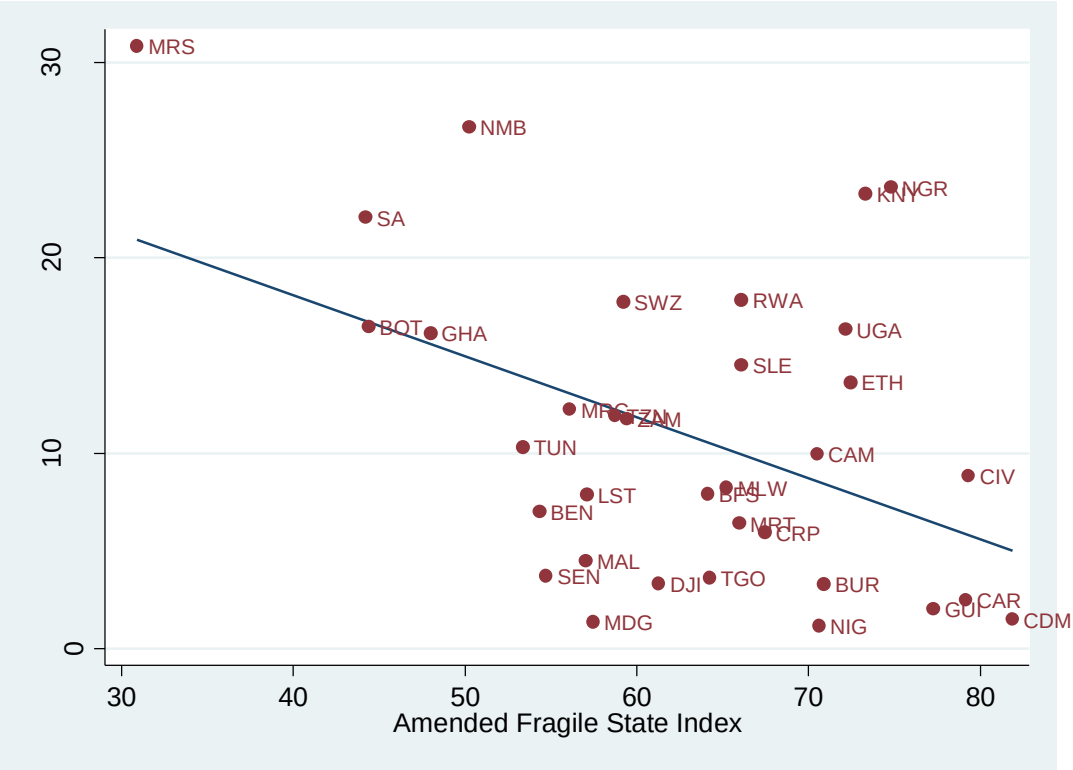


Figure 6: Financial Inclusion (ownership of an account) and Fragility



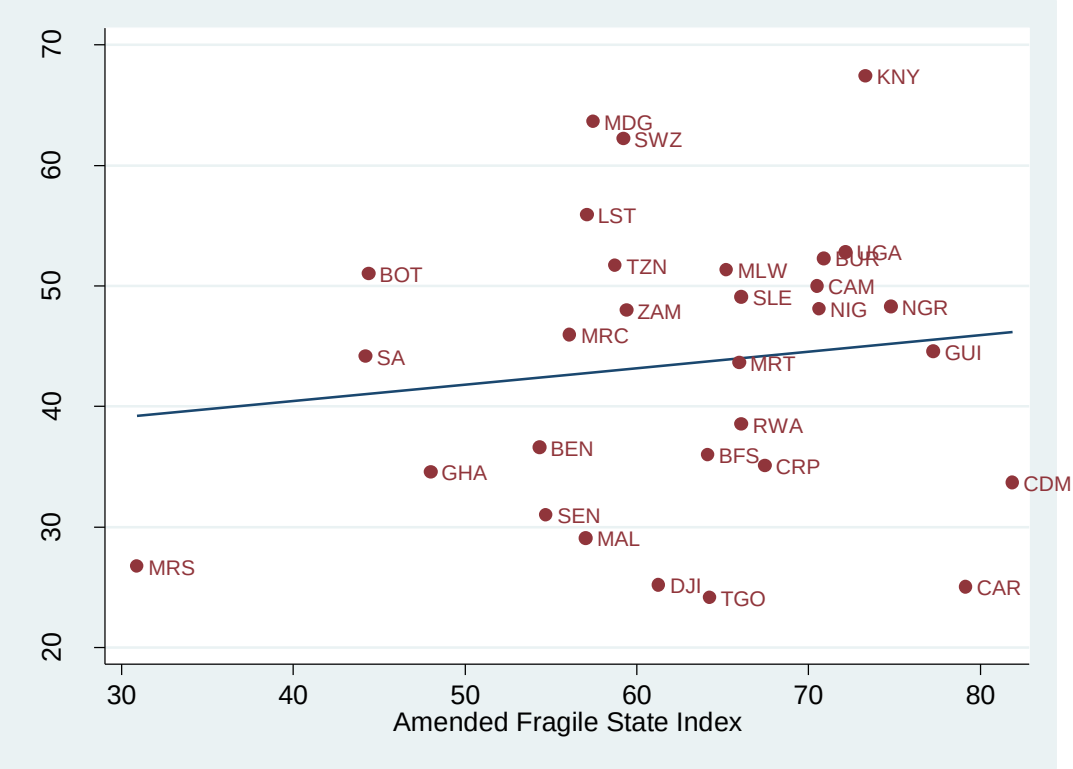
Note: The countries abbreviations are as follows: BEN is Benin, BOT is Botswana, BFS is Burkina Faso, BUR is Burundi, CAM is Cameroon, CAR is Central African Republic, CDM is Congo Democratic Republic, CRP is Congo Republic, CIV is Cote d'ivoire, DJI is Djibouti, ETH is Ethiopia, GHA is Ghana, GUI is Guinea, KNY is Kenya, LST is Lesotho, MDG is Madagascar, MLW is Malawi, MAL is Mali, MRT is Mauritania, MRS is Mauritius, MRC is Morocco, NMB is Namibia, NIG is Niger, NGR is Nigeria, RWA is Rwanda, SEN is Senegal, SLE is Sierra Leone, SA is South Africa, SWZ is Swaziland, TZN is Tanzania, TGO is Togo, TUN is Tunisia, UGA is Uganda, ZAM is Zambia.

Figure 7: Financial Inclusion (savings) and Fragility



Note: The countries abbreviations are as follows: BEN is Benin, BOT is Botswana, BFS is Burkina Faso, BUR is Burundi, CAM is Cameroon, CAR is Central African Republic, CDM is Congo Democratic Republic, CRP is Congo Republic, CIV is Cote d'ivoire, DJI is Djibouti, ETH is Ethiopia, GHA is Ghana, GUI is Guinea, KNY is Kenya, LST is Lesotho, MDG is Madagascar, MLW is Malawi, MAL is Mali, MRT is Mauritania, MRS is Mauritius, MRC is Morocco, NMB is Namibia, NIG is Niger, NGR is Nigeria, RWA is Rwanda, SEN is Senegal, SLE is Sierra Leone, SA is South Africa, SWZ is Swaziland, TZN is Tanzania, TGO is Togo, TUN is Tunisia, UGA is Uganda, ZAM is Zambia.

Figure 8: Financial Inclusion (loans) and Fragility



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Appendix Table: Variable descriptions

Variable	Acronym	Description	Source
Inclusive growth	ING	A measure which is comprised of two components: income growth and income distribution. Average 1984 – 2014.	World Bank: Africa Development Indicators and povcal
Ownership of an account	ACCOUNT	Denotes the percentage of adult respondents (above 15 years of age) with an account (self or together with someone else) at a bank, credit union, another financial institution (e.g., cooperative, microfinance institution), or the post office (if applicable) including respondents who reported having a debit card. 2011	Global Financial Inclusion (Findex) Database
Savings at a financial institution	SAVING	Denotes the percentage of adult respondents (above 15 years) who report saving or setting aside any money by using an account at a formal financial institution such as a bank, credit union, microfinance institution, or cooperative in the past 12 months. 2011	Global Financial Inclusion (Findex) Database
Loans from a financial institution	LOAN	Denotes the percentage of adult respondents (above 15 years) who report borrowing any money from a bank, credit union, microfinance institution, or another financial institution such as a cooperative in the past 12 months. 2011	Global Financial Inclusion (Findex) Database
Trade openness	TRADE	The sum of exports and imports of goods and services measured as a share of gross domestic product. Average 1984 – 2014.	World Bank: African Development Indicators
Education	ENROL	Gross primary enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown.	World Bank: African Development Indicators
Financial development	CREDIT	Credit provided by deposit money banks and other financial institutions to the private sector as a ratio of GDP. Average 1984 – 2014.	World Bank: African Development Indicators
Investment	INVEST	Consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Average 1984 – 2014.	World Bank: African Development Indicators
Composite index of fragility	FSI	This the cumulative score obtained from the 12 indicators of fragility. It ranges from 1 to 120. Average 2007– 2014.	Fund for Peace
Dummy variable for fragility	FSID	It takes the value of 1 if composite index of fragility is greater than 90 and 0 if otherwise. A value of 1 implies that the state is fragile while 0 implies that the state is non-fragile.	Fund for Peace
Demographic Pressure	DP	The value ranges from 1 to 10. 1 is the lowest value which implies that demographic pressure is extremely low while 10 is the highest value which implies that domestic pressure is extremely high. Average 2007– 2014.	Fund for Peace
Refugees and IDPs	RIDP	The value ranges from 1 to 10. 1 is the lowest value which implies that refugees and IDPs are extremely low while 10 is the highest value which implies that refugees and IDPs are extremely high. Average 2007– 2014.	Fund for Peace
Group Grievance	GG	The value ranges from 1 to 10. 1 is the lowest value which implies that group grievance is extremely low while 10 is the highest value which implies that group grievance is extremely high. Average 2007– 2014.	Fund for Peace

Human Flight and Brain Drain	HF	The value ranges from 1 to 10. 1 is the lowest value which implies that high flight and brain drain is extremely low while 10 is the highest value which implies that high flight and brain drain is extremely high. Average 2007– 2014.	Fund for Peace
Uneven Development	UD	The value ranges from 1 to 10. 1 is the lowest value which implies that uneven development is extremely low while 10 is the highest value which implies that uneven development is extremely high. Average 2007– 2014.	Fund for Peace
Poverty and Economic Decline	PED	The value ranges from 1 to 10. 1 is the lowest value which implies that poverty and economic decline is extremely low while 10 is the highest value which implies that poverty and economic decline is extremely high. Average 2007– 2014.	Fund for Peace
Legitimacy of the State	LS	The value ranges from 1 to 10. 1 is the lowest value which implies that corruption and lack of representativeness is extremely low while 10 is the highest value which implies that corruption and lack of representativeness is extremely high. Average 2007– 2014. Average 2007– 2014.	Fund for Peace
Public Services	PS	The value ranges from 1 to 10. 1 is the lowest value which implies that state provision of public services is extremely high while 10 is the highest value which implies that state provision of public services is extremely low. Average 2007– 2014.	Fund for Peace
Human right	HR	The value ranges from 1 to 10. 1 is the lowest value which implies that violation of human right is extremely low while 10 is the highest value which implies that violation of human right is extremely high. Average 2007– 2014.	Fund for Peace
Security Apparatus	SA	The value ranges from 1 to 10. 1 is the lowest value which implies that security apparatus does not has monopoly use of legitimate forces while 10 is the highest value which implies that security apparatus has monopoly use of legitimate forces. Average 2007– 2014.	Fund for Peace
Factionalised Elites	FE	The value ranges from 1 to 10. 1 is the lowest value which implies that leaders does not engage in deadlock and brinksmanship for political gain while 10 is the highest value which implies leaders engage in deadlock and brinksmanship for political gain. Average 2007– 2014.	Fund for Peace
External Intervention	EI	The value ranges from 1 to 10. 1 is the lowest value which implies that external intervention is extremely low while 10 is the highest value which implies that external intervention is extremely high. Average 2007– 2014.	Fund for Peace