Fragility of Growth in African Economies

Senior Policy Seminar **XXI**

Bringing Rigour and Evidence to Economic Policy Making in Africa

AFRICAN ECONOMIC RESEARCH CONSORTIUM
CONSORTIUM POUR LA RECHERCHE ÉCONOMIQUE EN AFRIQUE

Fragility of Growth in African Economies

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About African Economic Research Consortium (AERC)

Established in 1988, African Economic Research Consortium is a premier capacity building institution in the advancement of research and training to inform economic policies in sub-Saharan Africa. AERC's mission rests on two premises: first, that development is more likely to occur where there is sustained sound management of the economy; second, that such management is more likely to happen where there is an active, well-informed cohort of locally-based professional economists to conduct policy-relevant research. AERC builds that cohort through a programme that has three primary components: research, training and policy outreach. The organization integrates high quality economic policy research, postgraduate training and policy outreach within a vast network of researchers, universities and policy makers across Africa and beyond.

Networking – the linking of individuals and institutions in a knowledge-sharing, experience-sharing framework – is the key strategic instrument for implementing AERC's activities. The network approach links economists within and outside the region and promotes professional esprit de corps. The Consortium is itself a network of 18 funders who support a commonly agreed programme of research activities, its dissemination and the training of future potential researchers. The Board of Directors sets broad policy, provides support for a multi-year programme of activities, approves annual work programmes and budgets, and appoints the Consortium's international staff. An independent Programme Committee sets the research agenda, advises on scientific matters and reviews and approves proposals for research and training grants. Academic Boards for the collaborative master's and PhD programmes oversee the implementation of their respective programmes. A small Secretariat, based in Nairobi, Kenya, manages the programme and provides technical support to researchers, students and participating institutions. This organizational structure allows for ownership of AERC activities by the network of local researchers, an independent determination of the research agenda, and a programme of activities that is responsive to the professional and policy needs in the region, while at the same time ensuring accountability to funders.

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Abbreviations

AERC	African Economic Research Consortium
AIC	Akaike Information Criterion
CAST	Conflict Assessment Systems Tool
CCE	Concessionary Companies' based Economies
CIFP	Country Indicators for Foreign Policy
CPIA	Country Policy and Institutional Assessment
CPIA	Country Policy and Institutional Assessment
DRC	Democratic Republic of the Congo
ECOWAS	Economic Community of West African States
FAO	Food and Agricultural Organization
FDI	Foreign Direct Investment
FFP	Fund for Peace
FSI	Fragile States Index
GDP	Gross Domestic Product
G-I-P	Growth-Inequality-Poverty
P-I-G	Poverty-Inequality-Growth
SPLs	Social Protection Programmes and Labour Schemes
ILO	International Labour Organization
IMF	International Monetary Fund
IOM	International Office for Migrations
JCRR	Joint Commission on Rural Reconstruction
ODA	Official Development Assistance
OECD	Organization for Economic Co-operation and Development
PCA	Principal Components Analyses
PFE	Panel Fixed Effects
PFM	Public Financial Management
POLS	Pooled Ordinary Least Square
PSNP	Productive Safety Nets Programme
RBZ	Reserve Bank of Zimbabwe
SFI	State Fragility Index
SGMM	System Generalized Methods of Moments
SIDS	Small Islands Developing States
SPS	Senior Policy Seminar
SSA	Sub-Saharan Africa
TA	Technical Assistance
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
UNPKOs	United Nations Peacekeeping Operations
WDI	World Development Indicators

Preface

Inspired by the International Development Research Centre (IDRC) supported African Economic Research Consortium (AERC) collaborative research on "Growth in Fragile and Post Conflict States in Africa", under the "Promoting leadership for economic policy in fragile and post conflict states in Africa" project, we identified the topic: "Fragility of Growth in African Economies" as the theme for the 2019 Senior Policy Seminar (SPS). AERC used the 2019 SPS as the primary dissemination vehicle for the outputs of the Growth in Fragile and Post Conflict States in Africa research project. The goal was to support informed policy dialogue, and thus policy making, in relation to fragility of economic growth in African economies. Reducing fragility is a key step towards creating resilient economies in the region, thus putting Africa on the path to realise the United Nations Agenda 2030 goals, among other aspirations.

AERC is immensely grateful to the Government of Zimbabwe for welcoming us to the country for the Senior Policy Seminar (XXI). The event was hosted in partnership with the Reserve Bank of Zimbabwe, and Hon. Prof. Mthuli Ncube, Minister for Finance, Planning and Economic Development, was the Chief Guest. He was represented by Mr. George Guvamatanga, Permanent Secretary in the Ministry of Finance, Planning and Economic Development, at the opening of the Plenary, but later joined the delegates. Dr. Jesimen Chipika, Deputy Governor, Reserve Bank of Zimbabwe made the opening remarks on behalf of the Governor Dr. John Mangudya. The conference featured four presentations by thought leaders about Fragility of Growth in African Economies. There was a total of 131 participants from across Africa including high level policy makers in the rank of ministers, permanent secretaries, executive directors, heads of research institutions among other dignitaries.

I thank all participants including the authors namely: Prof. Andy Mckay of University of Sussex, United Kingdom, whose paper was titled "Anatomy of Fragility and Fragility of Growth"; Prof. Alemayehu Geda, Addis Ababa University, Ethiopia who presented a paper on "Fragility and Macroeconomic Management"; Dr. Anke Hoeffler, CSAE, University of Oxford, United Kingdom and Dr. Janvier Nkuruzinza, UNCTAD, Switzerland, whose paper was on "From Fragility to Economic Recovery and Development: Rebuilding the Economy for Inclusive Growth and Development" and Prof. Nicholas Ngepah, University of Johannesburg, South Africa whose paper focused on "Reversing Fragility in African Economies through Inclusive Growth". The presenters produced high-quality papers, and the participants were very active, thus enabling us to produce the seminar's policy recommendations that were shared with other African policy makers who did not find time to take part in this event.

We are grateful to all those who made the seminar a success. Dr. Witness Simbanegavi, AERC Research Director, and Dr. Innocent Matshe, Director of Training, made valuable

input into the preparation and implementation of the seminar. Similarly, AERC appreciates the hard work of Sandra Coyle, Chief Communications Officer, Dr. Charles Owino, Manager, Publications, Juffali Kenzi, ICT Manager, Edith Mutui, Communications and Publications Assistant in organizing the event. AERC also acknowledges with thanks Dr. Wilson Wasike, Collaborative Research Manager for his role as rapporteur as well as Pamela Kilwake and Bertha Chedeye who assisted with logistics. To these and the many others who were involved, AERC extends its heartfelt gratitude.

Prof. Njuguna Ndung'u
Executive Director
African Economic Research Consortium

The Anatomy of Fragile States in Sub-Saharan Africa: Understanding the Interrelationship between Fragility and Indicators of Wellbeing

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Introduction

Most analyses show that sub-Saharan Africa (SSA) continues to be the region characterized by having the largest share of fragile states in the world. Fragility may take many different forms and can include some or all economic, political and social fragility. In some of the worst cases, fragility has been associated with open conflict. In the 1990s, many countries in SSA suffered civil wars, and some countries even now suffer from widespread violence, the threat of it, or civil war. Whatever form it takes, fragility will commonly be strongly associated with underdevelopment. It is highly likely that fragility and underdevelopment will feed on and sustain each other.

While high levels of fragility remain, there has also been significant progress in SSA over the past 15–20 years. The extent of fragility in SSA, particularly in its more extreme forms of violence or civil war, has fallen since the 1990s. However, in addition, and partly related to the reduced fragility, SSA has achieved a significant, now widely recognized, growth recovery over the last 15 years or so. Recent World Development Indicators data show an average growth of US dollar-denominated GDP (2012 values) of 4.4% over the 1995–2015 period and 4.9% over the period 2005–15. In per capita terms, the growth rates for the same periods were 1.9% and 2.1%, respectively. It has also finally managed to reduce its levels of poverty. Using the World Bank's $1.90 international poverty line, the poverty headcount for SSA was 58.0% of its population in 1999. This fell to 50.5% by 2005, 46.1% in 2010 and 42.7% in 2012. For the continent, poverty fell in line with growth.

But this was not necessarily the experience of all countries. In a recent multi-country analysis edited by Arndt et al. (2016) of SSA's poverty reduction record, they identify different groups of countries in relation to poverty reduction. In several cases, poverty fell along with economic growth. In other countries, good growth performance was not associated with significant poverty reduction. Several countries did not manage to attain sustained growth in the last 15 years; not all countries shared in the growth recovery in SSA, and there is a diversity of experience. In some countries, information is lacking to make an adequate judgement on poverty reduction.

It is highly likely that there is a strong association between more fragile states and poorer performance in terms of growth and poverty reduction, and understanding this relationship is the focus of this paper. To add to the complexity, the more fragile states are also the ones that are more likely to suffer a lack of adequate data to assess their record in poverty reduction, and maybe even in extreme cases in terms of growth.

In this paper, we focus on the interrelation between fragility and poverty in its different dimensions. To begin with, we recognize that there are degrees (and different dimensions) of fragility, and that the degree of fragility can evolve over time. We begin in Section 2 with a discussion of approaches that have been adopted to measure fragility, focusing on two important and influential approaches that measure the degree of fragility of a country as a continuum, and also recognize that there are different dimensions to fragility, which may or may not all be present in a particular case. In Section 3 we discuss the classification of

countries according to our preferred measure, highlighting the high representation of SSA among the most fragile countries. In Section 4 we examine in some detail the association of fragility with both economic growth and its volatility, and with different measures of wellbeing from international data sources. As it is hard to obtain reliable information on the link between fragility and changes in poverty, we instead briefly discuss two country cases of descent into and emergence from fragility. This analysis establishes a strong association between fragility and poverty. Section 5 focuses on one dimension of fragility, the volatility of growth, comparing this across African countries and then trying to identify possible correlates of growth volatility. Section 6 discusses the interrelations between growth, poverty and inequality, looking both at how growth impacts on poverty and on how poverty can affect growth. Having established a clear and strong association between fragility and underdevelopment, Sections 7 and 8 then discuss ways in which this vicious circle might be broken; this is a major challenge which many more fragile countries have failed to rise to. We argue that institutions that directly address poverty reduction can play a key role in achieving this. Section 9 concludes.

Meaning and measurement of fragile states

There are many definitions of fragile states. Among the most concise and clear definitions is that of Wikipedia: "A **fragile state** is a low-income country characterized by weak state capacity and/or weak state legitimacy leaving citizens vulnerable to a range of shocks".[1] At the limit a fragile state can become a **failed state**, which is defined as "a political body that has disintegrated to a point where basic conditions and responsibilities of a sovereign government no longer function properly. Likewise, when a nation weakens and its standard of living declines, it introduces the possibility of governmental collapse."

In its most recent (2014–2019) strategy for "Addressing Fragility and Building Resilience in Africa", the African Development Bank defines fragility as a "condition of elevated risk of institutional breakdown, societal collapse, or violent conflict". Similarly, the World Bank recently adapted its approach to fragility to reflect multi-dimensional risks (World Bank, 2014). Typically, a fragile state is confronted with i) elevated risks that emanate from the interaction of internal pressures and external shocks; and ii) a limited capacity of the state and its institutions to mitigate the negative effects of those pressures and shocks.

Clearly there are degrees of fragility and drawing a line where a fragile state becomes a failed state is arbitrary. Therefore, it has been suggested that it would be better to think in terms of a "state capabilities continuum".

Given the highly multi-dimensional and complex nature of the concept of fragility applied to states, the measurement issue is of paramount importance. Here again there are many indicators of state fragility. Arguably the most comprehensive and relevant ones are i) the Fragile States Index (FSI) published by the Fund for Peace (FFP); and ii) the State Fragility Index (SFI) produced by the Center for Systemic Peace. Another potentially

1 Cited on 1 September 2016.

relevant source of information may come from the Country Policy and Institutional Assessment (CPIA) of the World Bank; this typically shows less variation and is perhaps less directly linked to fragility but is briefly considered later on.

Next, we provide a brief description of these indicators before using them in this study. The FFP-FSI index is constructed on the basis of 12 indicators consisting of four social components (demographic pressures, refugees and internally displaced persons, group grievance, and human flight and brain drain); two economic indicators (uneven economic development, and poverty and economic decline); and six political indicators (state legitimacy, public services, human rights and rule of law, security apparatus, factionalized elites, and external intervention). Each of the 12 indicators above is derived from several sub-components. For example, the rating composite score of *uneven economic development* is derived from a whole set of sub-components[2] as is that of "*poverty and economic decline*".[3] Scores are obtained through a hierarchical process from the most detailed and specific criteria to sub-components, to components and, finally, to a highly aggregated scalar composite index.[4] Each of the twelve main components of the FFP-FSI is scored between 0 (best) and 10 (worst), with a higher number indicating a higher level of fragility. The scores of the twelve components are added together to obtain the composite index, so that the range of the FFP-FSI is from 0 to 120 (from least to most fragile).

While the process needed to generate the FFP-FSI index is not transparent and is essentially arbitrary in its choice of components and sub-components, as well as in its (equal) weighting of the components, it provides useful information on fragility for almost 180 countries on a continuous annual basis over the period 2005–2016. The very wide coverage of factors correlated with fragility makes this index very comprehensive.

The second indicator of fragility we propose to use is the Center for Systemic Peace's State Fragility Index (SFI). The fragility matrix scores each country on both effectiveness and legitimacy in each of four performance dimensions: security, political, economic,

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2 Group-based inequality, or perceived inequality, in education, jobs, and economic status can create uneven commitments to the social contract within a state. Measurements include group-based poverty and education levels, the existence of slums, and fairness of housing and hiring practices.

3 Progressive economic decline of the society as a whole (measurements: per capita income, GNP, economic deficit, unemployment, poverty levels, business failures, and inflation) strains a state's ability to provide for its citizens and can create inter-group friction. It also includes failure of the state to pay salaries of government employees and armed forces, or to meet other financial obligations to its citizens, such as pension payments.

4 According to Wikipedia "Scores are obtained via a process involving content analysis, quantitative data, and qualitative review. In the content analysis phase, millions of documents from over 100,000 English-language or translated sources (social media are excluded) are scanned and filtered through the Fund for Peace's Conflict Assessment Systems Tool (CAST), which utilizes specific filters and search parameters to sort data based on Boolean phrases linked to indicators, and assigns scores based on algorithms."

and social.[5] The SFI then combines scores on the eight indicators and they are classified from 0, "no fragility", to 25, "extreme fragility." A country's fragility is closely associated with its state capacity to manage conflict; make and implement public policy; and deliver essential services, as well as its systemic resilience in maintaining system coherence, cohesion, and quality of life; and its ability to respond effectively to challenges and crises, and sustain progressive development. The SFI and the matrix showing the scores for effectiveness and legitimacy (and their components) is available annually for 1995 to 2014 for up to around 170 countries. The same critique of lack of transparency and relative arbitrariness in the selection and scoring of components applied to the previously described FSI indicator also applies to the SFI indicator.

While the FSI and SFI differ somewhat in the choice of factors correlated with fragility, and even more so in their scoring and aggregation methodologies, their domain and coverage overlap significantly.

Another measure related to this discussion is the World Bank's Country Policy and Institutional Assessment (CPIA) measure that it produces for diagnostic purposes and reports on an annual basis for all countries. The CPIA focuses on many different aspects of the policy and institutional environment of a country with different aspects ranked on a scale of one to six. It has 16 criteria covering economic management, structural policies, policies for social inclusion and equity, and public sector management and institutions. It includes, among other things, an assessment of the extent of property rights protection and rule-based governance, public sector management and institutions, and the extent of transparency and accountability in the public sector. Some of the measures used are outcomes and covers elements linked to fragility. The degree of association between the CPIA and the FSI is briefly considered in Appendix 1.

Identifying degrees of fragility

In this section we use the two indicators to identify and analyze fragile states in SSA. First, we focus on patterns of fragility for the latest available year, looking especially at sub-Saharan African countries while briefly also considering countries from other regions. Following this we examine trends over time.

Table 1 shows the 30 most fragile states in the world in 2016 according to the FSI for 2016 based on a total of 178 countries, reporting also the detailed components of the index. In this year, six of the 10 worst countries worldwide were in SSA, as were 21 of the top 30, and 32 of the top 50. This highlights that SSA is very disproportionately represented among the world's most fragile states. Only six African countries do not number among the most 100 fragile countries in the world (Cape Verde, Namibia, Ghana, South Africa, Botswana, and Mauritius).

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5 Each of the matrix indicators is rated on a four-point fragility scale: 0 "no fragility," 1 "low fragility," 2 "medium fragility," and 3 "high fragility" with the exception of the economic effectiveness indicator, which is rated on a five-point fragility scale (including 4 "extreme fragility").

Table 1: Thirty most fragile countries worldwide according to Fragile States Index; each of the 12 individual components is scored between 0 (best) and 10 (worst), 2016

Fragile States Index 2016	Total	Demographic pressures	Refugees and IDPs	Group grievance	Human flight	Uneven development	Poverty and economic decline	Legitimacy of state	Public services	Human rights	Security apparatus	Factionalized elites	External intervention	2006 ranking	
Somalia	**114.0**	9.7	9.7	9.4	9.5	9.3	9.0	9.5	9.0	9.7	9.7	10.0	9.5	1	Sudan
South Sudan	**113.8**	9.9	10.0	9.9	6.6	9.0	9.3	9.7	10.0	9.7	10.0	9.7	10.0	2	Congo, D.R.
Central African Republic	**112.1**	8.7	10.0	9.3	7.2	9.9	8.6	9.8	10.0	9.9	9.2	10.0	9.5	3	Côte d'Ivoire
Sudan	**111.5**	9.0	10.0	9.8	9.1	7.6	8.7	9.8	9.1	9.3	9.2	10.0	9.9	4	Iraq
Yemen	**111.5**	9.5	9.6	9.5	7.5	8.4	9.4	9.4	9.3	9.4	10.0	9.5	10.0	5	Zimbabwe
Syria	**110.8**	8.4	10.0	10.0	8.6	7.4	7.8	10.0	8.9	9.8	10.0	9.9	10.0	6	Chad
Chad	**110.1**	9.9	9.8	8.5	8.9	9.3	8.0	9.2	9.8	9.3	9.1	9.8	8.5	6	Somalia
Congo, D.R.	**110.0**	9.1	9.7	9.7	6.8	8.9	8.1	9.3	9.7	10.0	9.2	9.8	9.7	8	Haiti

continued next page

Table 1 Continued

Fragile States Index 2016	Total	Demographic pressures	Refugees and IDPs	Group grievance	Human flight	Uneven development	Poverty and economic decline	Legitimacy of state	Public services	Human rights	Security apparatus	Factionalized elites	External intervention	2006 ranking	
Afghanistan	**107.9**	9.5	9.5	8.6	8.4	7.5	8.5	9.1	9.6	8.7	10.0	8.6	9.9	9	Pakistan
Haiti	**105.1**	9.2	7.9	6.7	9.0	9.5	8.9	9.4	9.4	7.7	7.9	9.6	9.9	10	Afghanistan
Iraq	**104.7**	8.1	9.4	9.8	7.9	7.5	6.8	9.2	7.8	8.9	10.0	9.6	9.7	11	Guinea
Guinea	**103.8**	8.9	8.4	8.8	7.5	7.4	9.4	9.8	9.2	7.9	9.0	9.9	7.6	11	Liberia
Nigeria	**103.5**	9.1	7.7	9.4	7.4	8.8	7.7	8.8	9.4	9.1	9.7	9.9	6.5	13	Central African Republic
Pakistan	**101.7**	8.9	8.9	9.7	7.3	7.0	7.4	8.3	8.2	8.2	9.3	8.9	9.6	14	North Korea
Burundi	**100.7**	9.5	9.1	8.1	6.5	7.4	8.2	9.0	8.2	8.5	9.0	8.5	8.7	15	Burundi
Zimbabwe	**100.5**	8.6	8.7	7.5	8.1	8.2	8.3	8.9	8.5	8.4	7.8	9.8	7.7	16	Sierra Leone
Guinea Bissau	**99.8**	8.3	7.5	5.4	8.3	8.7	8.5	8.9	9.5	7.5	9.1	9.6	8.5	16	Yemen

continued next page

Table 1 Continued

Fragile States Index 2016	Total	Demographic pressures	Refugees and IDPs	Group grievance	Human flight	Uneven development	Poverty and economic decline	Legitimacy of state	Public services	Human rights	Security apparatus	Factionalized elites	External intervention	2006 ranking	
Eritrea	**98.6**	9.1	8.5	6.6	8.0	7.5	8.3	9.5	8.6	9.1	7.4	8.1	7.9	18	Myanmar
Niger	**98.4**	9.5	8.0	7.7	7.2	8.2	8.0	7.8	9.2	6.7	8.9	8.9	8.3	19	Bangladesh
Kenya	**98.3**	9.1	8.0	9.1	7.8	8.0	7.4	7.8	8.2	7.2	8.5	8.9	8.3	20	Nepal
Côte d'Ivoire	**97.9**	8.2	8.0	8.3	7.0	8.2	6.8	8.1	8.7	8.1	7.7	9.4	9.4	21	Uganda
Cameroon	**97.8**	8.3	8.0	8.5	7.8	8.1	6.3	8.7	8.9	7.7	8.1	9.4	8.0	22	Nigeria
Uganda	**97.7**	8.7	9.1	9.0	7.6	7.6	6.7	8.3	8.5	8.0	7.3	8.9	8.0	22	Uzbekistan
Ethiopia	**97.2**	9.3	9.5	8.6	7.3	6.7	6.7	7.7	8.3	8.5	8.1	8.3	8.2	24	Rwanda
Libya	**96.4**	5.1	8.0	8.3	6.5	5.8	8.0	9.5	7.2	9.3	9.6	9.4	9.7	25	Sri Lanka
Myanmar	**96.3**	7.3	8.3	9.9	6.0	7.9	6.4	8.7	8.7	8.6	8.4	8.6	7.5	26	Ethiopia
Liberia	**95.5**	9.2	8.9	6.0	6.9	8.6	8.3	7.0	9.5	6.7	6.6	8.3	9.5	27	Colombia
Mauritania	**95.4**	8.9	8.2	7.2	6.6	7.0	7.9	8.2	9.2	8.1	7.1	8.8	8.2	28	Kyrgyzstan
Mali	**95.2**	8.7	8.1	7.9	8.7	7.6	7.9	6.3	9.0	7.0	9.2	5.2	9.6	29	Malawi
North Korea	**93.9**	7.9	4.6	6.0	4.1	7.7	8.9	10.0	8.8	9.6	8.5	8.5	9.3	30	Burkina Faso

Source: Fund for Peace, https://fundforpeace.org/

The most fragile SSA states in 2016 are Somalia, South Sudan, Central African Republic, Sudan, Chad and Democratic Republic of Congo. The first four score very badly across almost all indicators. These countries suffer from periodic open conflict and/or political instability. The other two countries in the top 10, Chad and D.R. Congo, fare better in one or two indicators, but are otherwise not that much better.

The last column of Table 1 shows the ranking of the 30 most fragile states worldwide in 2006, the first year that the index covered this number of countries. In that year, SSA accounted for six of the 10 most fragile countries and 17 of the worst 30, suggesting that over this period countries outside SSA may have done relatively better at reducing their fragility. However, there is still a high degree of consistency in the general ranking of countries over the period; 19 of the 30 most fragile countries in 2006 still feature among the 30 most fragile countries in 2016, and six of the top 10 in 2006 still featured in the top 10 in 2016, the exceptions being Côte d'Ivoire, Iraq, Zimbabwe and Pakistan.

An interesting and revealing observation that can be derived from Table 1 is the high inter-correlation among the 12 components of the FSI indicator within most of these fragile countries (for example, in Somalia all 12 components' scores are between 9 and 10). This would suggest that political, social, and economic fragility are strongly interrelated and associated.

Table 2 focuses exclusively on SSA countries and shows changes in the FSI between 2006 and 2016. What this table immediately reveals is that many more SSA countries have had worsening scores in the SFI than have had improving scores. Only nine countries have shown a reasonable degree of improvement in the absolute values of their scores over this period, 12 have shown relatively little change, and 28 have shown significant worsening. Eight indicated an increase in their index values of more than 10 points over this period. None have improved by more than 10 points over this period.

Table 2: Frequency distribution of sizes of changes in the Fragile States Index in sub-Saharan countries between 2006 and 2016

	2006 Score	2016 Score	Change
Significant improvement			
None			
Strong improvement			
Cape Verde	81.1	71.5	-9.6
Zimbabwe	110.1	100.5	-9.6
Côte d'Ivoire	107.3	97.9	-9.4

continued next page

Table 2 Continued

	2006 Score	2016 Score	Change
Some improvement			
São Tomé and Príncipe	78.6	72.9	-5.7
Malawi	92.2	87.6	-4.6
Equatorial Guinea	88.2	85.2	-3
Botswana	66.4	63.5	-2.9
Sierra Leone	93.4	91	-2.4
Sudan	113.7	111.5	-2.2
Marginal improvement			
Gabon	73.3	72	-1.3
Congo (Republic)	93	92.2	-0.8
Togo	86.6	85.8	-0.8
Burkina Faso	89.7	89.4	-0.3
Lesotho	81.2	80.9	-0.3
Namibia	71.3	71.1	-0.2
Mauritius	42.7	43.2	0.5
Marginal worsening			
Chad	108.8	110.1	1.3
Uganda	96.4	97.7	1.3
Ethiopia	95.3	97.2	1.9
Some worsening			
Rwanda	89.2	91.3	2.1
Tanzania	79.3	81.8	2.5
Guinea	101.3	103.8	2.5
Liberia	92.9	95.5	2.6
Somalia	111.1	114	2.9
Congo (D.R.)	105.5	110	4.5
South Sudan		113.8	5.4
Burundi	95.2	100.7	5.5
Angola	84.9	90.5	5.6
Zambia	80.6	86.3	5.7
Comoros	77.8	83.8	6

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Table 2 Continued

	2006 Score	2016 Score	Change
Worsening			
Swaziland	81.3	87.6	6.3
Benin	72	78.9	6.9
Kenya	91.3	98.3	7
Niger	91.2	98.4	7.2
Madagascar	76.5	84.2	7.7
Nigeria	95.6	103.5	7.9
Cameroon	89.4	97.8	8.4
Mauritania	86.7	95.4	8.7
Ghana	61.9	71.2	9.3
Djibouti	80.3	89.7	9.4
Significant worsening			
Gambia	76	86.8	10.8
Mozambique	76.9	87.8	10.9
Guinea Bissau	88.8	99.8	11
Central African Republic	101	112.1	11.1
South Africa	57.4	69.9	12.5
Eritrea	85.5	98.6	13.1
Critical worsening			
Senegal	66.9	83.6	16.7
Mali	75.5	95.2	19.7

Source: Fund for Peace, http://fsi.fundforpeace.org/

Among the eight countries showing a significant worsening in fragility are the Central African Republic, Eritrea and Mali, where increasing conflict or serious political instability over the period are obvious explanations. In other cases, like Senegal and South Africa the explanations are much less obvious.

We now turn to a brief analysis and discussion of fragility based on the second composite indicator, the SFI, which is available for a longer period but is currently only available up to 2014. Table 3 lists the 31 states with the highest degrees of fragility according to this measure. What is remarkable is that 27 of these states appear in the top 31 list of the previously discussed FSI fragility indicator, and the two indicators agree on eight of the top nine most fragile states. The fact that two different indicators using essentially similar

correlates of fragility, but different methodologies yield such similar results increases confidence in the robustness of these indicators in capturing the essence of fragility.

Table 3: Most fragile countries worldwide according to State Fragility Index (SFI) 2014 and correspondence with FSI index

	SFI score	If country is also among top 31 fragile countries according to FSI index
South Sudan	24	x
Central African Republic	24	x
Dem. Rep. of Congo	23	x
Sudan (North)	22	x
Yemen	21	x
Afghanistan	21	x
Somalia	20	x
Ethiopia	20	x
Chad	19	x
Burundi	18	x
Guinea	18	x
Myanmar (Burma)	18	x
Iraq	18	x
Niger	18	x
Uganda	18	x
Guinea-Bissau	17	x
Syria	17	x
Côte d'Ivoire	17	x
Zimbabwe	17	x
Mali	17	x
Nigeria	17	x
Pakistan	16	x
Angola	16	
Rwanda	16	
Mauritania	16	x

continued next page

Table 3 Continued

	SFI score	If country is also among top 31 fragile countries according to FSI index
Malawi	15	
Cameroon	15	x
Liberia	15	x
Gambia	15	
Eritrea	15	x
Haiti	15	x

Source: Center for Systemic Peace, http://www.systemicpeace.org/inscrdata.html

Fragility and its correlation with development outcomes in SSA

A key issue is the extent to which and how fragility impacts on the process of economic development and vice versa. As will be discussed further in this paper, the interrelationship between development and fragility is circular. Underdevelopment breeds fragility and fragility impedes development. In this section we estimate simple correlations between indicators of fragility and indicators of development outcomes, before attempting later in the paper to break through the above circularity and suggest some plausible causal channels in the subsequent sections.

As noted above, the Fund for Peace FSI measure included among its components demographic pressures,[6] uneven economic development and economic decline. While these can be considered aspects of fragility, they can also be thought of as being direct consequences of fragility and *development outcomes*. For this reason, we have sought to construct an alternative measure of fragility using the FSI index excluding these three components. We therefore construct an alternative measure of fragility (denoted as FSI*) as the sum of the other nine components[7] (see Table 1 for the list of the 12 components of the FSI aggregate index). In this way we can consider

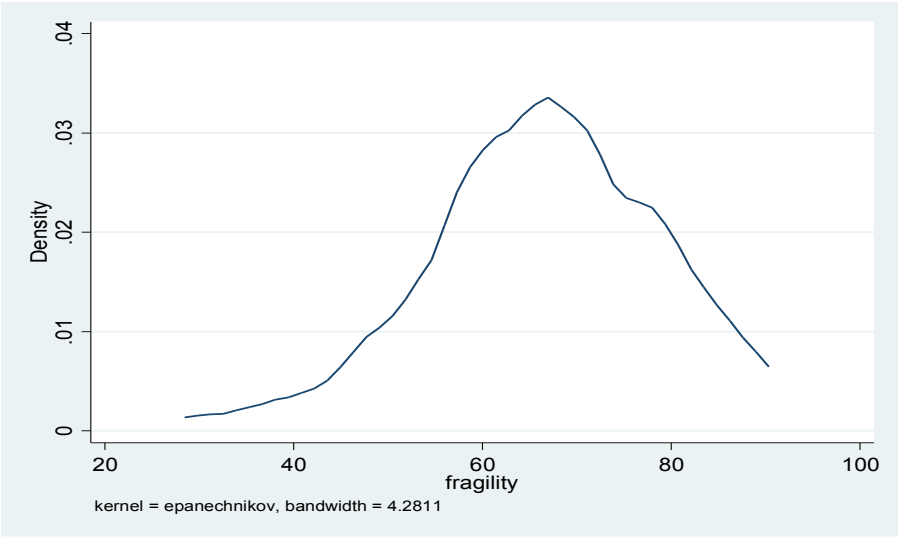
6 The "demographic pressures" component is built on and includes measures related to natural disasters, disease, environment, pollution, food scarcity, malnutrition, water scarcity, population growth, youth bulge, and mortality. "Uneven economic development" includes measures of inequality, access to services, and living in slums, among other things; and "economic decline" includes measures of debt, deficits, unemployment, and growth and inflation.

7 These nine components consist of three social indicators (refugees and internally displaced persons group grievance, human flight and brain drain); and six political indicators (state legitimacy, public services, human rights and rule of law, security apparatus, factionalized elites, and external intervention).

the correlation between the sum of these other nine aspects of fragility (FSI*) and development outcomes.

Figure 1 shows a kernel density plot of this fragility measure (FSI*) based on the 46 sub-Saharan African countries for which it can be constructed, and Table 4 classifies these sub-Saharan African countries into quartiles based on this amended fragility index. In the table, countries are listed in each column in increasing order of fragility, with Tanzania the least fragile and Guinea Bissau the most fragile.

Figure 1: Kernel density plot of the modified FFP-FSI measure of fragility (FSI*) used in this paper (for definition of FSI* see text)



Source: Computed by authors based on the components of the FFP-FSI measure

The figure shows significant variation in the fragility measure FSI*, and the classification of countries by this measure of fragility makes intuitive sense in most cases, with highly fragile countries including Central African Republic, Democratic Republic of Congo, Somalia and South Sudan, while countries like Ghana, Mauritius and South Africa are in the least fragile quartile.

Table 4: Distribution of sub-Saharan African countries by quartile of revised fragility index (FSI)*

Lowest fragility	Second	Third	Highest fragility
Tanzania	Zambia	Cameroon	Guinea
South Africa	Comoros	Congo	Chad
Madagascar	Burkina Faso	Burundi	Dem. Rep. Congo
São Tomé and Principe	Mozambique	Mali	Somalia
Mauritius	Sierra Leone	Rwanda	Zimbabwe
Botswana	Togo	Uganda	Central African Republic
Namibia	Senegal	Eritrea	Sudan
Gabon	Malawi	Niger	Nigeria
The Gambia	Djibouti	Liberia	South Sudan
Cabo Verde	Equatorial Guinea	Kenya	Côte d'Ivoire
Ghana	Angola	Mauritania	Guinea-Bissau
Benin		Ethiopia	

Source: Computed by authors based on the components of the FFP-FSI measure

For the same 46 countries we now consider the association between the FSI* and different measures of economic development taken from the most recent round of World Development Indicators. We analyze the association between fragility (FSI*) as measured in 2014, and the following variables: per capita income in 2014 (expressed in 2005 US Dollars); recent growth of per capita GDP and its volatility; and similar measures of each of the following development indicators: poverty, inequality, infant and child mortality, incidence of stunting and underweight, literacy rates, and enrolment rates at primary and secondary school. Table 5 reports the precise variables chosen and the time period considered. In the case of growth and its fluctuations (measured by the standard deviation), we consider measures over both a five and 15-year period up to the year for which the fragility measure is available; for the education variables and mortality we consider averages over the 2010–14 period; and for the poverty, inequality and malnutrition data where observations are less frequent we consider averages over the 2006–14 period to try to have as many observations as possible.

Table 5: Different development indicators for SSA countries and their correlation with fragility measure (FSI)*

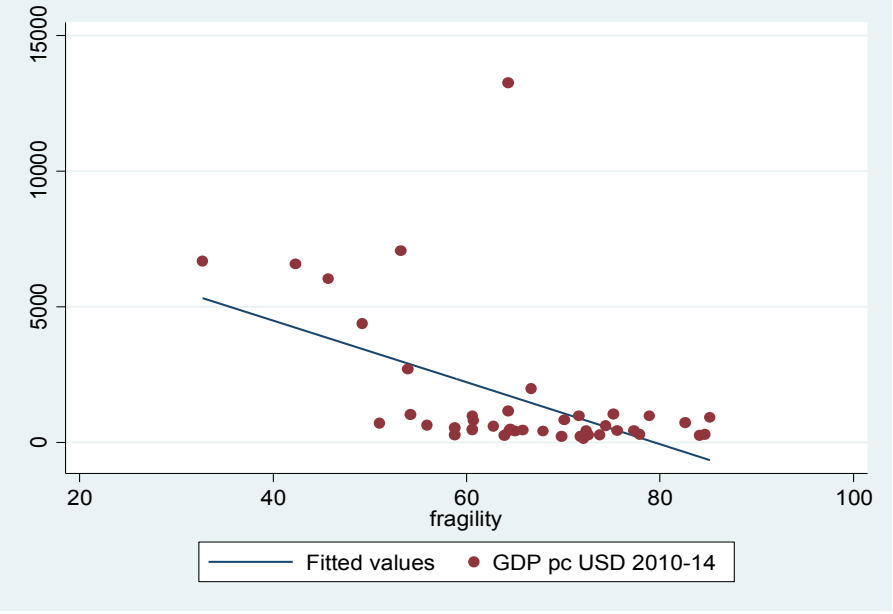
Variable	Correlation with fragility	Number of observations
Average USD GDP per capita 2010–2014	-0.5056*	43
Average per capita GDP growth 2000–14	-0.2971*	45
Average per capita GDP growth 2010–14	-0.2231	44
Standard deviation of per capita GDP growth 2000–14	0.3616*	45
Standard deviation of per capita GDP growth 2010–14	0.4595*	44
Average Gini coefficient 2006–14	-0.2759	36
Average poverty headcount ($1.90) 2006–14	0.3734*	36
Average poverty headcount ($3.10) 2006–14	0.4617*	36
Average poverty gap index ($1.90) 2006–14	0.3540*	36
Average infant mortality 2010–15	0.5849*	46
Average under 5 mortality 2010–14	0.5926*	46
Average stunting prevalence 2006–16	0.3593*	44
Average underweight prevalence 2000–14	0.5138*	42
Average literacy rate 2006–14	-0.4459*	44
Average gross primary enrolment 2010–14	-0.3066*	45
Average gross secondary enrolment 2010–14	-0.6792*	39

* Denotes statistical significance of the correlation coefficient at the 5% level.
Source: Computed by authors based on modified FFP-FSI measure and indicators from World Development Indicators 2016

Table 5 reports the correlation coefficients between each of these development indicators and our fragility measure (FSI*), as well as their statistical significance and the number of observations on which this calculation is based. The main results can be summarized as follows: Fragility has a very strong negative correlation with the constant price dollar values of per capita GDP, as also seen in the scatterplot in Figure 2; more fragile countries

have significantly lower levels of per capita GDP.[8] Fragility is negatively correlated with the average growth rate of per capita real GDP, which is significant over the fifteen-year period, but not the five-year period. There is also a strongly statistically significant positive correlation between fragility and the standard deviation of per capita GDP growth, as shown in Figure 3. Fragility tends to be associated with lower growth rates than average, but much more strikingly it is associated with substantially higher growth volatility. The outliers in the top right of the diagram are Central African Republic and South Sudan, which show even higher levels of volatility than might be implied by the very high values of their fragility measures.

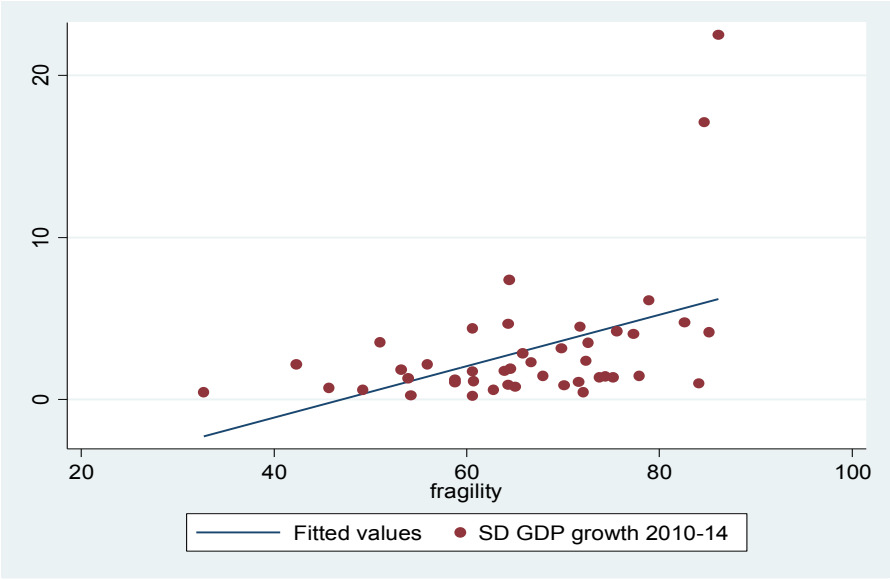
Figure 2: Scatterplot between US Dollar measure of per capita GDP (2005 values) and fragility measure (FSI*) of SSA countries



Source: Computed by authors based on modified FFP-FSI measure and indicators from World Development Indicators 2016

8 The outlier in Figure 2 is a rather exceptional case. It has a very high per capita GDP value while at the same time being a quite fragile country.

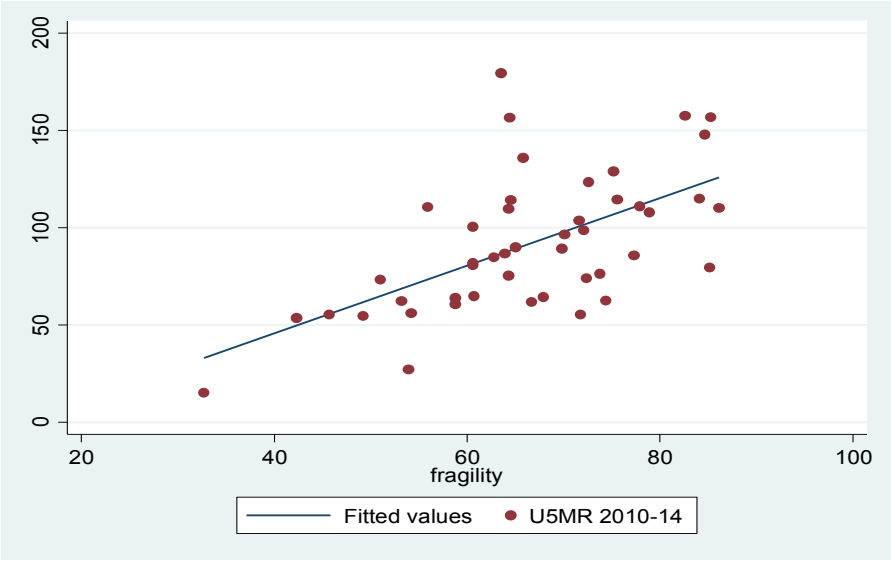
Figure 3: Scatterplot between standard deviation of per capita GDP growth over 2010–14 and fragility measure (FSI*)



Source: Computed by authors based on modified FFP-FSI measure and indicators from World Development Indicators 2016

There is a large and strongly significant association between fragility and higher levels of infant and child mortality, as also shown in Figure 4 for under-five mortality. This figure shows a relatively good fit between the measure of fragility and this measure of mortality and the correlation coefficient is high; more fragile states clearly show worse outcomes for children. Furthermore, there is also a large and statistically strongly significant association between fragility and higher levels of the two measures of malnutrition considered here.

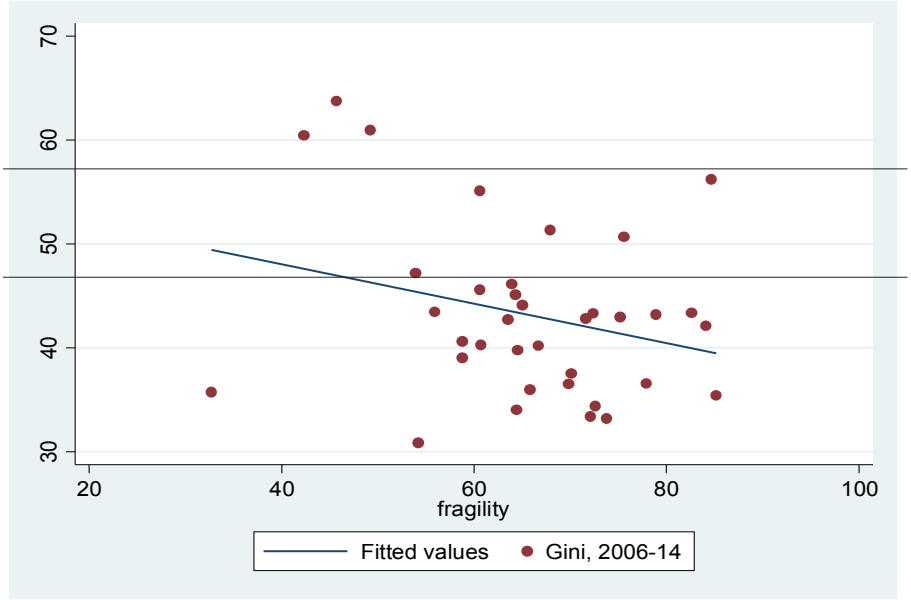
Figure 4: Scatterplot between under-five mortality rate (2010–14 average) and fragility measure (FSI)*



Source: Computed by authors based on modified FFP-FSI measure and indicators from World Development Indicators 2016

In relation to poverty and inequality, a smaller number of observations is available. Surveys to measure poverty and inequality are conducted relatively infrequently in most countries, and several countries do not have any poverty or inequality measures available at all. The countries without poverty and inequality measures are frequently the most fragile states (e.g., Somalia), who frequently lack the capacity and institutions to be able to collect data. By considering any estimates of poverty and inequality available between 2006 and 2014, we were able to obtain poverty and inequality data for 36 of the 46 countries. For inequality we use the Gini coefficient, and for poverty we consider values relative to the World Bank's international poverty lines of $1.90 and $3.10 in purchasing power parity values. Figures 5 and 6 show scatterplots of the Gini coefficient and the poverty headcount relative to the $1.90 line.

Figure 5: Scatterplot between Gini coefficient (2006–14 average) and fragility measure (FSI*)

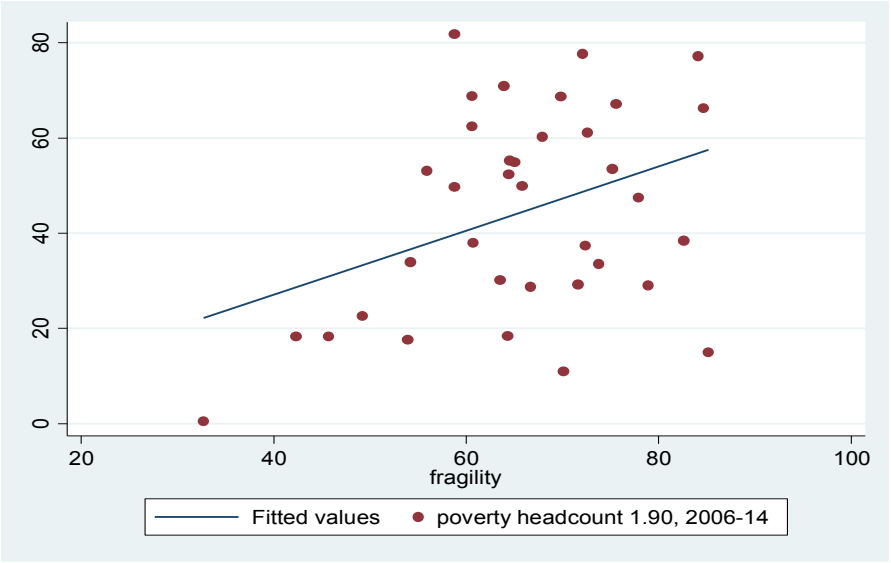


Source: Computed by authors based on modified FFP-FSI measure and indicators from World Development Indicators 2016

The relationship between income inequality and fragility appears tenuous. Figure 5 reveals a wide scatter with no significant correlation shown between inequality and fragility; countries with low levels of fragility, such as Botswana, Namibia and South Africa (the three countries in the upper left side of the plot), often also have high levels of inequality. There is no evidence from this data or plot that more fragile countries are more unequal. By contrast, we find a significant positive association between fragility and levels of poverty. Figure 6 shows this for both the headcount ratios at the $1.90 poverty lines. A similar correlation exists between fragility and the poverty gap index as well as the measures for the $3.10 line. On average, fragile countries have higher levels of poverty, though there is quite a wide scatter about the line. This is the case even though several fragile countries are not included in this analysis for lack of data.[9]

9 Incidentally, we also ran a cross-sectional regression between within SSA countries' changes in poverty incidence (as measured by the headcount ratio) and changes in fragility over time. The correlation coefficient was close to zero showing no correlation. We suspect that the World Bank PovcalNet data set may not reflect accurately changes in poverty incidence, particularly changes over short periods.

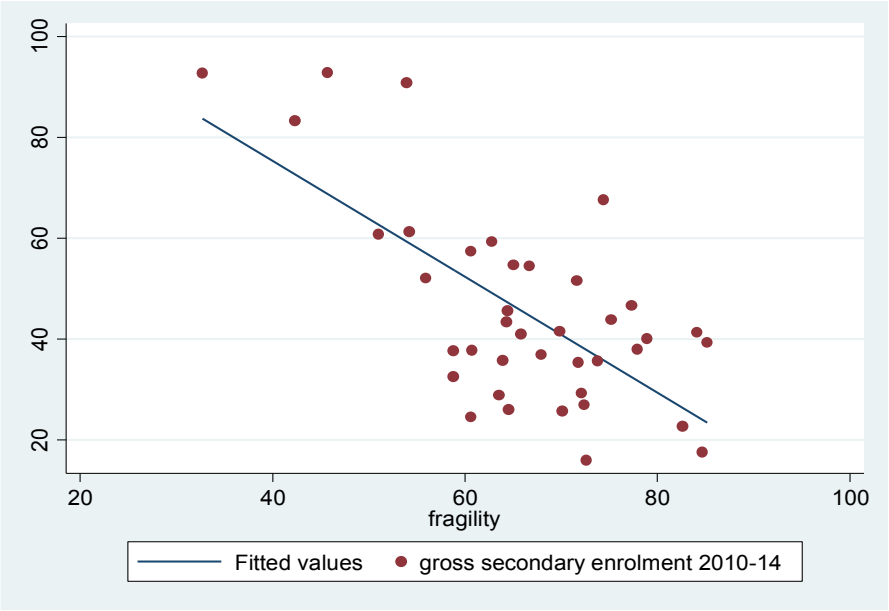
Figure 6: Scatterplot between poverty headcount measure ($1.90 World Bank line) and fragility measure (FSI)*



Source: Computed by authors based on modified FFP-FSI measure and indicators from World Development Indicators 2016

Finally we consider education, where again there is a strongly negative association between fragility and literacy levels as well as with enrolment, especially at secondary levels as shown in Figure 7 (the pattern for primary education is quite similar). More fragile countries have much poorer rates of educational attendance and much poorer educational outcomes. These low levels of education can of course also be important contributory factors to current and future fragility.

Figure 7: Scatterplot between gross secondary enrolment and fragility measure (FSI)*



Source: Computed by authors based on modified FFP-FSI measure and indicators from World Development Indicators 2016

Almost all the correlations considered here show a strong association between greater levels of fragility and higher levels of deprivation. We define deprivation here as individuals being poor on one or more of the various dimensions of poverty such as nutrition, health, income, and education. In each country, thresholds can be established for each of these dimensions below which an individual is considered poor. This is seen in the above figures, with lower income levels (as well as in slower and especially more volatile growth) being correlated with greater fragility. It is also seen in worse outcomes in almost all dimensions of poverty considered here: child mortality, child malnutrition, monetary poverty levels and depth, and educational outcomes. Some of the scatterplots also show a very close association between fragility and poorer development outcomes, for instance in relation to child mortality or secondary education. With the income poverty headcount measure there is perhaps more variation, although this is a more select sample and is also an indicator that is more difficult to compute on a comparable basis across countries. Of course, these associations do not allow conclusions to be drawn about causality, but it is quite clear that higher levels of fragility in countries are associated with worse development outcomes across the board.

In this section we have been able to obtain data on many variables for both more and less fragile countries. But it is in relation to the key variables of poverty and inequality, which is at the heart of this paper, that the challenge is particularly severe. More specifically, information on income inequality and poverty crucially depends on well-designed household surveys. Most African countries only run such surveys sporadically, if at all. Collecting data on the consumption and income of households is particularly challenging in fragile states that typically have weak institutions and often lack independent and professional statistical offices. Furthermore, data collection is particularly difficult in environments affected by conflict or social instability. The absence of reliable and continuous data series in more fragile environments is therefore hardly surprising. Even in cases where the estimates of poverty and inequality exist in such environments, their quality is likely to be more questionable than in well-functioning states. The greater shortage of estimates available for multiple years in more fragile settings, so that changes and trends over time can be assessed, is a serious handicap in any attempt to compare rates of poverty reduction in fragile environments.

Given this situation, a more promising way to learn lessons about how fragility interacts with changes in poverty and inequality may be by focusing on country case studies, looking at countries that emerged from fragility as well as countries that descended into fragility. We addressed this in an earlier draft of this paper (McKay and Thorbecke, forthcoming) where we discussed the long-term development of Côte d'Ivoire and Ghana, the former a case of a formerly stable country that descended into fragility and conflict, and the latter a previously very fragile country that achieved stability and generally impressive development outcomes.

In this paper, we now turn to an analysis of the fragility of growth in different sub-Saharan African countries. It has already been seen from the discussion that the measures of fragility considered are weakly associated with average growth rates, but strongly associated with lower income levels and with more variability in growth. Growth variability creates major challenges of macroeconomic management for a country, so in the next section we turn to a more in-depth discussion of growth variability, which can also be thought of as fragility of growth.

Growth fragility in sub-Saharan Africa

Compared to other world regions, the variability of growth in sub-Saharan Africa is quite high, but also varies a lot across countries. In this section we focus on the post-2000 period, when growth performance has been good on average across countries, though as already stressed not all countries performed well in growth terms. Here we are not constrained by the availability of the fragility measure and are able to focus on many sub-Saharan African countries, except Somalia for which recent data are not available.

Table 6 summarizes the average and standard deviations of the growth of per capita GDP for almost all sub-Saharan African countries, as well as reporting the years in which countries experienced negative growth rates. The first point to note from this table is

the high variability of average growth rates. Equatorial Guinea, Ethiopia and Rwanda reported average growth rates of per capita GDP over this period of above 5% per year, and another 11 countries have average growth rates in the 3.0% to 4.9% range, including large countries such as Nigeria, Tanzania and Ghana. By contrast, six countries had average negative growth rates of per capita GDP from 2000 to 2016: Burundi, Central African Republic, Eritrea, Gabon, South Sudan, and Zimbabwe. It is clear from these data that not all countries shared in the African growth recovery over this period.

Table 6: Summary of growth volatility of sub-Saharan African countries, 2000–2016

	Average growth rate	Standard deviation of growth rate	Proportion of years when per capita growth was negative
Angola	3.5	7.4	35.3%
Benin	1.3	1.6	23.5%
Botswana	2.5	4.4	17.6%
Burkina Faso	2.5	1.9	17.6%
Burundi	-0.4	2.6	35.3%
Cabo Verde	3.5	4.6	29.4%
Cameroon	1.3	1.1	11.8%
Central African Republic	-1.1	9.7	23.5%
Chad	3.8	8.7	41.2%
Comoros	0.2	2.2	64.7%
Congo	1.3	3.0	17.6%
Côte d'Ivoire	0.8	4.3	58.8%
D.R. Congo	1.5	3.8	29.4%
Djibouti	2.2	1.8	11.8%
Equatorial Guinea	6.8	17.7	35.3%
Eritrea	-0.9	4.2	47.1%
Ethiopia	6.0	4.0	11.8%
Gabon	-0.5	3.1	52.9%
Ghana	3.5	2.7	0.0%
Guinea	0.5	1.7	35.3%
Guinea-Bissau	0.7	2.5	29.4%
Kenya	1.8	2.3	17.6%

continued next page

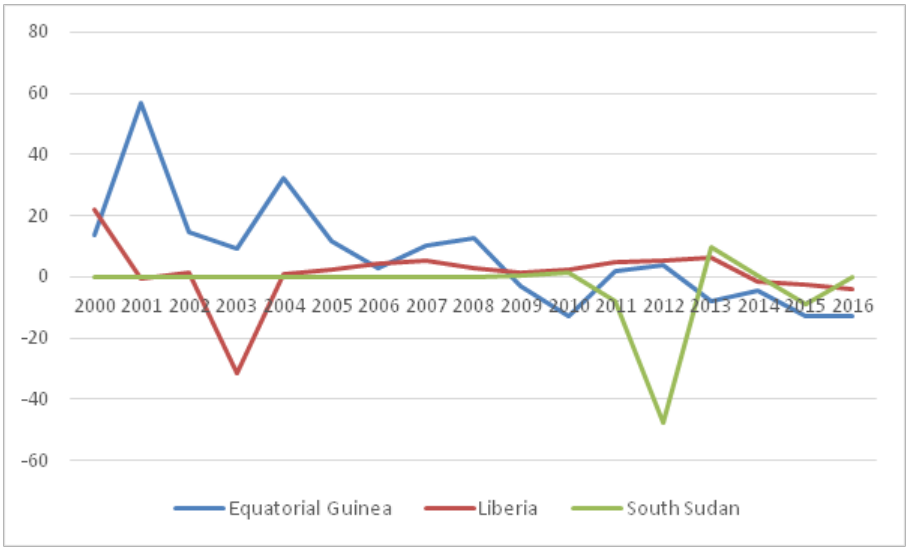
Table 6 Continued

	Average growth rate	Standard deviation of growth rate	Proportion of years when per capita growth was negative
Lesotho	2.9	1.9	5.9%
Liberia	1.1	10.1	29.4%
Madagascar	0.0	4.9	29.4%
Malawi	1.3	3.2	35.3%
Mali	1.6	3.6	23.5%
Mauritania	1.4	4.5	47.1%
Mauritius	3.9	2.0	0.0%
Mozambique	4.1	2.2	5.9%
Niger	0.9	3.4	41.2%
Nigeria	4.3	7.2	11.8%
Rwanda	5.1	2.4	0.0%
Senegal	1.4	1.7	23.5%
Sierra Leone	3.1	9.6	11.8%
South Africa	1.5	1.9	17.6%
South Sudan	-3.1	12.2	17.6%
Sudan	4.2	3.4	0.0%
Swaziland	1.7	2.4	29.4%
São Tomé and Principe	2.4	2.0	0.0%
Tanzania	3.5	1.1	0.0%
The Gambia	0.2	3.5	35.3%
Togo	0.3	2.3	41.2%
Uganda	2.8	2.1	5.9%
Zambia	3.4	2.1	5.9%
Zimbabwe	-1.7	9.5	58.8%

The standard deviation is a simple overall measure of growth variability, which reports very high volatility in Equatorial Guinea, Liberia and South Sudan where the standard deviations are above 10 percentage points. Figure 8 shows that these are all caused by one particularly exceptional year, with a sharp positive growth spike in Equatorial Guinea, large positive and negative growth spikes in Liberia and a sharp negative growth spike in South Sudan. Another six countries have standard deviations of growth rates above 5 percentage points. Many of these countries had quite good average growth rates, but the Central

African Republic and Zimbabwe did not. What almost all these countries share is either a high degree of resource dependence and/or the experience of conflict over this period.

Figure 8: Variation of growth rates over time for three volatile countries

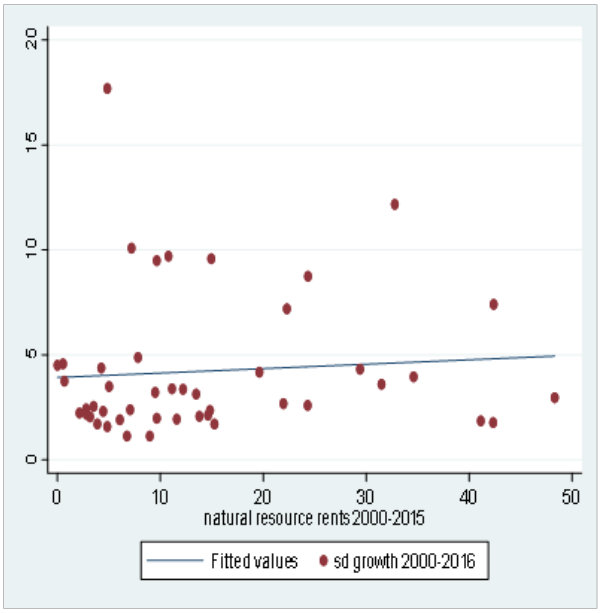


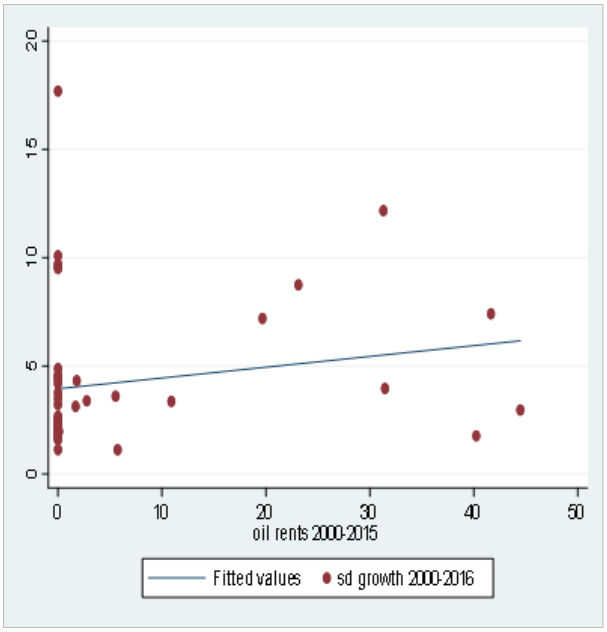
Source: Data from World Development Indicators 2017

Of course, both the stability and the level of growth are important. A number of good performers in terms of average growth rates also had stable growth rates, including Ghana, Mozambique, Rwanda, Tanzania and Zambia. Some of these are currently resource-dependent economies, but they have still managed to navigate relatively stable growth patterns. Several countries had stable but low growth rates, e.g., Cameroon and Guinea. Several countries experiencing negative average growth also experienced high variability, including Central African Republic, South Sudan and Zimbabwe.

The final column of Table 6 reports the proportions of years when growth was negative, using available data. Only six countries had no years of negative growth, while all other countries had one or more years of negative growth. In Comoros, Côte d'Ivoire, Gabon and Zimbabwe growth was negative in more than half the years over this period, and growth was negative in between one-third and a half of years in another ten countries. Again, many of these countries (though not all) have quite a high degree of dependence on resources or have been affected by conflict/political instability. These frequent occurrences of negative growth episodes create major challenges for macroeconomic management, and they may contribute to or be caused by political instability, or both.

Figure 9: Scatterplot of standard deviation of a country's growth rate (2000–2016) and natural resource rents (left plot) and oil rents (right plot) relative to GDP





It is important then to see the extent to which growth volatility is indeed correlated with country characteristics, including resource dependence and conflict/population displacement. We consider this on a cross-country basis using data available from the World Development Indicators. Figure 9 shows cross-country scatterplots between the standard deviation of growth over the period 2000–2016 and their average rents from natural resources or oil relative to GDP over the period 2000–2015. These charts show a lot of variation across countries, and the correlation coefficients between resource rents and the variability of growth rates are not statistically significant. In other words, although there are examples of highly resource-dependent countries that do have a high degree of growth variability, others do not have variable growth. Some countries with high dependence on natural resources can manage stable growth patterns, as seen by the examples of Ghana or Zambia above.

We have also analyzed the extent to which the experience of battle-related deaths or the presence of internally displaced persons due to conflict in a country are associated with growth volatility. At some point in the 2000–2015 period, 58% of countries experienced some battle-related deaths and 48% experienced internal displacements of their population due to conflict. The other countries did not. There is a statistically significant association across countries between the standard deviation of growth and the experience of both battle deaths and conflict-related internal population displacements. However, these measures are not correlated with the average growth rate. Over the long term, there is no evidence that conflict affected countries grow more slowly, but they clearly do have more volatile growth experiences.

In summary, the experience of conflict is an important contributor to growth instability, but resource dependence is not consistently associated with more volatile growth.

The Interrelationship among growth, inequality and poverty

Poverty reduction is widely recognized as *the* key development objective. Given the analysis of the first four sections of this paper, this is potentially an especially pressing issue in more fragile countries given the generally higher levels of deprivation in such environments. Internationally, and in SSA specifically, there is extensive evidence of a strong association between economic growth and poverty reduction, mediated by the extent of inequality and its changes over time. The tendency seen above of more fragile states to have potentially slower, and almost certainly more volatile, economic growth, may have important implications for the extent to which they may be able to achieve consistent poverty reduction.

The interrelationship between economic growth, poverty reduction and inequality is complex. In a recent article, Thorbecke and Ouyang (2016) consider two main channels linking growth and poverty reduction. They explore two different nexuses: the Growth-Inequality-Poverty (G-I-P) nexus and the Poverty-Inequality-Growth (P-I-G) nexus. In the first case, the causality goes from growth to poverty (and inequality), and in the

second case causality goes from poverty to growth (and inequality). Economic growth shapes the level of poverty reduction a country is able to achieve, depending also on inequality (an issue discussed by Bourguignon, 2003, in terms of a poverty-growth-inequality triangle), but the extent of poverty can also shape the rate and the structure of subsequent growth a country is able to achieve. Starting with the G-I-P nexus, Thorbecke and Ouyang (2016) consider how a country's development strategy combined with the effects of globalization influence the level and distributional pattern of growth that a country can achieve, which in turn affects poverty reduction. More equal and inclusive patterns of growth generate faster poverty reduction, other factors being equal. The poverty reduction resulting from different levels and patterns of growth has been studied extensively in a wide literature looking at pro-poor growth, inclusive growth and shared growth.

Next, Thorbecke and Ouyang (2016) focus on the P-I-G nexus and investigate the reverse causality, i.e., how initial poverty and a change in the incidence of poverty are likely to affect the future pace and structure of growth a country is able to achieve. In particular, high levels of poverty, which may be associated with low levels of human capital and the presence of poverty traps of various forms, may limit the subsequent achievable pace of growth. The underlying arguments for this are well surveyed by Duclos and O'Connell (2015), but, in addition, draw on a wide literature among which Perry et al. (2006) was an early contribution. Empirical evidence in support of this relationship between initial poverty and subsequent growth has been provided by Lopez and Serven (2009) and Ravallion (2012), among others. They report evidence that higher levels of initial poverty have an adverse effect on future growth. These are essentially poverty trap arguments where the very fact of being poor limits factors that would be important for growth.

Thorbecke and Ouyang (2016) revisit these issues in the specific context of sub-Saharan Africa, estimating cross-country models for both the impact of growth and inequality on changes in poverty, and the impact of poverty on growth. These relations were estimated based on cross-country data from the World Bank's PovcalNet data sets covering the periods 1987–2006 and 1986–2012. They estimate and compare the results of regressions models run specifically on an SSA sample of countries with a sample covering the whole developing world. For the G-I-P case they find that in the earlier period both the growth and inequality elasticities of poverty reduction for SSA were substantially lower than for the developing world as a whole; both growth and inequality were less effective in translating into poverty reduction than was the case elsewhere in the developing world. However, in the later period they found that not only were growth rates higher, but the growth and poverty elasticities were now also significantly higher (though still lower than for the developing world as a whole). Thorbecke and Ouyang interpret this result as reflecting a significant structural break in the structure of growth dating back to around 2000, after which the pace of GDP growth per capita increased markedly and the pattern of growth became somewhat more inclusive as reflected by a significant fall in the poverty headcount ratio.

In terms of the P-I-G relationship, Lopez and Seven (2009) found that higher poverty headcounts were associated with lower subsequent per capita income growth. Ravallion (2012) argued that there is a lack of poverty convergence between countries (in spite of convergence in income or consumption), again because initial poverty limits later income growth (as well as reducing the growth elasticity of poverty reduction). However, when Thorbecke and Ouyang (2016) estimate the model specifically for SSA, they do not find a significant impact of poverty on growth, although they too find a negative result for the developing world. If these results can be further confirmed, they suggest that SSA differs from the rest of the developing world in that initial poverty did not necessarily dampen subsequent growth in this region during 1978–2007, whereas it did in the rest of the developing world during the same period. In fact, SSA countries with the highest initial poverty incidence appeared to grow subsequently faster, leading to poverty convergence. The same finding was further confirmed at the interregional level in Ethiopia and to a lesser degree in Rwanda by Shimeles et al. (2016). One possible explanation for this poverty convergence in SSA might be that anti-poverty interventions by governments and foreign public and private aid were selected to be inversely proportional to the depth of poverty.

To summarize, there is evidence that in SSA: (i) growth rates have increased since 2000; (ii) growth has become more effective at translating into poverty reduction; and (iii) high initial poverty incidence does not necessarily place a damper on future growth. Thorbecke and Ouyang (2016) argue that pro-growth poverty reduction strategies, for instance social protection, can play a key role in both accelerating growth and enabling a more inclusive pattern of growth, as discussed in Section 7.

Fragility is another factor affecting the relationships between growth, inequality and poverty reduction. To the extent that it is associated with lower or more volatile growth, it can potentially limit the G-I-P channel, and to the extent that it is associated with higher poverty, this can limit the P-I-G channel. Fragility can therefore make these relationships less effective, and the extent of fragility in many SSA countries may be a factor accounting for growth, often translating into slower or less sustained poverty reduction.

How then does growth volatility fit into this story? Under-five mortality rates in a country are significantly positively associated with the variability of growth in the country, and countries that have experienced more years of negative growth have a slower reduction in under-five mortality rates. There are less clear associations between growth volatility and educational outcomes, such as primary or secondary school attendance or literacy rates, or indeed with measures of poverty (the data which are available for fewer countries, with fragile states being significantly underrepresented). Based on this initial analysis, it would seem that growth volatility is less consistently associated with changes in welfare outcomes than the more comprehensive measure of fragility considered above.

How can the vicious circle between fragility and under-development be broken?

The interrelationship between fragility and the state of development as captured by the Growth-Inequality-Poverty nexus and the Poverty-Inequality-Growth nexus is strongly circular. A fragile state and civic environment tend to impede growth and encourage a more exclusive rather than inclusive growth pattern. At the same time, a country suffering from low and stagnating growth, high income inequality (a skewed income distribution), high poverty incidence and overall deprivation is fertile ground for an unstable, if not failing, state and civil conflicts. The variables (components) of fragility and the variables reflecting development appear to be jointly and endogenously determined. The issue we explore in this section is whether, and to what extent, this circular bi-causality can be broken and some unidirectional causal channels suggested. This question is essential in any attempt to recommend policy interventions. As will be discussed and made clearer further on, the issue that needs to be addressed is how some exogenous intervention can break the vicious circle between fragility and under-development.

Before embarking on this search for some exogenous trigger mechanism that could jointly reduce fragility and contribute to a more inclusive growth, it is important to recall a key finding discussed in Section 3 that the great majority of more fragile states display: a high inter-correlation among the 12 components of the FSI aggregate fragility indicator. A quick look at Table 1 shows that the 30 worst performers scored typically between 8 and 10 across the 12 fragility components on a scale from 0 (best) to 10 (worst). This implies, of course, a societal collapse across all dimensions – political, social and economic. Figuratively, such a country might be compared to a building standing on quicksand. A strong case can be made that the only solution consists of building an institutional foundation to provide the necessary stability.

Indeed, there are two strands (approaches) to the literature on fragility that argue convincingly that the lack of appropriate institutions is the predominant cause of fragility. The first approach is quantitative and attempts to identify the major proximate causes of fragility and disentangle as much as possible the inherent endogeneity between fragility and development in order to suggest some causal channels to break the vicious circle. The second approach is conceptual, relying largely on historical experiences of the process of development in different settings over the long run, and learning from both countries that were successful and unsuccessful in their development patterns.
We start by summarizing the first approach. Bertocchi and Guerzoni (2012) provide a useful review of this literature and, even more importantly, undertake a thorough quantitative analysis of the determinants of state fragility in SSA. They use a data set consisting of 41 SSA countries comparing performance over two sub-periods (1992-–1999 and 2000–2007). They run many regressions on a dummy dependent variable taking the value of 1 if a country is fragile and 0 otherwise. They consider many economic, demographic, historical, and ethnic fractionalization and institutional regressors that could potentially have affected fragility. After running multiple regressions they conclude that: "… institutional variables

are the key determinants of fragility: the probability for a country to be fragile decreases with the level of civil liberties and increases with the number of revolutions" (Bertocchi and Guerzoni, 2012), and "To sum up, after controlling for omitted variables and endogeneity, we find that institutions prevail on economic factors as the central drivers of fragility in Africa" (Bertocchi and Guerzoni, 2012). A unidirectional causal link from institutions to fragility was the main finding of their study. Thus, the essential implication here is that institutions could potentially provide the exogenous trigger mechanism or lever to break the vicious circle linking fragility and depravation. Two issues inherent in the above work that need to be clarified further are: (i) the limited definition of institutions (civil liberties and revolutions) that give little operational guidance with respect to the specific forms that institutions should take in a fragile country to provide the institutional framework and foundation necessary to initiate an inclusive growth and development process; and (ii) the binary nature of the dependent variable (fragile or non-fragile) that requires an arbitrary cut-off and loses useful information on the degree of fragility. These questions are addressed in the next section.

The second approach to the relation between fragility and development includes a vast literature in political science and economics and draws on historical case studies and theoretical models of functioning states. This approach is best exemplified by the influential work of Acemoglu and Robinson (2012) who make an extremely compelling and convincing case, based on a myriad of historical episodes worldwide, that growth (and, more generally, development) can only be sustained in the long run if it is anchored in and supported by inclusive political and economic institutions. Central to their theory "is the link between inclusive economic and political institutions and prosperity. Inclusive economic institutions that enforce property rights, create a level playing field, and encourage investments in new technologies and skills are more conducive to economic growth than extractive economic institutions that are structured to extract resources from the many by the few and that fail to protect property rights or provide incentives for economic activity." (Acemoglu and Robinson, 2012).

According to them, the tragedy of Africa is that independence, rather than creating a critical juncture for improvements in the highly extractive colonial institutions in place, created an opening for unscrupulous leaders to build on and intensify further the prevailing extraction process. The end of the Colonial period left SSA with a vacuum of inclusive institutions.[10] To complement this, Herbst (2000) also presents a strong and highly relevant analysis of the immediate post-colonial environment in Africa.

Other tenets of Acemoglu and Robinson's thesis are that there exists a virtuous circle between inclusive political institutions and economic institutions. For example, in inclusive economic institutions, wealth is not concentrated in the hands of a small group that can use that power to obtain greater political power and vice versa.
It was seen earlier that of all SSA countries, Botswana, by a long shot, displayed the

10 The last two paragraphs are taken from Thorbecke, 2014.

best aggregate FSI fragility score. It is revealing that Acemoglu and Robinson (2012) focused on this extreme outlier within SSA to capture some of the institutional features that provided the foundations for the Botswana miracle as the following quotations indicate: "At independence Botswana was one of the poorest countries in the world ... Botswana would become one of the fastest growing countries in the world … How did Botswana break the mold? By quickly developing inclusive economic and political institutions after independence … Botswana had some amount of state centralization and relatively pluralistic tribal institutions that survived colonialism … Botswana had its coalition in favor of secure property rights, the Tswana chiefs, and elites who owned the major assets in the economy, cattle. Even though land was held communally, cattle was private property in the Tswana states, and the elites were similarly in favor of well-enforced property rights … The first big diamond discovery was under Ngwato land, (chief) Seretse Khama's traditional homeland. Before the discovery was announced, Khama instigated a change in the law so that all subsoil mineral rights were vested in the nation, not the tribe. This ensured that diamond wealth would not create great inequities in Botswana." (Acemoglu and Robinson, 2012).

The examples of Côte d'Ivoire and Ghana discussed above also highlight the importance of inclusive political institutions underlying their periods of stability, and the absence of such institutions being associated with fragility.

Bates (2008a and b) also presents a careful analysis of the role of institutions in influencing state fragility, which also supports these arguments; and Bates et al. (2013) argue that institutional reform can result in productive changes in SSA, an argument that this paper now turns to.

Examples of poverty-reducing and productive institutions to combat fragility

We saw in Section 6 that poverty reduction per se can contribute to a more inclusive growth pattern. By intervening directly on alleviating poverty, the P-I-G nexus can be transformed into a virtuous circle or spiral. A case for a *pro-growth poverty reduction strategy*, in addition and complementary to the previously discussed *pro-poor growth strategy*, can be made on the grounds already mentioned that there are multiple channels through which the existence of poverty acts as a major obstacle to growth. Many poor households are caught in a variety of poverty traps. Breaking at least some of these traps can unleash the potentially productive forces of the poor. The underlying logic of a *pro-growth poverty reduction strategy* is that by attacking poverty directly and reducing it, some major constraints on the behaviour of the poor will be removed. They will be better able to acquire more education and skills, invest in their farms and informal activities and adopt riskier but, on average, more productive technologies. Policies and institutions alleviating poverty directly can engender a virtuous spiral bringing about a faster and more inclusive growth structure as Figure 8 illustrates (see Thorbecke, 2014, for a comprehensive case in support of a *pro-growth poverty reduction strategy*).

In Section 6, it was argued that inclusive political and economic institutions were the main drivers to reduce fragility and provide the foundations for a stable and sustainable development process. The question that needs to be addressed at this point is whether there are specific institutions that are both (i) poverty-reducing and productive, and (ii) potentially transferable to conform to the African initial conditions and settings. Several comprehensive evaluations of social protection programmes and labour schemes (SPLs) have unambiguously answered the question affirmatively (Alderman and Yemtsov, 2013; World Bank, 2012; FAO, 2012) and have given many examples of productive SPLs. In answer to the second question, Thorbecke (2013) provides an extensive list of already successful inclusive institutions in some African countries and additional institutions that proved to have contributed to poverty reduction and productive growth in Asia and Latin America, which could be transplanted and adapted to the special conditions prevailing in SSA. These institutions can be grouped into three areas: small scale agriculture, infrastructure and social protection schemes. Next, we very briefly provide some selective examples of potentially transferable institutions based on Thorbecke (2013).

Since many SSA countries are still at an early development stage characterized by small subsistence farms, raising agricultural productivity is key to any take-off and structural transformation in the pathway to moving out of stagnation and poverty. Africa can learn much from the experience and early development history of Japan, Eastern and Southeastern Asian countries. For example, the multipurpose farmers' associations in Taiwan were very successful from the mid-1950s to the mid-1970s in raising the bargaining power of small farmers when selling their products and buying inputs. These associations were an important arm of the *Joint Commission on Rural Reconstruction* (*JCRR*) that operated as a kind of super ministry of agriculture. Other functions of the JCRR included research on new varieties and improved practices suited to the local environment disseminated to the farmers' associations by extension agents, and the provision of supervised credit, training and vocational education. The above experience and similar ones in South Korea, Indonesia and other Asian countries suggest strongly that the current agricultural strategy in SSA countries should be designed and implemented in a more centralized and coordinated fashion under the authority of an institution that has control over many instruments such as research, extension, credit, insurance and rural infrastructure. The major impact of such an institution would be to boost agricultural productivity and provide new skills to farm households and thereby contribute to a more successful structural transformation and labour migration out of agriculture. There has been significant recent progress in this area in Ethiopia, for example.

A relevant and key question to the potential transferability of the type of institutions described above is whether SSA countries have the administrative capacity to modify them to conform to the specific settings of their countries and implement them. In this regard, the experience of the Bangladesh BRAC programme in Uganda (BRAC, 2010) is instructive. The main goal of BRAC within agriculture is to raise the productivity of small-scale subsistence farmers "by encouraging them to forgo rudimentary traditional

practices through: training and access to information on crop production; providing credit services through the BRAC microfinance program; and supplying high quality inputs- disease resistant seeds, fertilizers and pesticide … ; and introducing technology-enabled farming (low lift pumps, power tillers etc.". [BRAC, 2010]). Furthermore, BRAC recruits "model farmers" as a demonstration unit to influence less productive farmers. This kind of model of technical and institutional assistance where a more advanced country (or foundation) provides the technical know-how and some of the funding can greatly facilitate the process of institutional building.

Another area that is crucial and complementary to a faster and more successful structural transformation is the provision of adequate physical infrastructure, particularly in rural areas. Improved farm-to-market roads, for example, can reduce transportation significantly, and more generally, transaction costs incurred by farmers and traders. A successful institution is Ethiopia's Productive Safety Nets Programme (PSNP) that, among others, made major contributions to public works such as road building and rehabilitation. The PNSP is one of the largest social protection interventions in Africa reaching eight million Ethiopians in 2011. There is persuasive evidence that public works in Ethiopia have contributed to: i) a large-scale network of rural roads and other physical infrastructure; ii) the protection and improvement of household-level food security; and iii) asset security and new household asset formation.

A third area in which institutions can make a major contribution to reducing poverty and fragility is that of social protection schemes. An important distinction is between unconditional and conditional grants. *Unconditional* cash transfers typically benefit vulnerable groups such as older people and children. The *Old Person Grants and Child Support Programme* in South Africa are both based on unconditional cash transfers. There is strong evidence that these schemes have not only contributed to improving the wellbeing of the recipients, but also had a positive impact on production and inclusive growth. Some of the more developed countries in SSA might consider experimenting with variants of these programmes.

But, potentially, *conditional* cash transfers that are currently rare in the context of SSA, could play an even more crucial role in reducing poverty and building human capital. These schemes, such as *Opportunidades* in Mexico and *Bolsa Familia* in Brazil have had much success in reducing poverty (Fiszbein and Schady, 2009; Adato and Hoddinott, 2010; Soares et al., 2010, among many studies). The former was designed to target poverty by providing cash payments to families conditional on their children attending school regularly, health clinic visits and learning more about nutrition. More than one quarter of Mexico's population participates in *Opportunidades*. The design and coverage of *Bolsa Familia* is essentially similar. Both these programmes are prime examples of pro-growth poverty reduction institutions in that the initial area of intervention in the P-I-G nexus is directly on poverty. Here again these schemes would need to be appropriately modified and adapted to the settings of African countries in order for the transplant to be successful.

Summary and conclusions

The main objective of this study was to investigate and understand better the state of fragility in SSA. The first step was to define fragility and identify indicators capable of measuring this concept and its evolution over time. We selected two such aggregate indicators: The Fragile State Index and the State Fragility Index. While both indicators are: (i) comprehensive in their choice of correlates of fragility and their almost universal coverage of countries; and (ii) available annually over fairly long periods, they suffer from a lack of transparency. Yet the fact that these two indicators, based on different methodologies, yielded very similar results strengthens confidence in the robustness of their capacity to capture the essence of fragility.

In Section 3 we attempted to identify the most fragile states and changes in degrees of fragility over time. We found that the SSA region is disproportionately represented among the world's most fragile states and that the rest of the world has performed better than Africa in reducing its fragility over the last ten to fifteen years. Furthermore, there were more countries in the SSA region whose fragility performance worsened over that same period than countries in which performance improved. An interesting, but hardly surprising, observation is the high inter-correlation among the multiple components of the aggregate fragility indicators within the more fragile countries. The worst performers, such as Somalia, scored almost universally poorly on each of those components (twelve in the case of the FSI). This suggests that high fragility permeated all areas of society (social, political and economic), resulting in the breakdown of the state across all dimensions.

Next, we attempted to test quantitatively the relationship between fragility and development. As the aggregate FSI included several development outcomes such as "poverty and economic decline", we constructed an alternative measure of fragility excluding those economic variables. In turn, this alternative measure of fragility was regressed on a number of variables reflecting development outcomes (poverty, inequality, infant and child mortality, incidence of stunting and underweight, literacy rates, and enrolment rates at primary and secondary school) based on a sample of 46 SSA countries in 2014. The main results of the cross-country regressions were as follows: Fragility was negatively correlated with per capita GDP and its average growth rate, indicating that fragility tended to be greater in poorer and slower growing countries, and fragility was also strongly associated with growth volatility. Even more revealing for the present analysis is the high and typically significant correlation between fragility, on the one hand, and monetary poverty and human development indicators (such as infant mortality, malnutrition and school enrolment). The main conclusion that can be drawn from the quantitative analysis undertaken in Section 4 is that there exists a strong association between greater levels of fragility and greater degrees of deprivation. While the above results cannot tell us anything about causality, they infer that fragility and under-development are two sides of the same coin.

If poverty and fragility are intrinsically linked, then it suggests that interventions that are successful in reducing poverty could also reduce fragility. The positive link between growth and poverty reduction has been thoroughly investigated and documented and has been at the heart of development strategies such as pro-poor growth and shared growth. The reverse link between poverty and subsequent growth has only recently become a focus of interest among researchers. A better understanding of this reverse link helps to clarify how interventions reducing poverty directly influence the pace and structure of growth, and thereby the degree of fragility in each country. Hence, in Section 5 we investigated the interrelationship among growth, inequality and poverty first at both the conceptual level and then within the context of SSA. There is evidence that: (i) growth has accelerated in SSA since 2000 and become somewhat more effective in translating it into poverty reduction; and (ii) high initial poverty incidence does not appear to dampen subsequent growth in contrast with the rest of the world. There also appears to be scope for measures that by focusing directly on alleviating poverty can help engender a more inclusive growth pattern and thereby combat fragility.

Given the inherent causal circularity between fragility and the state of development, we explored how this vicious circle could be broken. The underlying idea was to search for an exogenous intervention that can simultaneously affect development and fragility favourably. Expressed in a technical sense, the issue is to identify some exogenous intervention that can break the endogeneity by affecting fragility causally in a unidirectional way. Two approaches to the literature on fragility argue convincingly that the lack of appropriate institutions is the predominant cause of fragility. The first approach is quantitative, relying on a statistical regression analysis of many potential determinants of fragility. One of the more comprehensive of these studies concluded that institutional variables are the key determinant and central drivers of fragility. After controlling for endogeneity, a unidirectional link from institutions to fragility was established.

The second approach to the relation between fragility and development is conceptual and draws on historical experience. This approach is best exemplified by the work of Acemoglu and Robinson (2012), who make a compelling case, based on a myriad of historical episodes worldwide, including Africa, that growth (and development) can only be sustained in the long run if anchored in and supported by inclusive economic and political institutions.

In the penultimate section of this paper, specific institutions are identified that are both (i) poverty-reducing and productive, and (ii) potentially transferable to the initial conditions and settings prevailing in SSA. These institutions are in three different areas: small scale agriculture, infrastructure and social protection schemes. The initiation of such institutions in SSA could be the exogenous trigger mechanism necessary to reduce poverty and fragility simultaneously and become part of a successful *pro-growth poverty reducing strategy*.

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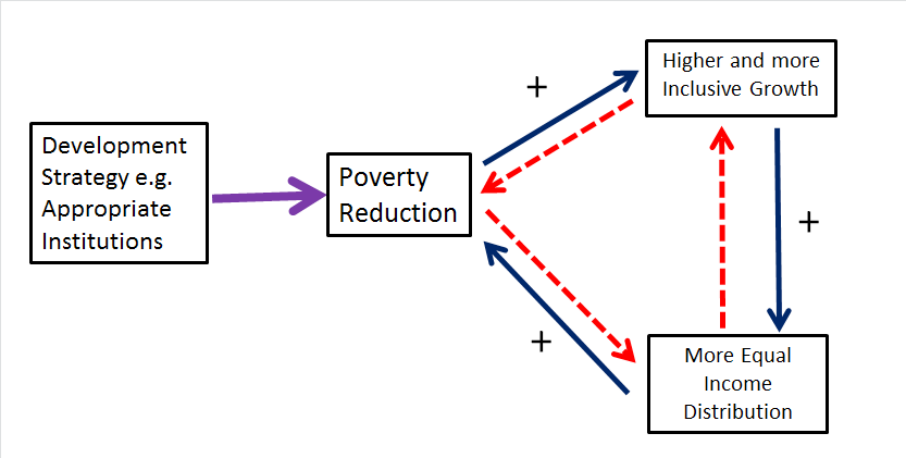
Figure 10: Impact of poverty-reducing institutions on inclusive growth and income distribution

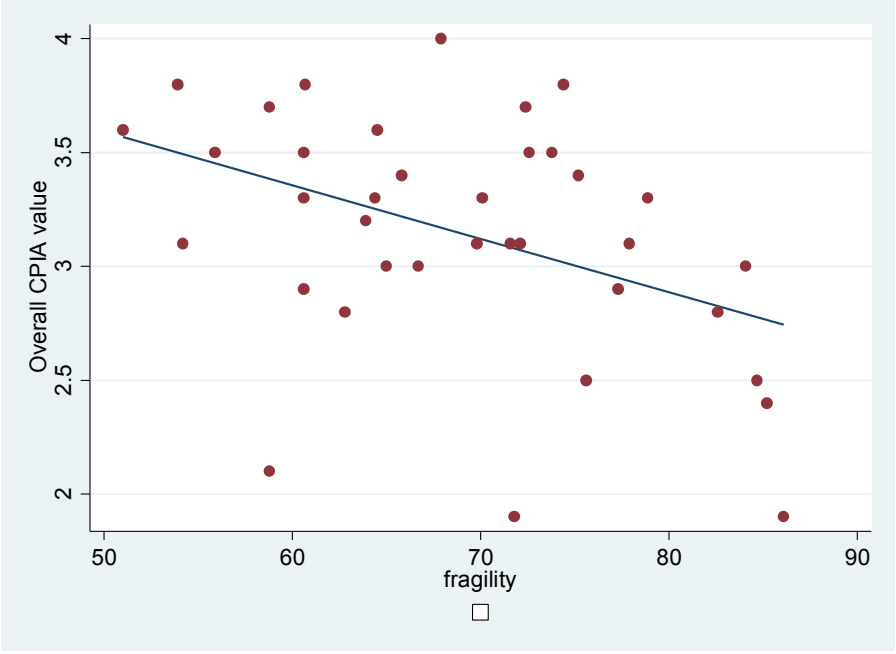


Source: Thorbecke, 2014

Appendix 1: Association between failed states index and CPIA measure

Here we briefly consider the association between the Failed States Index measure used in this paper and the overall values of the CPIA index for 2015 of the 40 sub-Saharan African countries for which both measures are available. Figure A1 presents a scatterplot between these two measures.

Figure A1: Association between overall CPIA score of a country and its fragility assessment based on the FSI measure*



This relationship shows a negative correlation but also quite a widespread across the line. The R-squared value for a regression of fragility on the overall CPIA score is only 0.18. A higher R-square value is recorded if fragility is regressed on some specific CPIA components, including the property rights and rules-based governance rating (0.39), the public sector management and institutions rating (0.34) and the transparency, accountability and corruption rating (0.35). These individual components are clearly more strongly related to our preferred fragility measure than the overall CPIA score, which focuses on a wider range of dimensions.

Challenges of Macroeconomic Management in Fragile States of Africa

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Introduction

State fragility is defined in various ways (OECD, DFID, 2005; Morcos 2005, quoted in Prest *et al*, 2005: 5). From these various definitions, fragile states (FS, henceforth) are found to have similar characteristics that includes: weak institutions, low level of human capital development, high youth unemployment, high poverty and inequality, unstable macroeconomic environment and a history of violent conflict that limit their ability to maintain a stable state and provide basic public services (OECD, 2015; Alemayehu, 2011; 2017).

State fragility is an important issue in Africa because four out of every five fragile states around the world are found in Africa (Jones, 2013). Using the African Development Bank (AfDB) harmonized "country policies and institutional performance assessment" (CPIA) index with less than 3.2, (the cut-off value, in a score that ranges from 1, the lowest, to 6, the best) as well as the broader definition of the OECD that also includes wider political aspects of SF, the list of African countries classified as fragile is given in Table 1. Using the OECD definition, as shown in Table 1, 31 out of 54 (nearly 60 per cent) African countries that are home to more than half a billion African population could be considered as fragile.

Table 1: Fragile states of Africa

AfDB and WB (Based on CPIA index <3.2)		**Additional Countries using OECD-DAC 2015List**
Burundi [CB]	Libya*	**Cameron*** [WA]
Central African Republic [CB]	Madagascar [ESA]	Ethiopia
Chad*	Malawi [ESA]	Kenya [ESA]
Comoros	Mali [WC]	Niger [WA]
Congo* [CB]	Mauritania	Nigeria* [WA]
Cote d'Ivoire* [WA]	Sao Tome & Principe^	Rwanda [CB]
DR Congo* [CB]	Sierra Leone* [WA]	Uganda [ESA]
Egypt	Somalia	
Eritrea	Sudan	
Guinea* [WA]	South Sudan*	
Guinea-Bissau [WA]	Togo [WA]	
Liberia* [WA]	Zimbabwe [ESA]	
Source: IMF, 2014; OECD, 2015. Number of countries 24		Source: OECD (2015) Number of countries 24+7=31

* Resource Rich Countries. Countries written in 'bold' are countries added to the AfDB/WB list in the left column. ^ is the only country that is in the 2015 AfDB/WB list but not in the OECD list in the same year. However, for the years 2007-11 it was in the OECD list too.

Conflict is extremely costly in Africa that needs serious attention from politician and policy makers. One of AERC's case studies on Burundi (Ndoricimpa and Ndayikeza, 2018) has used various empirical models, to compute the cost of conflict. The result shows that civil conflict on average reduced economic growth in Burundi by 4 percentage points per annum during the 1993 – 2003 civil war. This had cost each Burundian roughly USD 1500 and close to USD 10 billion to the whole country. This cost is in fact very small compared to the cost of the last civil conflict of Burundi in 2015 that have reduced economic growth by 7 percentage points compared to its potential. If we conservatively assume that this minimum cost of conflict in Burundi (USD 1500 per person for the ten years or USD150 per year, per person) holds for the whole of 31 FS of Africa with a population of about half a billion people, the minimum annual cost of conflict to the continent is about USD 75 billion. This is way beyond the annual inflow of FDI (USD 57 billion in 2013) and ODA (of about USD 60) billion from all DAC countries in 2013) to the continent. This shows policy makers did not pay as much attention and effort in tackling SF compared to attention, they give to attract FDI and aid flows. It is unfortunate that politicians and policy makers usually began focusing on the challenges of SF when conflict in such states have already escalated to the highest level. At that point, the challenges of SF become not only complex but also much costlier to handle.

The literature about state fragility (see for instance IMF, 2014) shows not only SF is associated with poverty, poor growth and macroeconomic instability but also getting out of SF and transiting into resilience is dependent, inter alia, on macroeconomic stability and shared growth. Both in turn, are related to the three major factors behind state fragility: (i) "weak political and economic institutions", (ii) "weak human capital" and the related issue of (iii) fragile state's vulnerability to external shocks and lack of finance". Conceived in such wider perspective, macroeconomic instability in FS is a complex issue. It is an indicator of state fragility, the cause of SF as well as the result of SF. Thus, it requires complex and unique macroeconomic management. The latter could be defined as designing appropriate macro policy, implementing and monitoring it as well as building the capacity (both human and institutional) needed to carry out these functions. It is in the context of such political-economy framework that macroeconomic outcomes, macroeconomic policy as well as its management need to be framed and understood. Attempting to answer the following macroeconomic issues in relation to SF could inform this understanding:

- How does state fragility relate to macroeconomic instability?
- Do fragile states require unique macroeconomic management that is different from other non-fragile states?
- What is the nature of financing development, which is generally central for macro outcome in Africa, in such states? and what their implications for transiting from SF to resilience?

- What is the implication of capacity (institutional and skill) deficiency, which is an enduring feature of such states, for macroeconomic management?

This study attempts to shade light on these questions based on AERC research. The rest of the paper is organized as follows. Section two attempts to show the relationship between SF and macroeconomic outcomes in Africa. This is followed by section three where major macroeconomic management issues in FS are discussed. The latter includes macroeconomic instability, state capacity deficiency and its implications for macroeconomic management and the role of the macro economy in transiting from state fragility to resilience are discussed. Section four concludes the study by offering its policy implications.

State fragility and macroeconomic outcomes in Africa

Understanding the poor macroeconomic outcomes (such as low growth and its variability, high poverty and inequality as well as the macroeconomic instability as expressed, inter alia, in high inflation, exchanger rate instability, etc) that are invariably observed in fragile states require, among others, understanding the root causes of conflict and how growth features in that process. This means it requires not only understanding determinants of growth but also understanding the nature and determinants of conflicts, their duration, intensity, the modalities for their cessation and how growth features in this process. Thus, macroeconomic policy could not be thought independent of such social and political conditions unlike the situation in non-fragile states where this might not be required.

The causes of conflict may be complex and country specific. However, two principal categories of causes of conflict are cited in the literature: (ii) the motivations of greed (for power and resources) and (ii) grievance over pronounced inequality, lack of political right, ethnic or religious repressions etc (Collier and Hoeffler,2002). Similar arguments are also put forward by Fearon and Laitin (2003). Sambins (2001), Elbadawi and Sambanis (2000b), and Reynal-Querol (2002). However, the latter studies found that civil wars in particular are predominantly explained by political (socio-political) than economic grievances. In particular, they found the levels of political and economic inclusiveness and democracy that includes high levels of poverty, failed political and democratic institutions, and economic dependence on natural resources, having an educated and poor young male population to be empirically important. A recent comprehensive study on the issue is critically of such "root cause" approach to state fragility (CSFGD, 2018). Instead, it advices to focus on the inter-related character of various factors behind SF that need to be addressed in a comprehensive manner (CSFGD, 2018). In general, these are issues that the AERC studies examined both at continental and country levels. The implications of the literature are that macroeconomic management in FS needs to be part and parcel of the political and economic policy directions aimed at transiting countries from state fragility to resilience. This requires understanding the relationship between

macroeconomic outcomes and state fragility. This is examined in the rest of this section. The analysis also aims to examine if FS need unique macroeconomic approach that is different from non-fragile states.

State fragility and macroeconomic outcomes

Tables 2a and 2b show macroeconomic outcomes in fragile and non-fragile states of Africa as well as between the resource-rich and resource-poor within the fragile category, for the period, 2002-2016. Generally, growth and the level of GDP per capita is lower in fragile stats compared to non-fragile ones. Among the fragile states of the continent the resource-rich countries are better both in terms of growth performance and the level of percapita income (GDP per capita).

In terms of other macroeconomic stability indicators (such inflation, reserves, indebtedness), the condition in FS is generally poorer compared to the non-fragile ones (i.e., inter alia, Inflation and indebtedness are higher and reserves are lower). This result is mixed among the resource-rich and resource-poor FS, however. In the first half-decade that began in 2002, inflation was higher in the resource-poor FS than resource-rich ones; while the latter had relatively higher inflation in the recent two periods (2007-2016). Resource-rich FS were found to be more indebted than the resource-poor ones in the first two periods, before the resource-poor ones takes over that in the last five years (2012-2016).

Tables 2a and 2b also show macroeconomic outcomes that indicate state capacity. Among such indicators, the level of investment, saving and tax collections are poorer in FS compared to the non-fragile ones. In terms of tax collection and saving in particular, the levels registered in FS is about half the level registered in non-fragile states. When these outcomes are compared between resource poor and resource rich FS, the resource-poor one's fare better in terms of revenue collection while the resource-rich ones fared better in domestic saving, except in the recent period (2012-16) and investment - this difference might have resulted from having natural resources or not. In terms of financial sector development which is found to be crucial to transit from SF to resilience (see below), the FS in general and the resource-rich one in particular are found to have shallow financial sector compared to non-fragile ones. As, expected, the resource rich fragile states are found to depend more on trade compared to the rest of the country groups given in Tables 2a and 2b.

Table 2a: State fragility and macroeconomic outcomes: Fragile and non-fragile Africa

	Fragile States of Africa			Non-Fragile State of Africa		
Major Macroeconomic Outcome Indicators	**2002-2006**	**2007-2011**	**2012-2016**	**2002-2006**	**2007-2011**	**2012-2016**
GDP growth (annual %)	4.6	4.9	4.4	6.0	5.3	4.1
GDP per capita (constant 2010 US$)	733.8	812.3	909.2	3,733.8	4,473.5	4,714.2
Inflation, consumer prices (annual %)	25.0	9.1	6.9	10.1	7.5	5.4
Broad Money, M2/GDP (%)	22.2	24.3	28.0	39.8	44.9	49.7
External debt stocks (% of GNI)	100.0	43.8	32.2	59.6	27.4	41.8
Foreign direct investment, net inflows (% of GDP)	4.6	6.4	5.9	4.3	5.2	6.1
Trade (% of GDP)	76.3	71.2	68.2	90.1	92.2	93.5
Total reserves in months of imports	4.0	3.9	3.0	4.3	4.9	4.6
Gross capital formation (% of GDP)	18.1	20.7	23.1	24.1	25.1	27.6
Gross savings (% of GDP)	11.6	12.5	11.7	21.0	20.2	18.0
General government final consumption expenditure (%GDP)	19.8	11.8	9.9	20.0	17.7	18.7
Revenue, excluding grants (% of GDP)	18.0	16.8	16.9	23.8	27.7	27.9
Tax revenue (% of GDP)	11.3	11.6	14.2	19.1	21.2	22.3

Source: Author's computation based on World Bank Data (2018)

Note: The Non-fragile countries' figure is based on data from: Angola, Benin in, Botswana, Burkina Faso, Equatorial Guinea, Gabon, Gambia, Ghana, Lesotho, Mauritius, Mozambique, Namibia, Senegal, Seychelles, South Africa, Tanzania, Zambia

Table 2b: State fragility and macroeconomic outcomes: Resource rich and resource poor

Macroeconomic Outcome in Fragile Economies	Resource Poor Fragile States			Resource Rich Fragile States		
	2002-2006	2007-2011	2012-2016	2002-2006	2007-2011	2012-2016
GDP growth (annual %)	4.1	4.7	4.4	6.2	5.5	4.2
GDP per capita (constant 2010 US$)	651.2	707.7	794.6	1009.0	1161.2	1291.3
Inflation, consumer prices (annual %)	28.6	8.8	6.7	10.8	9.0	8.0
Broad Money, M2/GDP (%)	24.8	25.5	29.5	13.5	20.8	24.0
External debt stocks (% of GNI)	100.0	43.6	34.9	264.3	82.2	24.4
Foreign direct investment, net inflows (% of GDP)	14.1	13.7	13.4	10.1	11.2	11.6
Trade (% of GDP)	60.4	62.3	61.8	100.7	98.2	88.4
Total reserves in months of imports	4.2	3.9	3.0	2.9	3.8	3.0
Gross capital formation (% of GDP)	15.6	20.7	22.4	19.9	20.5	25.3
Gross savings (% of GDP)	10.4	12.4	12.3	15.7	13.0	9.5
General government final consumption expenditure (%GDP)	14.1	13.7	13.4	6.9	9.8	7.3
Revenue, excluding grants (% of GDP)	16.8	14.8	16.5	18.2	21.3	16.8
Tax revenue (% of GDP)	12.5	12.7	14.5	6.0	8.9	10.8

Source: Author's computation based on World Bank Data (2018)
Note: Resource poor fragile states used in the table are: Burundi, Cameroon, Central African Republic; Comoros, Cote d'Ivoire, Ethiopia, Guinea-Bissau, Kenya, Madagascar, Malawi, Mali, Mauritania, Niger; Rwanda, Sao Tome and Principe, Sierra Leone, Sudan, Togo, Uganda, Zimbabwe; Resource rich FS included are: Chad, Congo, DR, Congo Rep, Guinea, Liberia, Nigeria

In sum, weak macroeconomic outcomes characterize fragile states of Africa. While the resource-poor FS are found to do better on eight of the 12 macroeconomic indicators in Table 2b, the resource-rich FS found to fare better in five of the 12 indicators given in the

same table. These macroeconomic outcomes also suggest the relatively weak nature of the states in FS, although this might have to do also with the historical (colonial) legacy of state formation in such countries (as discussed in section three below). Regarding causality, although the causality could be bi-directional and generally an empirical question, in general the causality seems to run from SF to Macro outcome as discuss below (see also Appendix I, Table A1). Two additional interesting points could also be observed regarding macroeconomic outcome in FS. First, some macroeconomic outcomes, such as inflation or low tax collection, could be the result of a contest among interest groups over resource. In such countries, being in government is important as it could be used to enrich these groups or/and the government resources are usually perceived as loot-able resources by such groups. As an illustration, a loose monetary policy (credit expansion), and the resulting inflation, balance of payment crisis and indebtedness in Ethiopia since the failed democratic election in 2005 is to a significant degree the result of a policy aimed at benefitting companies owned by the ruling party, business people associated with ruling partly as well top ranking generals (which are also the party members) running state owned companies and engaged in grand corruption. This also took an ethnic form. This has led to mass protest that was intensified in 2016-2018 which eventually resulted in regime change and the coming to power a new prime minister (PM) in 2018. The new PM began assault on grand corruption immediately, yet inherited unstable and mismanaged macroeconomy. Second, although state fragility is invariably associated with macroeconomic instability, the latter's severity is also related to the intensity and duration of the conflict. In Appendix I, Table A1. we have briefly presented the nature of conflict and related macroeconomic instability indicators (growth and inflation) in a sample of countries that are part of the AERC study. Table A1 also includes similar cross-country econometric evidence in the continent. The information contained in Table A1 shows in most countries the duration of conflict is long and the intensity of conflict increased over time. In those situations, the severity of macroeconomic instability was strongly associated with the intensity and duration of these conflict episodes. In some of the countries, such as Kenya and Ethiopia, the conflict is sporadic (being intense and appearing during the period of election in Kenya and during regime shift in Ethiopia) and so were poor macroeconomic outcomes.

In sum, the macroeconomic outcomes as observed in this section underscore the need to give a special emphasis to macroeconomic issues as part of the effort to address challenges of SF in Africa. This also suggests at the need to have a unique macro policy tuned to conditions of stage fragility – an issue discussed next.

Do fragile states need unique macroeconomic management & policy

The literature about SF as well as the AERC studies highlight that political democracy and shared growth are central to escape from state fragility. These in turn are conditional on stable macroeconomic environment. The latter has the additional unique advantage of providing state legitimacy to the government. However, the causality may not be one way. That is, macroeconomic stability could be a function of conflict as well as the nature of growth (whether it is pro-poor or not; shared growth or not; accompanied

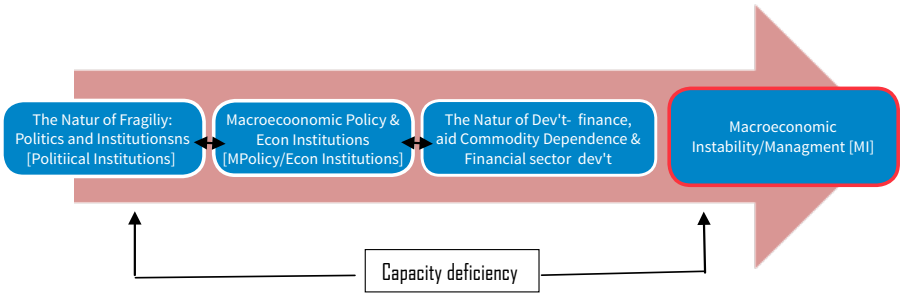
by structural transformation and job creation or not) (Alemayehu *et al*, 2008; 2017), its financing, the state of its financial sector (Addison *et al*, 2005) as well as the country's human and institutional capacity (Alemayehu, 2011). Thus, prudent macroeconomic management practice in FS of Africa requires understanding the link between these factors. That is, the link between macroeconomic instability and:

a) the basic feature of state fragility:
   - weak political and economic institutions that characterize such states,
   - significant capacity deficiency and, hence, the need to build capacity for economic management and durable peace,
   - vulnerability to external shocks and inability to respond to them adequately, as well as

b) the basic features financing development in these economies:
   - dependence on natural resources or a significant inflow of aid (and its political and macroeconomic effect), and
   - reconstructing the financial sector, which is weak or destroyed.

This interrelationship is summarized in Figure 1.

Figure 1: Macroeconomic management issues and state fragility



One of the major implications of this complex relationship between SF and macroeconomic instability is that such states face unique macroeconomic challenges and hence require unique macroeconomic management that is different from other (non-fragile) countries in Africa. The literature and our studies offer the following justification for this:

First, a very important characteristic of such societies is that there is a high(er) risk of reverting into conflict within a decade or so and, the literature indicates, that economic performance has an important effect on this risk (Miguel et al, 2004; Collier et al, 2004; Collier, 2009; Alemayehu, 2011; IMF, 2014). Therefore, economic policy – for instance policies that relate to employment creation – has the additional potential of helping

reduce the risk of reverting into conflict. This is especially important in view of the fact that other policies, such as democratization and increasing security capacity do not seem to reduce the risk (Collier et al, 2004; Collier, 2009).

Second, pursuing prudent macroeconomic policies and building institutions towards that end is important not only to bring about macroeconomic stability but also to signal at (and eventually ensuring) state legitimacy which is invariably at the root cause of conflict in such societies (IMF, 2014). For example, public financial management reforms that include revenue management in resource-rich countries are found to be important to transit from SF to resilience as they build the legitimacy of the state by increasing transparency, accountability, and efficiency (Besley and Persson, 2011, cited in IMF, 2014).

Third, fragile states generally are not in a position to correct their own weaknesses fully – either because they lack the authority to do so, or because such governments do not want to correct particular weaknesses, such as social and political exclusion, or because such governments have very limited human and financial resources and the scale of things to be done is very large, and cannot – however willing – correct all deficiencies on their own (Iqbal and Starr, 2008; Chauvet and Collier, 2008; IDA, 2007; Alemayehu, 2011). This issue also includes lack of capacity to have proper policy response to external shocks. Thus, a third party has an important role to play. This also makes dependence on development partners/ or a third party for such capacity in the short run and capacity building in the long run, at the heart of such interventions (Ncube and Jones, 2013; Burnside and Dollar, 2000; Dollar and Kraay, 2001; Iqbal and Starr, 2008; Chauvet and Collier, 2008; IDA, 2007; Carment et al, 2008; McGillivray, 2007; Alemayehu, 2011; Alemayehu and Kizzi-Migwera, 2013).

Fourth, a significant number of such states are resource rich or highly aid-dependent. This entails unique macroeconomic and fiscal management challenges. Failure to address them in a professional, transparent, accountable and democratic manner might lead to relapse to conflict.

Finally, macroeconomic management is important because, as Mlambo et al (2009) noted, countries in civil conflict and those emerging from it are characterized by macroeconomic instability, with high inflation, active parallel exchange markets, with large gaps between the official and the parallel exchange rate market as well as a high propensity to be indebted (Obidegu, 2004: 17-18; IMF 2014; Tables 2a and 2b).

Results from case studies conducted in the context of AERC's research on FS of Africa also show the need to have a unique macro approach in such countries. All the case studies (the focus of which varies from gender empowerment to child nutrition; from growth and poverty to efficiency of public spending in health and education etc) show the unique macro challenges of FS compared to non-fragile ones and, hence, the need to have a special policy tailored to the needs of these FS. For instance, focusing on growth and macro issues, one empirical study examined the growth-fragility nexus in 36 states of Nigeria. Using data for the period 2011-2015, (Abdulfatai and Adeniy, 2018) has concluded that although both fragile and non-fragile Nigerian states have growth

and poverty challenges, special attention should be directed towards fragile states as they are in state of fragility trap with high level poverty and declining growth. The Abdulfatai and Adeniy (2018) study has also shown that the root cause of the conflict-ridden Nigerian states could be related to high level of poverty, youth unemployment, poor infrastructure development, and poor educational and health systems that need a unique policy approach to address them.

Major macroeconomic management issues in fragile states of Africa

Before commencing this section, it is worth mentioning that the analysis about macroeconomic outcomes here is based on the CPIA index. However, various indices are used globally as indicators of SF. As a justification for the use of CPIA in this study and as a robustness check of this choice, Table 3 contains information that compares the CPIA and OECD based classification schemes of SF used in this study with other four widely used indices. The result shows that all the indices are highly correlated and result in almost identical classification of African countries as Fragile or not with that of the CPIA and OECD based classification schemes used in this study.

Table 3: State fragility using various indices: A comparison with World Bank CPIA and OECD classification schemes

	***Index of State Weakness, (ISW) [Ranges from 0-10] [2008]**	****Fragile States Index (FSI) [Ranges from 0 to 120] [2019]**	*****CIFP index [A score >3.5 is Fragile] [2016]**	******Global Peace Index, GPI [Ranges from 1-3.6] [2018]**
Burundi [CB]	3.21	98.2	6.85	2.488
Central African Republic [CB]	3.33	108.9	7.39	3.236
Chad*	3.90	108.5	7.60	2.498
Comoros	5.20	81.7	6.34	NA
Congo* [CB]	4.56	92.5	6.41	2.343
Cote d'Ivoire* [WA]	3.66	92.1	6.42	2.207
DR Congo* [CB]	1.67	110.2	6.76	3.251
Egypt	NA	88.4	5.64	2.632
Eritrea	3.84	96.4	7.22	2.522
Guinea* [WA]	4.67	99.4	6.80	2.101
Guinea-Bissau [WA]	4.16	95.5	6.70	2.275
Liberia* [WA]	3.64	90.2	6.65	1.931^
Libya*	NA	92.2	6.05	3.292

continued next page

Table 3 Continued

	*Index of State Weakness, (ISW) [Ranges from 0-10] [2008]	**Fragile States Index (FSI) [Ranges from 0 to 120] [2019]	***CIFP index [A score >3.5 is Fragile] [2016]	****Global Peace Index, GPI [Ranges from 1-3.6] [2018]
Madagascar [ESA]	5.65	80.9	5.89	1.766^
Malawi [ESA]	5.60	83.3	6.07	1.811*
Mali [WC]	55.85	94.6	7.00	2.686
Mauritania	5.30	90.1	6.48	2.355
Sao Tome & Principe^	NA	71.1	5.92	NA
Sierra Leone* [WA]	3.77	86.8	6.39	1.740^
Somalia	0.52	112.3	7.45	3.367
Sudan	3.29	108.0	7.08	3.155
South Sudan*	NA	112.2	7.63	3.508
Togo [WA]	4.80	87.4	6.29	2.104
Zimbabwe [ESA]	3.44	99.5	6.39	2.326
Fragile African States using the OECD Definition				
Cameron* [WA]	5.12	97.0	6.50	2.484
Ethiopia	4.46	94.2	6.74	2.524
Kenya+ [ESA]	5.65	93.5	6.19	2.354
Niger [WA]	4.60	96.2	6.93	2.359
Nigeria+* [WA]	4.88	98.5	6.57	2.873
Rwanda [CB]	4.68	87.4	5.77	2.140
Uganda [ESA]	4.86	95.3	6.60	2.168
Angola	3.72	87.8	6.25	2.048

Note: * ISW: <5 are in the bottom quantile of ranking and critically weak states while those that scored above 5 are weak states. Both correspond to state Fragility;
**Fragile State Index (FSI) if the score is 70 -90 is the state of fragility is at "Warning" level, and if it is 100-120 the state of fragility is at "Alert "level. A score of 40 to70 is considered as indicator of "Stable" state.
*** The CPIF index refers to the "Country Indicators for Foreign Policy". If a country's index is above 3.5 it is referred to as Fragile State. Fragility scores at 6.5 or above indicates a very high-risk situation.
**** The GPI refers to the "Global Peace Index". The state of peace index in 2018 ranges from the score of 1.096 [ranked 1st] for Iceland to 3.6 [the bottom, ranked 163] for Syria Those with a score >2.8 are with the "very low (bottom) peace"; a score from 2.3 to 2.7 shows " low peace" and a score from 2.02 to 2.3 shows a" medium peace". ^Countries with "high peace" in the rank of "very high", "high", "medium", "low" and "very low" peace.

Macroeconomic management, macroeconomic instability and state fragility

Macroeconomic stability is important for realizing a policy of inclusive growth which in turn is key for poverty reduction and durable peace in post-conflict reconstruction. This should be seen, however, to be different from the typical IFIs' view of stabilization policy in Africa but rather as a condition for inclusive (distribution conscious) growth and state legitimacy. Realizing such macroeconomic stability is related to the quality of economic policies and institutions. Table 4 shows the evolution of the CPIA index and its four clusters[11] in FS of Africa between 2005-2017. The changes in the CPIA scores significantly vary between fragile and non-fragile states as well as between resource-rich and non-resource rich ones within the fragile category. The latter indicating the role of resource dependence on policy and institutional performance in such states.

Although macroeconomic management (the quality of monetary and exchange rate, fiscal, and debt policies – cluster A) and "structural policies" (which covers policies affecting trade, the financial sector, and the business environment -cluster B) are generally poor in FS of Africa compared to the non-fragile ones. This has hardly changed over the three periods given in Table 4 too. However, the change in performance in cluster A is relatively better even compared to the change in performance in the non-fragile states of the continent. This is not the case for cluster B in the third period, however.

This FS performance average, however, hides the significant difference among them. Thus, resource-rich FS performed worst compared to the non-resource rich ones in both economic management and structural policy categories (Clusters A and B), This underscores the paramount significance of macroeconomic management in FS of Africa in general and in resource-rich ones in particular (similar pattern is observed in policies for social inclusion and public sector management – clusters C and D too). As IMF's (2014) study on FS of Africa also shows, efforts at "rebuilding economic capacity and institutions focused on three areas: public financial management (PFM), in particular the budget process; mobilizing revenue; and strengthening the central bank and the banking sector" are found to be very important to bring about macroeconomic stability and inclusive growth which were lost in periods of conflict (IMF, 2014).

11 Cluster A covers the quality of monetary and exchange rate, fiscal, and debt policies. Cluster B – called "structural policies" - covers policies affecting trade, the financial sector, and the business environment. Cluster C covers policy areas such as gender equality, equity of public resource use, human development, social protection, and environmental sustainability. Finally, cluster D covers governance and public sector capacity issues: property rights and rule-based governance; quality of budgetary and financial management; efficiency of revenue mobilization, quality of public administration; and transparency, accountability, and corruption in the public sector (World Bank, 2015).

Table 4: Average change in CPIA scores by country groups between 2005/07, 2008/12 and 2013/17

	2005-2007 [A]	2008-2012 [B]	2013-2017 [C]	Growth [B/A] %	Growth [C/B] %
All Fragile States					
Economic management: Cluster A, average (1=low to 6=high)	3.1	3.2	3.1	3.1	-1.7
Structural policies: Cluster B, average (1=low to 6=high)	3.1	3.0	3.0	-2.5	0.0
Policies for social inclusion/equity: Cluster C, average (1=low to 6=high)	3.0	3.0	3.1	0.3	4.0
Public sector management and institutions: Cluster D, average (1=low to 6=high)	2.8	2.8	2.8	-1.2	1.4
Fragile Resource-rich					
Economic management: Cluster A, average (1=low to 6=high)	3.2	3.1	2.8	-5.5	-9.0
Structural policies: Cluster B, average (1=low to 6=high)	3.0	2.9	2.8	-4.4	-2.1
Policies for social inclusion/equity: Cluster C, average (1=low to 6=high)	2.9	2.8	2.9	-2.5	1.5
Public sector management and institutions: Cluster D, average (1=low to 6=high)	2.6	2.5	2.6	-4.4	2.6
Fragile Non-resource rich					
Economic management: Cluster A, average (1=low to 6=high)	3.0	3.2	3.2	5.7	0.5
Structural policies: Cluster B, average (1=low to 6=high)	3.1	3.1	3.1	-1.3	0.7
Policies for social inclusion/equity: Cluster C, average (1=low to 6=high)	3.0	3.1	3.2	1.7	4.6
Public sector management and institutions: Cluster D, average (1=low to 6=high)	2.9	2.9	2.9	0.1	0.9

continued next page

Table 4 Continued

	2005-2007 [A]	2008-2012 [B]	2013-2017 [C]	Growth [B/A] %	Growth [C/B] %
Non-fragile African Economies					
Economic management: Cluster A, average (1=low to 6=high)	3.9	3.8	3.4	-0.4	-10.6
Structural policies: Cluster B, average (1=low to 6=high)	3.5	3.6	3.5	2.1	-2.8
Policies for social inclusion/equity: Cluster C, average (1=low to 6=high)	3.4	3.5	3.4	1.7	-0.9
Public sector management and institutions: Cluster D, average (1=low to 6=high)	3.3	3.3	3.2	0.0	-2.0

Source: Author's Computation based on WB (2018) CPIA data.
Note: The data is based on the following countries for which complete data is available: Fragile: Burundi, Cameroon, Chad, Comoros, Congo DR, Congo Rep, Cote d'Ivoire, Eritrea, Ethiopia, Guinea, Guinea-Bissau, Kenya, Liberia, Madagascar, Malawi, Mali, Mauritania, Niger, Nigeria, Rwanda, Sao Tome Principe, Sierra Leone, South Sudan, Sudan, Togo, Uganda, Zimbabwe; Non-fragile: Angola, Benin, Burkina Faso, Cape Verde, Djibouti, Gambia, Ghana, Lesotho, Mozambique, Senegal, Tanzania, Zambia; Fragile resource rich: Chad, Congo, DR, Congo Rep, Guinea, Liberia, Nigeria, South Sudan

In addition to the CPIA based analysis above, econometric studies conducted in the context of the AERC study also show that macroeconomic stability and related macroeconomic management issues are important to transit from state fragility. To see this, Alemayehu (2017) have examined the determinants of macroeconomics stability in fragile state of Africa employing an auto-regressive distributed lag model using cross-section and time-series data for a sample of 16 FS of Africa for the period 1990-2014 (see Alemayehu, 2017). A summary of this econometrics-based result is given in Table 5. The result shows macroeconomic stability is positively related to financial sector development, better governance and institutions as well as the quality of macroeconomic policies and related institutions, in the order of importance. Natural resource dependence is found to trigger macroeconomic instability in the short run (with no statistically significant effect in the long run). The result also shows the strong potency of focusing on financial sector reconstruction (which is over four times stronger than the general governance indicator[12]) to bring about

12 This index is made of the following indicators: the aggregate sum of Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption index of the World Bank (it ranges from

macroeconomic stability. The result also revealed that in the long run, an increase in the external debt stock is found to bring about macroeconomic instability. The econometric result also shows about 86% of the deviation from the equilibrium is found to adjusted in one period. This is encouraging because it means if the problem of macroeconomic instability is identified and corrected, it would be effective very quickly. The result from case studies conducted in Africa FS also supports this econometric-based finding (see IMF, 2014).

Table 5: Determinants of macroeconomic instability in fragile states of Africa econometric results (N=16, T=1999-2014)

Variables (all in Change and in logarithms)	**Rank**	**Elasticity**	**[Contribution %]**
Financial Sector Development (M2 to GDP Ratio)	1	-0.57	67.6
Natural Resource Abundance	2	0.13	15.4
Aggregate Governance Indicator	3	-0.09	10.7
Macro Institutions &Policy-CPIA Macro Policy Indicators	4	-0.053	6.3

Source: Alemayehu (2017)

The role of macroeconomic factors in transiting from state fragility to resilience

To further check the robustness of the above analysis we have also presented in Table 4 the result from a probabilistic (logit and probit) model that determine the probability of transiting form SF to resilience focusing on macroeconomic factors (see IMF, 2014; Alemayehu, 2017). The sample of African countries used in this probabilistic model is different from the above one as it includes both fragile and non-fragile African countries. Using 34 such countries for the period 2005-2014 for which all the required data is available a dependent dummy variable called "resilient" is regressed on the above macro variables, extended to include economic growth and aid (see Alemayehu, 2017). The result from this exercise is summarized in Table 6.

-2.5=low to 2.5=high). Althogh the t-statistics at 1.43 (15% leve of signficance) is a bit low compared to the customery level of about 1.6 (for the 10% level of signficance), the macro managment indicatro is also found to have strong postive effect on macroeconomic stabityt at a coefficent of 0.22-making it the next important factor after financial sector development (see Alemayehu, 2017 for detail).

Table 6: Transiting from state fragility: The probabilistic (marginal) effect macroeconomic variable using a Logit Model

Dependent Variable: Resilience (N=34, T=10; 2005-2014, included observation, n=340)

Macroeconomics Variable (determinants, in logarithms)	Rank	Probability	[Contribution %]
Financial Sector Development (M2/ GDP ratio)	1	0.31	29.8
Aid (AID/GDP ratio)	2	0.20	19.2
External Debt (Debt Stock/GDP ratio)	3	-0.18	17.3
Economic Growth (Real GDP)	4	0.15	14.4
Resource dependence (royalty as share of GDP)	5	-0.13	12.5
Inflation	6	-0.07	6.7

Source: Alemayehu (2017)

The result reported in Table 6 generally confirms the findings reported in Table 5 above. Thus, financial sector development, scaling up aid and rapid economic growth, in order of importance, are found to be important to transit from state fragility to resilience. On the other hand, indebtedness, resource dependency for export earnings and inflation, in order of importance, are found to inhibit transiting from state fragility to resilience. In terms of the potency of the effects, financial sector development (followed by aid, external debt and economic growth, in order of importance) are found to be the most important macro variables that determine transiting (or not) from SF to resilience. The rather significant effect of the financial depth indicator that is found in both models is interesting because it indicates not only the importance of the financial sector development as such but also, perhaps most importantly, its signaling effect about the existence of economic and political stability. This gives further credence to the importance of financial sector reconstruction, followed by aid, tackling debt and economic growth, as a priority area of policy in fragile states (see Addison et al, 2005 for detail on this). In addition, the empirical exercise also shows the strong path dependent nature of resilience. Since governance is also found important in the above empirical results (Table 5), perhaps monitoring and evaluation of government policies (including budgeting) might be important in this process.

Macroeconomic management institutions and state fragility

The literature on SF asserts that weak political and economic institutions are the major causes of state fragaility (Ncube and Jones, 2013; IMF, 2014; Collier and Hoefler, 2002b; Fearon and Latin, 2003; Cramer, 2001, 2006; Sambanis, 2001; Reynal-Querol, 2002; Elbadawi and Sambanis, 2002b; Berotocchi and Guerzoni, 2010). Among such weak institutions, weak institutions of economic management such as lack of indpendent central bank, fiscal authorities and stable financial sector are the prime causes of macroeconomic instability that hamper sustained and shared growth (Acemoglue et

al, 2003; Addision et al, 2005)[13].Using the CPIA based classification schem of fragile states, Jones (2013) noted that in a number of state and institutional indicators of the IGRC such as "bureaucratic quality", "military in politics", "government effectivness", " control of corruption" and "rule of law", it took 15 to 30 years for fast reforming fragile states in the 20th century to reach what could be described as a threshold level of 'good goverance' (Jones, 2013). Thus, in such states and during this transition period; low institutional capacity that includes macroeconomic management is one of the most binding constraints to growth, macroeconomic stability and durable peace (Besley and Persson, 2011 cited in IMF, 2014).

In addition, such macroeconomic management institutions and related challenges are interwoven with challenges of political institutions. Thus, such states have: scant constraints on executive power and lack civil liberties (Bertocchi and Guerzoni, 2010; David *et al*, 2011; Collier and Hoeffler, 2004 cited in IMF, 2014), characterized by a history of conflict (Collier and Hoeffler, 2004 cited in IMF, 2014), and weak governance and institutions (David *et al*, 2011 cited in IMF, 2014). As a result, these factors are also strongly associated with macroeconomic instability. At specific level, the challenges of macroeconomic management institutions and the required activities at them include building and revitalizing:

- public financial and fiscal institutions and their proper management (including revenue management in resource-rich countries) that aims at building the legitimacy of the state by increasing transparency, accountability, and efficiency;
- independent central bank, appropriate monetary and exchange rate policy and efficient and stable financial sector; as well as
- appropriate regulatory and institutional environment that encourage macroeconomic and financial stability, investment and inclusive growth (IMF, 2014; Addison *et al*, 2005).

In fragile states that became resilient, the building up of such institutions and reform undertaken in such institutions have resulted, according to the IMF (2014) study, in a marked decline in inflation – an important indicator of macroeconomic stability. These countries also saw strengthening of the capacity of their central banks, which enabled them to maintain a predictable foreign exchange regime and to develop successful monetary and exchange rate policy framework (IMF, 2014).

The measurable aspect of such political and economic institutions and related policies and their impact on getting out of state fragility could also be read from Table 6a which is based on CPIA index and its four clusters noted above. From macroeconomic management perspective, cluster A, followed by cluster B, are the most important ones. From political and social policy perspective, clusters C and D are important.

Using all indicators (clusters), institutional and policy performance in FS of Africa is found to be generally poorer, scoring only about 50% of the top score. The performance is worst

13 See Tello *et al* (2005) for views that challenges this latter assertion.

in policies and institutions related to public sector management (cluster D), followed by "structural policies" (cluster B). Although resource-rich countries' performance is relatively poorer, the gap in performance with resource-poor states is not that significant. However, the performance in the social inclusion and equity clusters [Cluster C] is found to be generally the weakest in resource- rich counties. As World Bank (2015) also shows, countries that saw a decline in these later indicators were generally in some condition of conflict –indicating the importance of such social policies in fragile states in general and the resource-rich ones in particular. The last two columns of Table 6a also show the relative weak level of capacity in FS of Africa using UNDP's "human development index, HDI" and the all-inclusive "African Capacity Indicator, ACI" index of the "African Capacity Foundation, ACBF[14]". These indicators for the FS states of Africa are very poor compared to the average in the continent (and in particular compared to the top performers in the continent). In 2017, countries that had a rank that ranges from 156th (Zimbabwe, 0535) to 189th (which is the lowest, Niger, with a score of 0354) in human development index (HDI) are found to be African fragile states (the top county in terms of HDI in the world, Norway, scored 0.953 in the same year [See UNDP, 2018]).

Table 6a: Indicators of policy quality and institutional capacity in fragile and non-fragile state of Africa

Countries	**Average for the period 2013-2017 (1=low to 6=high)**				**UNDP/HDI (Scale, 0 to 1)**	**ACBF/ ACI (%)**
	Cluster A	**Cluster B**	**Cluster C**	**Cluster D**	**(data for 2014)**	**(data, 2015)**
Fragile	3.1	3.0	3.1	2.8	0.467	50.6
Resource rich	3.1	2.9	2.8	2.5	0.463	48.8
Non-resource rich	3.2	3.1	3.1	2.9		
Non-fragile Africa	3.4	3.5	3.4	3.2		
Others, for Comparison						
All Africa	0.711				0.524	52.6*
Top 3 Africa	68.7					

Source: Author's computation based on WB (2018), UNDP (2018) and ACBF (2016)
Note: * The ACI value ranges from the lowest, 20.7% (Central African Republic; CAR) to the highest, 70.8% (Cabo Verde), the median results being generally satisfactory.

14 The ACBF African capacity indicator, ACI, is made up of different indicators that includes indicators of: "policy environment" cluster, "the implementation processes" cluster (this cluster assesses the extent to which countries are prepared to deliver results), "outcomes of development results" cluster (refers to tangible outputs) and "the capacity development outcomes" cluster that largely measures change in the human condition.

Priority areas for building macroeconomic management capacity

Poor macroeconomic outcomes in FS is also related to these states weak capacity shown above. This calls for capacity building. Studies on capacity building in FS outlined three core areas of focus (see Addison *et al*, 2005; Alemayehu, 2011): capacity building: (i) to address the immediate needs of post-conflict states that includes emergency relief activities, (ii) capacity building to address the core economic and political causes of conflict, as well as, (iii) capacity building related to the issues of handling external shocks, addressing issues of financing development, and financial sector reconstruction. Macroeconomic policies, thus, need to be designed in such a way that they simultaneously address such capacity building challenges while also aiming to bring about macroeconomic stability (Cramer, 2006; Ali, 2009; Ajakaiye and Ali, 2009; Alemayehu, 2011; 2017; Jones, 2013; ACBF, 2013).

In terms of capacity building, addressing the core economic and political causes of conflict. This is related to building institutions of competitive political system and democracy as well as institutions that can draw and implement long and short-term plans for inclusive growth with shared long-term vision. In the context of this, capacity building for macroeconomic management needs also to focus on the following three priority areas:

a) Capacity building to handle macroeconomic shocks

In Africa, the external sector and related shocks have strong bearing on macroeconomic outcomes that require careful macro management (IMF, 2014; World Bank, 2015; Alemayehu, 2017; 2019). Africa's fragile states have shown inability to come up with appropriate policy response to such shocks. This stems from the general characteristics of such states which are either aid or commodity dependent, or both. Most of them are also vulnerable to vagaries of nature and related shocks as their economy is dependent on climate change, especially in agriculture. The issue here is not to focus on such shocks, rather to emphasis the lack of capacity to come up with appropriate policy response to such shocks. Such inability is found to be one of the major challenges to exit from state fragility in Africa (Jones, 2013; Ncube and Jones, 2013; IMF, 2014; World Bank, 2015). Thus, capacity building is central to address this challenge.

b) Capacity building to manage aid and revenue from the natural resource sector

In fragile states, especially in resource-poor ones, aid is generally the biggest financial inflow, followed by remittances and foreign direct investment. In such states, aid not only is critical to avoid relapse to conflict but also could triger other flows (Jones, 2013). On the other hand, for resource-rich fragile states the revenue from the export of such resources dominates financing development. On top of the politics of manging such resoruces, resource inflows from natural resources exports have similar macroeconomic challenges to that of signficant inflows of aid (such as the 'Dutch Disease' and 'Fiscal Response Problem') that need careful macroeconomic management (Alemayehu, 2002; 2017).

Politically, a boom in government revenue from a booming commodity (natural resources) trade and/or an influx of aid, generally leads the political elite to either directly seize the rents or to control its allocation, especially in a weak institutional environment. This could bring with it the risk of transforming such countries into reinter states (ACBF, 2013). This distorts allocation of resources, limits growth and ensue conflict. Such state also become less dependent on taxes and hence becomes less accountable to its people (than to its donors) and generally corrupt. This situation could encourage governments to devote more attention to distributive and interventionist functions than to functions related to the regulation, supervision, and investing in fiscal capacity and management of the economy too (Moore, 2004 cited in ACBF, 2013; Bardhan, 1997 cited in Gylfason, 2000; Little et al, 1993; Moore, 2004; Arezki *et al*, 2012; AERC, 2007; Edinger and Pistorius, 2011; Heinrich, 2011; Cárdenas *et al*, 2011; ACBF, 2013; Alemayehu, 2017). This, combined with lack of transparency on how the resource is distributed, makes it very difficult for such governments to alter the spending habits when a downturn in prices and/or a dwindling level of aid occurs (ACBF, 2013; Auty, 2001). This underscores the need to build strong economic governance institutions to make the best out of such inflows and facilitate transiting from state fragility to resilience in the process (Alemayehu 2012; 2017).

c) *Capacity building for financial sector reconstruction*

Financing development in FS is also closely related to financial sector reconstruction without which relapse to conflict is a real possibility. The financial sector is usually the most vulnerable of the sectors during conflict. So are financial institutions that regulate and manage the sector. They not only lose their tangible and intangible assets but also lose their vital human capital (Alemayehu, 2011; Addison *et al*, 2001; 2005). This is so because, as argued by Obidegu (2004), "the exigencies of a war and the centralization of the exercise of power generally leads to the deterioration of fiscal discipline and related monetary, budgetary and financial management. It also raises risk and hence the cost of finance" (Obidegu, 2004). Thus, as empirical models-based results in tables 5 and 6 also shows, the literature also asserts linkages between the financial sector and conflict are very strong though they appear to be tenuous (Addison *et al*, 2001; 2005).

In addition to direct disruption and destruction noted, conflict has three important indirect effects on the financial system. First, conflict alters preferences for different types of assets – as between domestic versus foreign currency - with implications for macroeconomic instability such as parallel market for exchange rate with significant premium and inflation. Second, conflict affects the governance of financial institutions, including the behavior of their managers as well as those who regulate them and formulate policies (Addison *et al*, 2005). Third, state fragility is usually accompanied by inflation, exchange rate instability and problems of managing finance and payment systems. The implication is that, reconstructing the financial system in countries affected by violent conflict is crucial to restore the credibility of these institutions as well as signaling state legitimacy that are helpful to get out of state fragility (Addison *et al*, 2005; Obidegu, 2004; Alemayehu, 2017).

In addition, in these states, 'technical solutions' – such as legislating for better financial regulation – may be undermined by deeper political forces. Thus, those concerned with creating the conditions for peace should be aware that the financial system reconstruction policy needs a conflict perspective which is a crucial factor in transiting from state fragility (Addison *et al*, 2005; Alemayehu, 2017).

In relation to state capacity, the result from AERC's country case as well as cross-country studies also concur to the importance of focusing on capacity building to address the challenge of SF in general and macroeconomic management in such states in particular. In one of the case studies about state capacity and conflict in Nigeria (see Babajide and Ajayi, 2018), the result shows that conflict reduces state capacity measured in terms of economic growth and tax-GDP ratio, with more negative effect on growth than tax. For instance, individuals living in states heavily affected by Boko Haram experienced a negative change in state capacity between (2008-2012) relative to other states. The study also found this to have spillover effects in adjacent non-conflict states. Similarly, the study on South Sudan (Lual *et al*, 2018) shows not only growth is constrained by violent conflict through the latter's effect on investment but also it weakened institutions and state capacity to provide safety and economic opportunities for sustainable livelihoods in South Sudan.

Finally, before concluding the issue of capacity building, it is imperative to stress that capacity building for macroeconomic management as outline here could not be successful unless it is rightly located in the context of the political and economic factors behind state fragility in the country in question. In relation to such effort, a recent high-profile study on state fragility by a commission on fragile states that is chaired by the former UK Prime Minister (D. Cameron) rightly concluded that transiting from state fragility requires "… realism, not idealism; local, not international priorities and solutions; reconciliation first, not elections first; [and] for development partners to work with governments not around governments and finally [work for both] institution building and nation building" (CSFGD, 2018: 3).

Historical legacy and state capacity in fragile states of Africa

An interface of state fragility with the legacy of colonial structure that shaped state capacity also shows an interesting pattern (See Alemayehu, 2002, 2019; Mkandawire, 2010), Although colonialism shaped economic structure in a similar way across Africa, one may nevertheless observe certain variations in this general pattern between different macro regions in Africa. Leaving aside North Africa, Nzula et al (1930[15]/1979), and Amin (1972) divide the rest of the continent into three distinct regions, based on their colonial structure. First, 'Africa of the labour reserves', which Nzula et al (1979) label as 'East and Southern Africa'. Second, 'Africa of the colonial economy'. Nzula et al (*1979*) label this region 'British and French West Africa'. Third, 'Africa of the concession owning companies. Nzula et al (1979) label this 'Belgian Congo and French Equatorial Africa'. The fundamental

15 The original book is published in Russian in 1930 while the English transition appeared in 1979.

distinction between these regions is derived from the manner in which the colonial powers settled the 'land question' and organized the colony on how to extract resources. This had (and still has) implications for the state structure and capacity that stretched to date (Nzula et al, 1979: 36; Alemayehu, 2002; 2019; Mkandawire, 2010). Alemayehu (2002) used this "Amin-Nzula" classification scheme to build regional macroeconomic models for incorporating Africa in global macro models. Recently, Mkandawire (2010) successful deployed the same classification scheme to explain the variation in tax collection outcomes and related state capacity across countries in the continent. This classification scheme also shows, inter alia, the historical fiscal needs of the colonial administration which has a bearing on state capacity and related macroeconomic outcomes of post-independence African countries. Thus, this classification scheme may also shed light on macro outcomes in general and tax levels and structures in particular which are important indicators of state capacity in FS of Africa.

Looking at this macro regions, the South-Eastern part of Africa, "the labour reserve economy", (LRE) is often associated with racial segregation, and migrant labour that includes the infamous townships. The 'white economy' drew from this labour reserves for its labour requirements (Alemayehu, 2002; Mamdani, 2018). In some of such settler economies, where minorities dominated majorities there was strong interest in security which induced strong state apparatus for both administration and ensuring security (Mkandawire, 2010: 1651). These characteristics produced a number of political economic features: larger bureaucracies and, hence, high state capacity, and high level of inequality. In West and Central Africa "colonial cash crop economies" (WAE), production was left to peasants while marketing was dominated by monopolist mercantile houses and, later, after independence, by state marketing boards (Alemayehu, 2002; 2019; Mkandawire, 2010). Taxation took place largely through the marketing channels and poll taxes, as well as through their use of exploitative pricing (Bauer, 1954; cited in Mkandawire, 2010). In Africa of the "concessionary companies" based economies (CCE), the colonial powers gave private companies concessions on large land for crop production or for mineral extraction. Forced labour, taxation and plunder than production and investment' was its main features (Alemayehu, 2002; Makandawire, 2010).

These phenomena have a long-lasting impact on both levels and structures of taxation and related state capacity (Mkandawire, 2010:1650-53). As a consequence, at independence, the LRE's had more elaborate state structures and formidable repressive state[16] that resulted in fairly elaborate tax collection mechanisms and hence much higher

16 Unlike Acemoglu et al (2001) for whom this state capacity is simply a confirmation that white settler economies had better (developmental) institutions while others have extractive institutions that is inherited by the post-colonial states, Mamdani (2018) Mkandawire (2010) and Alemayehu (2002/1998, 2019) argued that this is the result of a repressive colonial state structure. Thus, its effect after independence could also be repressive and not necessarily developmental. An excellent counterfactual to this "developmental" argument is the strong state structure in Ethiopia which was not colonized at all (see Alemayehu, 2008).

tax share (of GDP) than CCE and WAE. In addition, there were (and still are) significant difference in the level and structure of taxation among these macro regions. The LRE had and still has high domestic taxes and depend more on direct taxes (which are more difficult to collect, hence shows the existence of high state capacity) than the WAE and CCE counterparts. Similarly, the WAE rely much more on trade taxes than the LRE. In addition, this colonial legacy has implications for two additional political economy features: the LRE exhibit high level of inequality and high formalization of the economy than cash crop economies (Mkandawire, 2010:1650-53). These features, as can be read from Table 6b, are also apparent in FS of Africa and might have informed state capacity with its implications for state fragility and related macroeconomic outcomes.

Table 6b shows, similar to the findings of Mkandwarie (2010), tax share is the highest in LRE followed by the CCE economies in the FS of Africa. In addition; domestic taxes are found to be more important in LRE and CCE than WAE. Similarly, trade and indirect taxes are found to be more important in the WCE than in LRE. (We have also found similar results using more recent and comprehensive tax data that is compiled by UN-WIDER, see Appendix II). Thus, the nature of state capacity today is not an accident and has to do with political and economic structure that is inherited from the continent's colonial history. It is imperative then to take the enduring impact of such structural legacy in any macroeconomic analysis and capacity building efforts in FS of Africa – for instance state capacity building could be more important in WCA FS than in the LRE FS which may rather need more reforming.

Table 6b: State capacity and colonial legacy in FS of Africa: Tax and tax structure (1984-2004)

Africa of the Labour Reserve Economy	**Tax/GDP (%)****	**Trade Tax (%)**	**Domestic Tax (%)**	**Direct Tax (%)**	**Indirect Tax (%)**
Kenya	18.75	17.10	17.96	29.38	50.68
Madagascar	9.19	43.24	24.27	14.96	66.76
Malawi	16.87	16.06	34.79	50.19	35.38
Zimbabwe	23.10	10.91	36.15	46.66	44.20
Average	17.0	21.8	28.3	35.3	49.3
West Africa (Africa of the Cash Crop Economy)					
Benin	11.67	50.96	17.05	26.11	69.36
Cameroon	13.56	16.03	36.37	30.67	53.15
Chad	5.75	13.46	11.78	17.89	36.57
Cote d' Ivoire	16.86	34.72	28.13	20.32	60.92

continued next page

Table 6b Continued

Africa of the Labour Reserve Economy	Tax/GDP (%)**	Trade Tax (%)	Domestic Tax (%)	Direct Tax (%)	Indirect Tax (%)
Guinea	11.57	13.53	31.53	7.71	85.46
Guinea-Bissau	3.80	18.77	42.87	9.40	18.39
Mali	11.89	38.54	24.55	15.33	64.01
Mauritania	16.35	29.77	18.05	23.57	45.66
Niger	8.15	42.62	19.03	25.20	61.65
Nigeria	18.85	9.67	6.90	38.08	16.52
Sierra Leone	8.73		17.34	22.45	66.29
Togo	15.23	37.79	14.92	31.47	52.79
Uganda	8.51	49.8	26.68	14.21	78.48
Average	11.6	29.6	22.7	21.7	54.6
Africa of Concessional Cos.					
Burundi	15.2	24.33	38.27	22.53	62.97
Central African Republic	7.89	31.71	35.4	22.46	67.11
Congo DR	5.34	23.76	26.58	27.29	50.34
Congo, PR	22.27	10.44	21.558	52.22	32.38
Rwanda	9.89	31.83	39.63	24.79	72.14
Average	12.1	24.4	32.3	29.9	57.0
Labour Reserve Economies (All Africa, Average) *	22.7	21.76	30.82	36.46	50.55
Non-Labour Reserve Economies (All Africa, Average) *	12.16	28.16	26.24	23.39	56.12

Source: Author's computation based on the data provide in Mkandawire (2010), p. 1652.

Note: * These are Mkandawire's figures using 12 "labour reserve" and 24 "non-labour reserve" African economies (both fragile and non-fragile). In this classification, I have also followed Mkandawire (2010) that ffollowed Oliver and Atmore (1967) in placing Uganda and Tanzania in the cash crop (extended West Africa) economy.

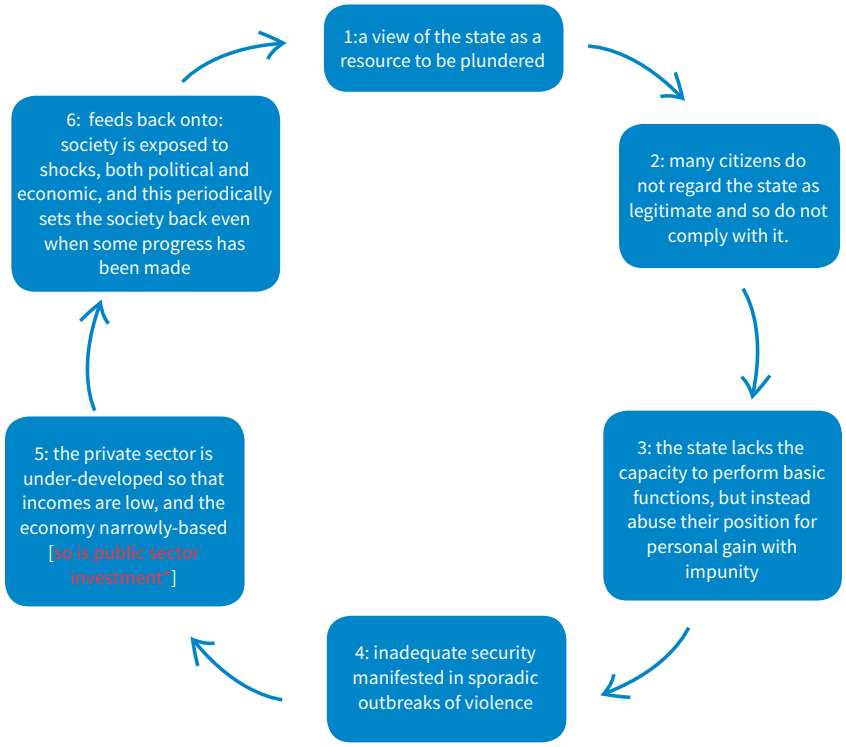
** All figures are given as share of total revenue, including grants, except for tax share (1st column) which is given as share of GDP

Conclusion

This study shows macroeconomic outcomes in FS of Africa are related to political economic challenges of SF and hence macroeconomic management (including macro policies) needs to be part of a long-term vision of the country that aims at: strengthening security, fostering inclusive politics, building institutions and building capacity for deterring violence, installing democratic institutions and effective macroeconomic management (IMF, 2014; Jones, 2013; Ajakaiye and Ali, 2009; Alemayehu, 2010).

A comprehensive recent report by a high level "commission for state fragility" which is based on a number of background studies, came up with characterization of state fragility as state that result from a sequence of inter-locking chain of causes (CSFGD, 2018; Figure 2). Regardless of what initially caused the situation, fragile societies are usually fractured into groups with opposing identities who see their struggles as a zero-sum game and hence inter-group cooperation is replaced by a view of the state as a resource to be plundered. This led to a *second* problem: many citizens do not regard the state as legitimate and so do not comply with it. In turn, the lack of legitimacy and the view of the state as a resource to be plundered compounded by a *third* problem: the states lack the capacity to perform basic functions, but instead abuse their position for personal gain with impunity. All these are compound by a *fourth* problem: "… inadequate security manifested in sporadic outbreaks of violence leading to *the fifth* problem: the private sector is under-developed so that incomes are low, and the economy narrowly-based. This, not only feeds back onto weak government revenues and a lack of jobs, but also compounds *a final problem*: "the society is exposed to shocks, both political and economic, and this periodically sets the society back even when some progress has been made (see, Figure 2). This is the syndrome of characteristics that entraps a fragile state" (CSFGD, 2018: 14-15).

Figure 2: The commission on state fragilities, the fragility trap



Source: Author's compilation based on CSFGD (2018) Report

* Public sector investment is added. The nature of development finance and financial sector development is another issue missing in this summary of the CSFGD (2018)

The report further noted, in fragile environment. "short-term private interests naturally prevail over long-term public purpose. Leaders use their office to loot public money; strong groups exploit weaker groups; public employees rely on patronage rather than performance for advancement. Thus, "getting out of fragility is a step-by-step process that happens within the society gradually as national interest prevails over the private interest. This requires building institutions such as those for" *the checks and balances* that restrain those holding public power" as well as "*building a sense of common national purpose* for achieving long-term mutual gains". The checks and balances normally must come first since only once people build trust that they begin to cooperate and work for the common good (CSFGD, 2018 15-17).

It is in the context of such inter-locking political-economy factors that the issue of appropriate macroeconomic management (including macroeconomic policy) and

the capacity building to carry out that need to be framed. Framed in such context, in this study, we have identified three important macroeconomic management policy directions that need to be pursued in fragile states of Africa. These are: (i) a policy of macroeconomic stability primarily focused on achieving high and inclusive growth, stable exchange rate, low inflation as well as state legitimacy through fiscal policy; (ii) a strategy for financing development and handling its macroeconomic management ramifications (i.e.; managing public and private saving, aid, debt as well as earrings from resources in resource rich countries) as well as, (iii) financial sector reconstruction and policy response and preparedness to external shocks. More specifically, among macro variables examined in our study, economic growth, aid and financial sector development are found to be helpful to avoid macroeconomic instability and transit from state fragility to resilience which could be taken as priority policy areas. In addition, an accumulation of debt and dependence on natural resource exports are found to lead to macroeconomic instability that needs careful macroeconomic management

All these policy directions are found to be difficult to execute in FS of Africa due to weak human and institutional capacity in such states. This calls for conflict conscious human and institutional capacity building content with checks and balances, inclusive long-term growth and a shared national vision for mutual gain. The study also has shown that such macro policy directions will help FS to transit to resilience; resilience "being defined as a condition where enough institutional strength, capacity, and social cohesion enables the state to promote security and development and to respond effectively to shocks" (IMF, 2014). This policy framework is summarized in Figure 3.

Figure 3: Policy framework for macroeconomic management in fragile states of Africa

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Table A1: Causes and duration of conflict and macroeconomic outcome (sample of SSA countries in AERC study)

Country and Source	Source of Conflict and Duration of Conflict	Implications for Macroeconomic Outcome
Zimbabwe AERC (2018) case study by: Theresa. Moyo and Rosemary Atieno	The genesis to Zimbabwe's economic crisis can be traced to the period 1997 to 2000. - The military adventurism which led the government in 1998 to send 11,000 troops to the Democratic Republic of Congo (DRC) was a triggering factor - Secondly, government redistribute land without compensation. The land invasions spanned over 5 million hectares. Major source of conflict was a contest for power and land mediated by external actors. The duration of the conflict is long, from 1997 to date with the intensity increasing over time.	Hyper inflationary environment, at one point the highest in the world. This was at the end of October 2008 officially estimated at more than 4000 million % -The net effect was an increase in uncertainty and a reduction in agricultural production. -The journey to economic recovery from a disastrous hyperinflation experienced between 2000 and 2009 -Adopted dollarization in 2009, which encouraged macroeconomic stability and positive economic growth. Macroeconomic instability is strongly associated with duration and intensity of conflict

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Table A1 Continued

Country and Source	Source of Conflict and Duration of Conflict	Implications for Macroeconomic Outcome
Burundi AERC (2018) case study by: Arcade Ndoricimpa & Michel-Armel Ndayikeza,	Since its independence in 1962, the country has experienced six episodes of civil conflicts: in 1965, 1972, 1988, 1991, 1993-2013 and 2015. - apart from the last conflict which was fueled by a wide-ranging opposition to a third term of the current president of Burundi, the other conflicts were typically triggered by a localized Hutu insurrection in which Tutsis were killed, followed with a disproportionate and indiscriminate military repression of the Hutu population -while for others, the deep cause of the violence was the political and economic exclusion of the Hutu majority -there is however a consensus that politicians on both sides have utilized ethnicity for their personal interest **The duration of the conflict was long. It was also intensified with time. Source of conflict was grievance of marginalization and using ethnic ideology for contesting power and resources**	During 1961-1972, Burundi's economy contracted four times, that is, in 1961 by 13.7%, in 1968 by 0.3%, in 1969 by 1.5%, and in 1972 by 6.4%, mainly due to the civil unrests which claimed thousands of people's lives -the period 1973-1992 was characterized by less political tensions and apart from the year 1988 where civil conflicts occurred in northern Burundi. In that period, real GDP grew on average at 4%. -civil conflicts, in particular the 1993 – 2003 civil war, seem to have had a detrimental impact on economic performance of Burundi -inflation was highest in 1977-1979 (up to 35%); 1991-1997 (up to 30%); 1978-2003 (25%); 2009 (25%); 2012 (17%) and 2015 (5%) **Macroeconomic instability is strongly associated with duration and intensity of conflict**

continued next page

Table A1 Continued

Country and Source	Source of Conflict and Duration of Conflict	Implications for Macroeconomic Outcome
South Sudan AERC (2018) case study by Edris H. Seid, Haile Kebret and Ali Issa Abdi	South Sudan gained its independence from Sudan in 2011 after more than three decades of conflict and a six-year transitional period (2005-2011) -there were a number of unresolved issues with Sudan like the use of oil infrastructure, the demarcation of the common border and the division of State debts. -these unresolved issues had led to deterioration of the two countries' relation which later escalated into interstate conflict in 2012. -amid the border stalemate and rampant political instability, South Sudan descended in to civil war and political unrest in 2013 that intensified over time -as of July 2017, close to 2 million South Sudanese were living in the neighboring countries and many died **Conflict intensified with time. Principal source of conflict is using ethnic ideology in contesting for power and resources by the elite**	Deterioration of the economic performance of the country particularly after the conflict broke out in 2013. -In 2016 the economy contracted by around 14%. This became 6% in 2017 -the deterioration of the current account balance forced the government to float its exchange rate which has led to a sharp fall in the value of South Sudanese Pound (SSP). -this has fueled the country's inflation. Currently the country is in state of hyperinflation; with inflation recorded at 380.1 % in 2016 -the conflict has also exasperated the country's fiscal budget and current account deficit resulting in huge drop in foreign reserves, rise in domestic and external debt **Macroeconomic instability is strongly associated with duration and intensity of conflict. Instability getting worst over time.**

continued next page

Table A1 Continued

Country and Source	Source of Conflict and Duration of Conflict	Implications for Macroeconomic Outcome
Chad AERC (2018) case study by M.K. Armand and W.S. Soazic Elise	Since independence in 1960, Chad has been swamped by successive armed conflicts, which derived from ethnic and religious struggles, territorial disputes, or the fight for control of natural resources in the north and conquer the central power. This has informed the 1979-1982 civil war -Chad has undergone a major political instability in 1965 where the rebellion was supported by neighboring countries (especially Sudan and Libya) -a Libyan peace deal in 2002 put an end to this first sequence of Chadian armed conflict (1998-2002) -the most recent Chadian conflict occurred during the period 2005-2010. Despite the underlying religious and ethnic conflict, it is worth noting that the major cause of this armed conflict was the fight for political leadership and power in this period too. **Conflict intensified with time. Principal source of conflict is using ethnic ideology in the contest for power and resources by the elite and mediated by neighboring countries**	GDP growth in 1960 and 1961 was 1.4 and 5.4%, respectively. This became generally negative that varies from -1.5 to -2.6 until 1968 before turning to positive 6.8 in 1969. -between 1979-82: it becomes -0.5% in 1978 and staggering -21.4% in 1979. This became positive only in 1981 (1%). This positive growth continues until 1985 but remained very erratic that ranges from 1 to 21% -this became negative -4 and -2.4% in 1986 and 1987. This turned positive till 1990 before it became negative -4.2% again in 1990 -between 1998-2002: in 1998 it was 6.9% which decelerate to negative in 1999 and 2000 -from 2001 to 2010 the growth become positive but erratic reaching 13.5% in 2010 before decelerating to 0.1% in 2011. Growth remained positive since 2012 until 2015 that ranged from 2.8% to 8.9%. This decelerated to negative -6.3% in 2016 and -2.9 in 2017 **Macroeconomic instability is strongly associated with duration and intensity of conflict. Instability getting worst over time.**

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Table A1 Continued

Country and Source	Source of Conflict and Duration of Conflict	Implications for Macroeconomic Outcome
Kenya	Election time in Kenya is associated with conflict. Early on, two new multiparty elections in 1992 and 1997 were distinguishable in that President Daniel Moi used extra-state violence to retain power at all costs. -the 2002 election went smoothly. However, soon after the 2002 election the Mwai Kibaki government was accused of using government's extra-judicial police squads that murdered members of Mungiki group rather than just arresting them and taking them to trial. -after the post-election violence that took place in 2007 following contested election where Kibaki was declared the winner, amidst allegations of rigging, Kenya has been classified by a number of indices as a fragile state since then, -the 2013 presidential election did not lead to systemic violence, unlike that of 2007. -the 2017 election, however, was followed by violence and long period of political uncertainty. **Conflict is sporadic and violence intensified at election time. Source of conflict is generally a contest for power and resources (including being in government – as government is taken as loot able resource) using ethnic ideology by the elite**	in 1971, Kenya experienced a severe deterioration in trade balance, which led to the first balance of payments crisis. This was accompanied by an expansionary fiscal and monetary policy. -another major shock came from the oil price hike in 1973/74. In the period from 1973 to 1975, inflation rose from 9.3% to 19.2%, domestic credit increased by over 60% -in 2000 growth decelerated to 0.6% from 2.3% in 1999. Though this recovered to 3.8% in 2001, it again decelerated to 0.5% in 2002 before recovering to 2.9% in 2003 and 5.1 and 5.9 % in 2004 and 2005, respectively -GDP growth was about 6 to 7 % in 2006 and 2007, before decelerated to below 0.23% in 2008. This bounced back to about 3% in 2009 and to about 8% in 2010. It, then, decelerated to about 4.6% in 2012 -it stabilized between 5 to 6% since 2013. It then became 5.9% and 4.9% in 2016 and 2017, respectively. The decline in GDP growth in 2017 is attributed to lower economic activity caused by political uncertainty caused by the prolonged election cycle **Macroeconomic instability is sporadic and strongly associated with election and post-election violence and uncertainty. Compared to growth instability price stability was generally better.**

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Table A1 Continued

Country and Source	Source of Conflict and Duration of Conflict	Implications for Macroeconomic Outcome
Ethiopia (Geda, 2008; Geda & Yimer 2015)	1974-1991 saw a brutal, undemocratic military regime characterized by civil war. The intensity of civil conflict escalating over time. -1992-2017 was relatively stable regime but extremely undemocratic, ethnic based quasi-military and later became corrupt regime A major conflict occurs in 2005; conflict was simmering since 2005 but escalated in 2015 - Intense conflict between 2016-2018 executed through social movement and popular uprising leading to radical change of leadership in 2018. The change saw the starting of political and economic reform **Conflict growing steadily over time and intensified just before regime change (1974; 1991; 2016). Source of conflict is a contest for power and resources (including being in government – as government is taken as lootable resource) using ethnic ideology since 1991 (class based before that)**	GDP growth during 1974-1991 was 3 to 4% per annum. Price was stable, inflation below 5% but goods were rationed -between 1974/75 and 1989/90, growth decelerated to 2.3 percent. Growth was also extremely irregular - the period witnessed the escalation of conflict. -during the period 1990/1991-1999/2000) GDP grew at average annual rates of 3.7% -and between 2000-2015 GDP grew at 9.0% per annuum. GDP growth in 2015/16 was 8.7% and 9.9% in 2016/17. -In 2017 and 2018 GDP growth decelerate to 7.2 and 8%, respectively; -Inflation 7.2% in 2017; 13% in 2018; Inflation in 2005/06 was 10.6% and 6% before that. This has accelerated to 15.8%, 25.3 and 36.4% in 2006/07, 2007/08; 2008/09, respectively; **Macroeconomic instability is sporadic and strongly associated with years just before and after regime change;** **-and following the contested election in 2005; and 2 years before the 2018 regime change. Compared to growth instability less problematic relative to inflation.**

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Table A1 Continued

Country and Source	Source of Conflict and Duration of Conflict	Implications for Macroeconomic Outcome
Nigeria AERC case study 2018 by *Adedoyin Babajide and Victor Ajayi*	Nigeria had a history of civil war and number of recent conflicts following the transition from military rule to civil rule in 1999. -notable among them are Niger Delta Militancy related conflict in the South-South which has resulted in several fatalities, -the Boko Haram conflict in the North-Eastern part of the country that continued to date another episode - Nigeria has been the third most violent country, among African countries between 2003-2013, and suffered the fourth-highest deaths from conflict, -around 1,600 lives documented to have been lost to violent conflict in 2015 alone **Conflict is sporadic and violent. Source of conflict is a contest for power and resources (including being in government – as government is taken as lootable resource) using religious and ethnic/regional ideology by the elite**	Dataset that covers 37 states and 14 years, from 2000 to 2013 revealed, that increase in the incidences of conflict leads to reduced level of growth in real GDP per capita and tax to GDP ratio. -negative correlation is observed between tax to GDP ratio (as indicator of state capacity) and the conflict during this period. The direction of the correlation suggesting that state with higher conflict rate are experiencing lower tax revenue to GDP ratio relative to more peaceful states. the result also shows that measures of incidence of conflict, i.e. conflict and riot, are robust and negatively related to economic growth -in particular, the findings show growth in GDP per capita are more susceptible to higher conflict incidence than tax to GDP ratio **Macroeconomic instability is sporadic and strongly associated with violence and conflict. Both growth and fiscal indicators negatively correlated with conflict and its intensity**

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Table A1 Continued

Country and Source	Source of Conflict and Duration of Conflict	Implications for Macroeconomic Outcome
Samples of Cross-section evidence	-Miguel et al. (2004) use rainfall variation as an instrumental variable for economic growth in 41 African countries during 1981-99. They found that growth is strongly and negatively related to civil conflict, where a negative growth shock of five percentage points increases the likelihood of conflict by one-half the following year. -Bloomberg et al. (2006) also provide a similar finding where lower growth raises the likelihood of conflict and in turn conflict lowers economic growth using panel data for over 152 countries from 1950-2000. - IMF (2014) also found that first, fragility is highly persistent and becoming resilient is associated with: (i) good macroeconomic indicators, private investment and favorable terms of trade, (ii) fiscal policy space, particularly those measured as the ability to raise public revenue, and (iii) international support. Second, the median resource-rich fragile country is less likely to become resilient than the median resource-poor fragile country; and finally, the study underscored the importance of capacity building for macroeconomic stability in fragile states of Africa. The case studies reported in the same study confirmed these cross-country based findings -Alemayehu's (2017).empirical analysis using annual data for the period 1999 to 2014 for a sample of 16 fragile African states and another annual data for the period 2005-2014 for another sample that contains 34 African countries that are fragile and those transited from state fragility cconfirmed: first, improving governance and building an inclusive and democratic politics in the long run and improving macroeconomic policy and related institutions in the short run to be important factors for macroeconomic stability in FS of Africa	

Appendix II

Table A2: State capacity in fragile states of Africa with colonial structural legacy: Tax and tax structure (2002–2016)

All as % of GDP	Concession Co.-based Economies				Labour Reserve Economies				Cash Crop [West Africa) Economies			
	2002-2006	2007-2011	2012-2016	2002-2016	2002-2006	2007-2011	2012-2016	2002-2016	2002-2006	2007-2011	2012-2016	2002-2016
Tax/GDP	9.0	9.9	11.9	10.3	13.2	12.9	15.8	14.0	11.0	12.3	14.1	12.4
Direct Tax	2.7	3.1	3.7	3.2	5.5	4.9	6.5	5.6	3.4	4.1	4.5	4.0
Ind Tax	6.5	7.2	7.4	7.0	7.7	7.9	9.3	8.3	7.5	8.0	8.8	8.1
Trade Tax	2.1	1.7	1.7	1.9	2.4	2.4	1.7	2.2	2.7	2.7	2.2	2.5
Domestic Tax	4.3	5.3	5.6	5.1	5.3	5.5	7.5	6.1	4.6	4.7	6.0	5.1
Non-Tax Rev	6.3	7.5	6.1	6.7	1.2	0.8	1.1	1.0	3.7	3.1	2.9	3.2

Source: Author's computation based on 'The ICTD/ UNU-WIDER Government Revenue Dataset, 2018: Merged' (see Prichard, W., Cobham, A., & Goodall, A., (2014) 'The ICTD/ UNU-WIDER Government Revenue Dataset, 2018: Merged', ICTD Working Paper 19; and McNabb, K., (2017) 'Toward Closer Cohesion of International Tax Statistics', WIDER Working Paper 184/2017 Working Paper describing 2017 updates

From Fragiliy to Economic Recovery and Development: Rebuilding the Economy for Inclusive Growth and Development

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Introduction

Fragility is widely recognized as the main development challenge. All major international development agencies have published reports on the subject and are currently debating new strategies of how to engage with fragile states. The majority of fragile states are African, thus the African Economic Research Consortium (AERC) collaborative research project on "Fragility of Growth" is not only timely but has particular relevance for the region.

Although there are many different definitions of fragility, they tend to focus on a state lacking the capacity to provide security and/or development opportunities to their citizens. Fragility is thus not synonymous with armed conflict. A useful definitional approach is provided by the LSE-Oxford Commission on State Fragility where five interlocking mechanisms are described that lead to a "fragility syndrome". The society is fractured into opposing groups and parts of society do not regard the state as legitimate. This poses problems for taxation and the provision of (public) services, sometimes resulting in security issues. The private sector is under-developed and the economy has a narrow base, making it more vulnerable to adverse shocks.

These interlocking mechanisms have resulted in fragile growth for many African countries. Over the period 1971–2017 growth rates have been generally low and volatile, worsening well-being in the Central African Republic, Democratic Republic of the Congo (DRC), Madagascar, Burundi, Djibouti, Guinea Bissau, Niger, Sierra Leone, South Africa, and Togo. To address these challenges, we examine the building blocks that provide ways out of fragility, including peace-building mechanisms, institutions, domestic resource mobilization, human resources, reconstruction, capital accumulation and overseas development assistance.

Based on the AERC collaborative research project we make the following recommendations: peace is the cornerstone of development; peace is fragile in post-conflict situations as the risk of renewed armed conflict is particularly high. Regional and international interventions are of great importance and can foster stabilization. More effort should be put into negotiating political settlements, buttressing them with peacekeepers. State-building and institutional reforms should be considered as long-term projects and reflect local concerns and realities. Flexibility in the design of development programmes is important and local forms of governance and their relationship to the central and modern state should be explored more. Furthermore, developing a 'rule based' as opposed to a 'deal based' tax system is of key importance to developing state capacity. However, these reforms are difficult to achieve because they require political resolve, resources and time to be fully implemented.

Fragile states require human resources and many donors are willing to provide technical assistance (TA). The latter can have unintended negative consequences for state fragility. TA projects offer higher wages than the state, attracting the best civil servants, which weakens state-building. This needs to be addressed. The diaspora community can also assist in development through providing human capital (ambassadors, knowledge networks and brain gain) as well as financial capital (remittances, investments and markets). Currently African countries' strategies to involve the diaspora are generally underdeveloped, and the costs of capital transfer are too high. Moreover, fragile states

receive considerable amounts of aid. However, as each fragile country has a minimum of 20 donors, donor coordination problems arise. In addition, some countries may receive more aid than they can effectively absorb. Donors should consider longer time horizons and more continuous disbursement. Some fragile states have issued sovereign bonds. For this source of finance to be turned into a development opportunity rather than a debt sustainability crisis, governments have to pursue macroprudential policies as well as improve their project selection and oversight mechanisms. Only well-governed states provide long-term security and economic opportunity to all their citizens.

A developed country is one that allows its citizens to enjoy a free and healthy life in a safe environment.
Kofi Annan

The objective of Goal 16 of the United Nations Sustainable Development Goals is to "promote peaceful and inclusive societies for sustainable development" .[17] Most of the world's poorest countries today are in Africa and these countries are not providing security and opportunities for development to their citizens. Many of these countries are either still experiencing armed conflict or have a recent history of conflict. Between 2000 and 2017, about 23% of total country-years represented years where countries were involved in war either within or outside their territories. Countries concerned include Algeria, Burundi, Central African Republic, Chad, Côte d'Ivoire, Democratic Republic of the Republic of the Congo, Egypt, Ethiopia, Kenya, Liberia, Libya, Mali, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sudan, and Uganda. These countries' societies are fragile, in other words their peace is unstable, and they are struggling to rebuild their economies in order to provide opportunities for all. These societies are characterized by fragile economic growth with rates of growth either systematically lower than the regional average or highly volatile due to changing patterns of political fragility. According to the Fragile States Index, seven of the ten most fragile countries in the world in 2019 were in Africa.[18]

The aim of this paper is to provide a summary of the current knowledge of how societies can recover from fragility and move towards peace, inclusivity and development. The emphasis is on the requirements for successful peace-building and state-building, which is a process that leads to sustainable peace. Although fragility is not synonymous with armed conflict, almost all fragile countries in Africa experienced armed conflict at some point in time. The most important message is that although African societies face many challenges, fragility can be overcome if these countries adopt the right peace-building and state-building strategies, with the assistance of their international partners, where necessary.

The paper starts with a brief discussion, in Section 2, of growth fragility using country data covering the period 1971–2017. This discussion sets the tone for further analyses of fragility and its mitigating factors. Section 3 focuses on peace-building and state-building. It highlights some of the factors that have hampered successful peace-building and

17 For a list of the SDG 16 goals and discussion see https://www.un.org/sustainabledevelopment/peace-justice/, accessed 12 June 2019.

18 For details and data, please visit https://fragilestatesindex.org/excel/

state-building in Africa. Sections 4 and 5 discuss the major requirements for economic recovery and inclusive growth and development. Section 4 discusses institutional issues while Section 5 dwells on potential sources of human and financial resources that African countries can harness in order to achieve the objective of long-term economic recovery. Section 6 concludes with policy recommendations.

Fragility of growth

This section looks at country data on growth and indicators of political fragility (peace, armed conflict and post-conflict) to assess the fragility of their growth process. This analysis sets the stage for a more detailed discussion of some of the mechanisms that determine why some countries succeed in achieving and sustaining high rates of economic growth while others fail. Issues such as peace stabilization, state-building, post-conflict institutional design, and the role of human and financial resources will be highlighted. Policy recommendations are then derived from this discussion.

The information in Table 1 is based on economic growth rates, per country, covering the period from 1971 to 2017.[19] Peace, conflict, and post-conflict are three states that represent different levels of fragility. A year recorded as 'conflict' represents a state of armed conflict, defined as "a contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths in one calendar year" (UCDP/PRIO, 2015). When the battle-related deaths exceed 1,000, the armed conflict is referred to as a civil war. Post-conflict refers to a 10-year period following the end of a civil war. If, during this period, a country records between 25 and 1,000 battle-related deaths in any year, it is recorded as being in a state of armed conflict. The 'peace' state refers to a peaceful situation where a country is not engaged in armed conflict, civil war or post-conflict (Nkurunziza, 2019). As expected, the data used to compute information in Table 1 are unequally distributed across states and countries. There are 2,391 observations on growth rates, 1,757 observations on peace, 510 observations on conflict, and 120 observations on post-conflict.[20] For many countries, some states are not relevant. For example, for post-conflict to be a relevant state, a country has to have gone through a state of civil war, not just armed conflict. There are also countries that experienced neither an armed conflict nor civil war. These, by design, did not record any post-conflict situation. They include Benin, Botswana, Cabo Verde, Equatorial Guinea and Gabon. It should also be noted that countries that have not experienced domestic conflict during the sample period appear to have gone through conflict and post-conflict

19 Eritrea, Somalia and South Sudan are not included due to data limitations.

20 Table 1 focuses on only one potential correlate of economic growth, namely a country's level of fragility. The discussion of other potential correlates of growth, including the duration of war, is beyond the objective of the paper. Readers interested in understanding war duration may consult a number of studies on the subject. For example, Collier et al. (2004) analyze the determinants of war duration in a cross-country setting, while Nkurunziza and Ngaruko (2005) analyze war duration in a specific country, Burundi.

periods. This is because the conflicts the countries were engaged in were external. Tanzania and Zambia, for example, participated in the liberation struggles of some countries in Southern Africa.[21] South Africa went to war with neighbouring countries.

Table 1: Fragility of growth: Average rates of growth across three states (1971–2017)

Country	Sample	Peace	Conflict	Post-conflict
Algeria	3.56	4.43	2.92	…
Angola	3.39	2.49	2.35	10.13
Benin	4.34	4.34	…	…
Botswana	8.41	8.41	…	…
Burkina Faso	4.66	4.80	1.74	…
Burundi	2.33	4.52	0.57	3.98
Cabo Verde	4.22	4.22	…	…
Cameroon	3.54	3.38	5.09	…
Central African Republic	0.70	1.31	-2.69	…
Chad	4.00	4.81	3.70	4.93
Comoros	3.12	3.39	-0.90	…
Côte d'Ivoire	3.24	3.68	-1.50	…
Dem. Rep. of the Congo	1.07	0.21	0.74	5.23
Djibouti	2.79	3.20	1.48	…
Egypt	5.56	5.94	4.24	6.52
Equatorial Guinea	9.33	9.33	…	…
Ethiopia	5.23	5.75	5.20	…
Gabon	3.66	3.66	…	…
Ghana	3.83	3.81	4.47	…
Guinea	3.61	3.39	4.86	…
Guinea-Bissau	2.43	2.62	-1.84	…
Kenya	4.18	4.10	5.03	…
Lesotho	4.73	4.74	4.59	…

continued next page

21 Tanzania went to war with Uganda in the 1970s. More recently, Burundi, Ethiopia, Kenya and Uganda have been fighting in Somalia. Also, Rwanda waged a war in the Democratic Republic of the Congo in the 1990s and 2000s. Therefore, being at war does not only imply a domestic war even though the consequences for the country of domestic and external wars may be different.

Table 1 Continued

Country	Sample	Peace	Conflict	Post-conflict
Liberia	3.38	-2.40	-4.78	10.62
Libya	3.31	4.01	5.50	1.78
Madagascar	1.73	1.74	…	…
Malawi	4.03	4.03	…	…
Mali	7.24	7.21	7.42	…
Mauritania	3.24	3.11	3.88	…
Mauritius	5.09	5.13	3.47	…
Morocco	4.29	4.22	4.77	-2.48
Mozambique	5.03	7.10	1.91	8.93
Namibia	3.39	3.37	…	…
Niger	2.56	1.62	4.15	…
Nigeria	4.49	3.40	4.62	7.77
Rep. of the Congo	3.99	5.17	0.18	4.01
Rwanda	5.18	5.71	3.58	12.70
São Tomé and Principe	3.05	3.08	…	…
Senegal	3.34	3.59	2.75	…
Seychelles	4.58	4.58	…	…
Sierra Leone	2.23	3.03	-3.14	7.93
South Africa	2.45	2.46	2.73	1.20
Sudan	4.57	….	4.57	4.53
Swaziland	5.18	3.67	10.48	6.01
The Gambia	3.35	3.32	5.00	…
Togo	2.51	2.51	…	…
Tunisia	4.52	4.60	2.84	…
Uganda	4.57	1.47	6.63	…
Tanzania	4.66	4.90	3.02	5.40
Zambia	3.16	3.25	-0.63	…
Zimbabwe	3.49	3.49	…	…
Average	**3.93**	**3.88**	**2.79**	**5.83**

Source: Author's based on data from UNCTADStat, UCDP/PRIO Armed Conflict Dataset and Nkurunziza (2019). The dotted cells indicate there is no value. Note that some of the numbers in the table are based on a small number of observations .

Based on Table 1, growth fragility may be explored from different perspectives. First, there is a group of countries where growth has been fragile because growth rates have been low, on average, across the sample period. For example, there are three countries where the average sample period growth rate is less than half of the sample mean. These are the Central African Republic, Democratic Republic of the Republic of the Congo and Madagascar. If we consider countries where the average sample period mean is lower than 3%, which is the average rate of population growth in Africa, an even larger number of countries are added to the list. In other words, these are countries where the average population wellbeing, measured in per capita income, worsened or did not increase. In addition to the three countries already mentioned, there are seven other countries in this group. Therefore, for ten countries, growth fragility can be proxied by the worsening of population wellbeing. The additional seven countries are Burundi, Djibouti, Guinea Bissau, Niger, Sierra Leone, South Africa and Togo.

Growth fragility may also be proxied by changing growth rates when a country experiences different states of fragility.[22] For example, a country with an above average growth rate would experience a falling rate of growth if it changes from peace to conflict state. This aspect of fragility suggests that it is not enough to post a high growth rate at any given time; keeping it high is what differentiates a non-fragile from a fragile country. Looking at the information in Table 1, there are two types of such countries. The first is countries such as Algeria, Burkina Faso, Burundi, the Republic of the Congo, and Mozambique that have above average growth rates in peaceful times, but see their growth reverse during armed conflict periods. Other countries such as Angola, Central African Republic, the Comoros, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Guinea-Bissau, Liberia, Senegal, Sierra Leone, South Africa and Zambia have relatively low growth rates, even in peaceful times, and experience a drop during periods of armed conflict.

The second group of countries illustrates cases where growth has not been high, irrespective of the state in which growth is measured. Interestingly, even though this group comprises countries with a history of emblematic armed conflicts, including Angola, Democratic Republic of the Congo, Liberia and Sierra Leone, it also includes countries where growth fragility cannot only be the result of extreme political instability. This is the case with Côte d'Ivoire and Liberia where economic hardship started well before the first episodes of armed conflict, and Djibouti, Senegal, South Africa and Zambia. This is an indication that political instability may be one of many factors that explain growth fragility. There are also cases where countries were successful in emerging out of their fragility to build economies that could sustain high rates of economic growth. These are particularly post-conflict countries in which economies all but collapsed during the armed conflict period, but showed strong and sustained growth in the post-conflict

22 Some countries, including Uganda, might show higher growth rates during the war period. This is not due to the fragility state of the country, but rather the fact that instability in a country affects a remote region with limited impact on the country's economic activity. For example, the war in Darfur does not seem to have affected the country's economy in any significant way.

period. During the post-conflict period Angola, for example, multiplied by four its rate of growth during the period of political instability. Remarkable increases in growth rates were also observed for Liberia, Mozambique, Rwanda and Sierra Leone.

Inclusive growth is commonly regarded as the key to development. For example, the World Bank has the twin goals of ending poverty and shared prosperity. However, there is only a relatively small literature that considers the concept and application of inclusive growth. Fowowe and Folarin (2019) are the first to construct a measure of inclusive growth for all African countries by summing the change in absolute per capita income and the change in the income distribution. For the past two decades, this makes for an interesting cross-country comparison. Ethiopia, Uganda and Sierra Leone experienced inclusive growth, i.e., income growth, while reducing income inequality. Conversely, the growth experiences of Tanzania, Botswana and Mauritius were accompanied by growing inequality. Regression results suggest that fragility is not necessarily characterized by negative or low-income growth, but fragility does impede inclusive growth.

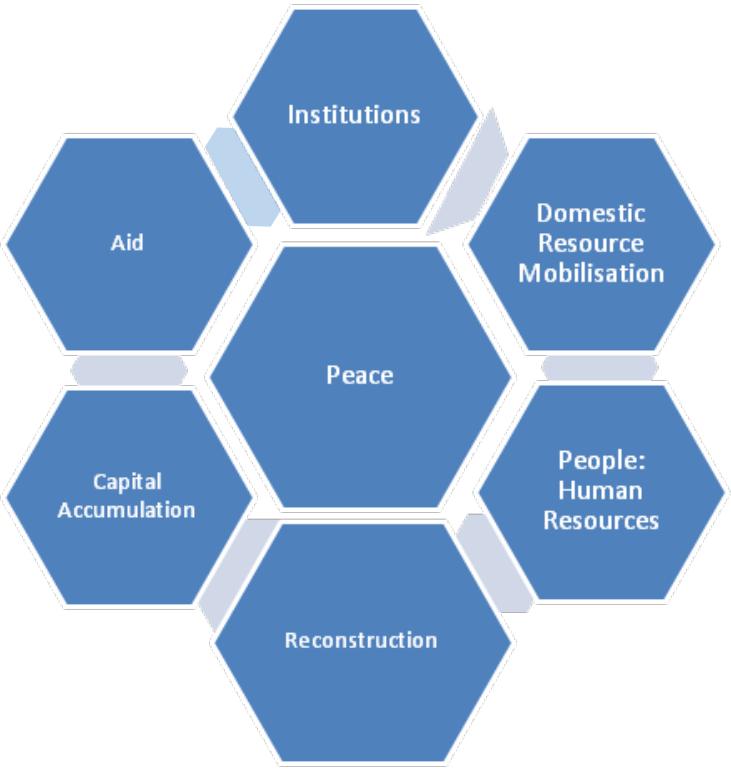
The different cases identified based on the information in Table 1 illustrate the fact that many African countries have experienced fragile growth over the sample period as a result of political instability. This has negatively affected these countries' economic performance and hence the wellbeing of their populations. However, the fact that some countries have emerged from political instability with strong and sustained growth rates suggests that growth fragility is not a fatality. These countries' experiences show that there is a way out of fragility and that successful experiences should be studied more and shared. Some of the factors that could play a role in helping or hindering African countries' growth recovery process, particularly those emerging from political instability, are discussed in the rest of the paper.

Peace stability and state-building

Economic recovery and development, particularly after a long period of armed conflict, requires actions in many areas, sometimes concurrently (see Figure 1). While the most important immediate objective is to stabilize peace, it cannot be sustained without a parallel process of economic reconstruction. It is through reconstruction that economic opportunities can be created for the population to benefit from the peace dividend that steers potential fighters away from the path of war (Willems and Van Leeuwen, 2014). The pursuit of peace stabilization as a purely political process that ignores the economic dimension of peace consolidation often leads societies back to armed conflict.

Countries emerging out of conflict require three major interventions to achieve sustainable peace and economic development. First, they need to stabilize peace in a context where they are least equipped to do so. Second, they have to rebuild the state and its institutions; development cannot be achieved with a weak state. Third, peace stabilization, state-building and economic reconstruction require human and financial resources that need to be mobilized. These three dimensions reinforce each other. The absence of any one of these interventions increases the likelihood of reversion to armed conflict.

Figure 1: Peace-building and post-conflict economic reconstruction: What are the needs?



Peace stabilization

Peace stabilization is challenging because it takes place in a context of a weak state, who is the main agent expected to put in place the policies and institutions needed to achieve this objective. Even when the key policies that need to be implemented for peace-building are identified, for example through negotiations between belligerents as was the case in Burundi, their timing and sequencing could be challenging (Nkurunziza, 2016). Building sustainable peace requires the right timing and sequencing of peace-building measures and reconstruction policies as there could be tensions or complementarities among different policies. Some of these measures might even need to be implemented concurrently, draining the already weak capacity of the state and making failure more likely. A country emerging from an armed conflict needs to work through a complex web of priorities, for example, the reconstruction of its physical infrastructure, the resettlement of refugees, rebuilding the state, demobilization, disarmament and resettlement of former combatants, rebuilding of social relations, rebuilding of social infrastructure such as the promotion of social relations, and the establishment of a social justice system (Langer and Brown, 2016). These actions and policies cannot be

implemented just in a sequential order. It is also clear that a fragile government arising out of a devastating armed conflict cannot on its own implement all these measures at the same time.

The complexity of the issues involved in peace-building and post-conflict reconstruction may explain why the conflicts observed across the world over the last few years are chiefly recurrences of old conflicts. This suggests that fragile countries have not succeeded in putting in place the right post-conflict reconstruction and peace-building mechanisms that allow them to move out of the fragility or conflict trap. One indicator of successful post-conflict economic reconstruction is the rate at which countries accumulate physical capital. Capital accumulation is a function of domestic public and private investment, as well as foreign direct investment (FDI). Indeed, peaceful and stable countries generally attract more FDI which, combined with domestic investment, accelerate the rate of capital accumulation. Hence, as Table 2 illustrates, physical capital accumulation tends to be stronger in peaceful societies, and also where the post-conflict process is successful.

Table 2 illustrates the negative association between political instability and capital accumulation, which in turn may help to explain the slow rates of economic growth discussed earlier. Indeed, in capital-starved regions like Africa, the stock of physical capital could arguably be one of the main determinants of economic performance and poverty reduction (Nkurunziza, 2015). Therefore, using the rate of capital accumulation as an indicator of successful peace-building, the information in Tables 1 and 2 can help in identifying the countries that seem to have been more successful than others. Angola, Chad, Rwanda, Sierra Leone, and Sudan have high rates of capital accumulation during their post-conflict periods. This seems to be mirrored in high rates of economic growth, as shown in Table 1. By contrast, Burundi, the Democratic Republic of the Republic of the Congo, Liberia and Libya have low rates of capital accumulation. In fact, periods of extreme fragility such as the 1990s for Algeria, from the 1970s to the early 2000s for Angola, the 1990s for Burundi, the 1990s and 2000s for the Democratic Republic of the Congo, the 1970s and 1980s for Mozambique, and the 1980s for Uganda are associated with mostly negative rates of capital accumulation.

The coefficient of correlation between the rate of capital accumulation and the measure of political instability is -0.09 and is significant at the 1 percentage probability level (Nkurunziza, 2019). Indeed, during periods of armed conflict, physical capital such as bridges, hospitals, and schools may be destroyed by warring parties, resulting in a reduction of the stock of capital. Even without destruction, in situations of armed conflict existing capital is not properly maintained and very little is invested in new physical capital. If the rate of new capital investment is lower than the rate of depreciation of existing capital, there is an overall negative rate of capital accumulation. This is the case in many countries experiencing armed conflict, where most state resources are directed towards funding the war effort and where private investment declines due to high risk.

Table 2: Annual growth rates of stock of capital, 1970–2014 (percentage)

Country	1970–2014	1970s	1980s	1990s	2000s	2010–2014	Average instability
Algeria	5.27	12.42	6.40	-0.64	1.89	6.85	0.53
Angola	2.37	2.98	1.02	1.05	10.11	11.61	0.80
Benin	4.33	4.16	1.02	4.36	4.60	6.30	0.00
Botswana	6.99	10.13	8.03	7.25	6.55	7.77	0.00
Burkina Faso	3.90	1.86	4.20	2.63	3.62	9.63	0.04
Burundi	1.87	0.92	5.01	-0.56	-0.40	3.77	0.40
Cabo Verde	3.23	5.06	1.77	3.24	5.71	3.48	0.00
Cameroon	3.51	8.26	5.42	-0.66	2.06	4.23	0.04
Central African Republic	1.55	3.63	2.16	0.75	-0.22	2.92	0.18
Chad	2.32	2.48	-1.33	0.98	10.97	5.93	0.73
Comoros	2.24	11.37	4.11	1.01	0.16	-1.08	0.04
Congo	4.84	5.48	4.48	1.30	3.97	11.81	0.11
Côte d'Ivoire	0.81	11.06	-0.16	-0.77	-0.23	2.89	0.09
Dem. Rep. of the Congo	-0.72	8.86	-1.18	-3.57	-2.03	1.89	0.31
Djibouti	3.34	0.96	4.89	2.66	1.70	6.85	0.13
Egypt	3.91	4.45	3.92	4.14	2.90	5.46	0.20
Equatorial Guinea	10.10	1.96	1.50	19.83	21.93	18.54	0.00
Ethiopia	1.88	0.31	3.22	0.37	4.31	14.97	0.98
Gabon	3.28	8.68	3.28	-0.27	1.42	5.24	0.00
The Gambia	1.54	-0.12	0.19	3.58	2.03	0.40	0.02
Ghana	1.40	-2.32	-1.96	3.67	6.52	11.43	0.04
Guinea	2.15	0.20	0.82	3.13	2.42	4.42	0.04
Guinea-Bissau	-0.92	1.45	0.31	-1.31	-3.54	-2.79	0.13
Kenya	2.45	4.91	2.04	1.00	2.38	7.28	0.02
Lesotho	3.94	4.65	5.79	7.53	0.21	3.47	0.02
Liberia	0.75	7.32	-0.88	-3.66	-2.93	5.87	0.16
Libya	1.86	7.88	1.53	-1.62	3.47	0.30	0.04

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Table 2 Continued

Country	1970–2014	1970s	1980s	1990s	2000s	2010–2014	Average instability
Madagascar	1.25	2.20	-0.98	-0.48	3.76	2.30	0.02
Malawi	1.17	5.43	0.26	-0.72	-0.20	1.33	0.00
Mali	4.44	6.14	4.59	3.90	3.50	7.78	0.18
Mauritania	1.87	7.69	1.55	-1.46	4.46	10.04	0.13
Mauritius	5.24	11.70	3.60	6.74	4.06	4.63	0.00
Morocco	3.07	7.04	2.01	2.68	4.37	4.88	0.36
Mozambique	-0.47	0.66	-2.04	-2.04	0.09	8.64	0.49
Namibia	3.42	5.30	-0.63	1.71	4.03	6.90	0.00
Niger	0.55	6.08	0.27	-1.40	2.76	9.58	0.16
Nigeria	0.15	11.62	-1.21	-3.59	-1.46	5.97	0.16
Rwanda	5.38	6.38	6.46	0.33	2.69	10.82	0.36
São Tomé and Principe	0.07	-1.82	-0.62	5.99	-0.31	7.53	0.00
Senegal	2.51	2.13	1.86	2.33	4.22	4.91	0.22
Seychelles	5.55	8.36	4.69	6.13	3.26	4.98	0.00
Sierra Leone	0.99	2.05	0.52	-2.25	0.70	12.03	0.24
South Africa	3.00	6.35	2.08	1.07	2.99	3.96	0.42
Sudan	5.06	6.22	3.41	1.24	9.12	7.57	0.80
Swaziland	2.72	9.95	1.95	2.73	1.66	2.19	0.00
Togo	1.19	7.67	0.99	-1.37	1.07	6.75	0.02
Tunisia	3.32	9.40	3.19	3.32	2.96	2.42	0.02
Uganda	2.62	3.64	-1.57	2.07	4.66	6.78	0.82
Tanzania	2.91	4.92	1.75	-0.32	2.74	7.18	0.02
Zambia	0.58	11.79	-1.14	-0.40	6.54	13.06	0.02
Zimbabwe	-0.16	-1.35	-0.77	0.26	0.79	9.68	0.16
Median	2.61	4.70	1.71	1.14	2.33	5.93	0.19

Source: Nkurunziza, 2019

Enduring fragility in many countries has been associated with conflict recurrence. Post-war economies face a particularly high risk of conflict recurrence, but this risk is lower if incomes and growth are higher (Collier and Hoeffler, 2004a and Fearon and Laitin, 2003). Other factors of recurrence include the lack of involvement of the international community, generally through UN peacekeeping missions; conflict duration, with long conflicts tending to be associated with a higher likelihood of recurrence; and the form of

conflict termination, negotiated settlements being associated with a higher likelihood of recurrence (Langer and Brown, 2016).

The timing and sequencing of post-conflict reforms is also key to a successful process of peace stabilization. Most post-conflict transitions fail due to poor timing and sequencing of reforms, which affects countries' recovery. Among the countries with low levels of economic growth are Burundi and the Democratic Republic of the Congo, as discussed above. In Burundi, the implementation of some of the most important provisions of the Arusha Peace and Reconciliation Agreement, which was adopted to govern the process of peace-building and socio-economic reconstruction, experienced long delays. The impression is that the government prioritized the easiest reforms that also happened to serve the interests of the new ruling elite and their followers. This was the case, for example, with the massive inclusion of former rebels into state institutions. Conversely, reforms that would have had far reaching effects on peace consolidation, such as the establishment of the Truth and Reconciliation Commission, and policies promoting long-term economic and social reconstruction, experienced very long delays. Hence, progress with respect to political stability and economic recovery in Burundi has been muted (Nkurunziza, 2016).

In the Democratic Republic of the Congo, local and international peace-building efforts were not aligned, failing to address issues at the local level in a coordinated way (Hellmüller, 2016). Similarly, in South Sudan, the process of peace-building was "inconsistent and uncoordinated" driven primarily by the interests of local elites and key external states, partly explaining its failure (Francis, 2016).

State-building

Development and post-conflict reconstruction require a functioning state. Post-conflict societies are characterized by fragile states that often lack the capacity to carry out the necessary political, social and economic reconstruction processes. In fact, state fragility seems to be the central impediment to peace stabilization and peace-building in general, along with post-conflict reconstruction.

State fragility as a syndrome is characterized by five factors (Commission on State Fragility, Growth and Development, 2018). First, in fragile states, actors view the state as a source of rents that are captured by political elites. Plundering of state resource by sitting politicians is the norm and groups engage in zero-sum games to control state spoils. Second, partly due to the first factor, the state is viewed by most citizens as illegitimate. The combination of the first two factors leads to a third: the lack of capacity to provide basic public services, such as security and basic infrastructure. Indeed, the lack of security is arguably the most prominent indicator of state fragility. Fourth, all three factors result in poor economic performance. The private sector is weak, so opportunities outside political and state institutions are very limited. This, in turn, perpetuates state fragility through fighting for the control of state institutions. Finally,

state fragility exposes societies to political and economic shocks, making it difficult to escape the fragility trap.

These characteristics illustrate the challenge facing post-conflict societies. Post-conflict governments inherit ravaged economies with widespread disruptions, curtailed civil liberties, capital flight and diversion of resources to non-productive activities, and very limited financial resources to fund state-building efforts. The median rate of capital flight to GDP is 6% in post-conflict situations, relative to 2% to GDP in peaceful times. Tax revenue to GDP varies from a median of 15% in peaceful periods to 11% during the armed conflict and post-conflict periods. Aid per capita also drops from $33 during peaceful times to $14 in armed conflict periods, increasing to $24 in the post-conflict period (Nkurunziza, 2012).

According to the Commission on State Fragility, Growth and Development (2018), international experience with state-building suggests that the solution to state fragility must be primarily homegrown. Instead of imposing solutions from the outside, international actors such as development institutions and bilateral donors should be encouraged to support domestic initiatives from local actors such as political coalitions, private sector and civil society organizations, youth organizations, and women's organizations. More importantly, external interventions cannot help to build states by working around them through, for example, Western non-governmental organizations. External assistance will help to build the state if it works with the state, however difficult that might be. The process will be slow and frustrating, but experience suggests that it is the only way to build more lasting institutions.

Effective state-building must also be conceived as a long-term project. Domestic actors who often have competing interests require a relatively long time to come up with a common national vision of what the state should be. In this respect, international aid should be adapted to deliver this objective. As discussed in some detail later, current aid cycles are not necessarily suited for this purpose. To be successful, the process of state-building should benefit from a long-term engagement of the international community and this commitment should be predictable.

Successful state-building should also be allowed to deviate from current political norms, such as the requirement that a country organizes elections every four to five years, irrespective of its state of fragility. While this should not be construed as an encouragement for political leaders to overstay their legal terms, there are instances where agreement between incumbents and the opposition over a political dispensation that preserves peace might be preferable and less disruptive than pushing for elections by all means. Generally, the democratic process has been hampered by the zero-sum nature of politics and the conception of political power as being primarily a way to access and extract rents. This makes elections violent contests between an incumbent who uses all state institutions and resources at his disposal to conserve power at all costs, and opposing groups whose main objective is to access power in order to control

the "rents to sovereignty" associated with the capture of political power (Nkurunziza and Ngaruko, 2008). This zero-sum perception of political power perpetuates political fights and state fragility.

Fragile states should be afforded the flexibility to chart a different political path that consolidates rather than weakens the state. Revamping traditional institutions of governance that proved their worth before Africa adopted Western-type methods of governance might yield better outcomes in terms of state-building. In post-genocide Rwanda, for example, the Gacaca, or traditional courts were extensively used to deliver justice and reconciliation between alleged génocidaires and surviving victims. The Gacaca managed to settle tens of thousands of cases in just a few years. Had the country chosen to rely on the modern legal system borrowed from the West, such as the one applied by the International Tribunal for Rwanda based in Arusha, Tanzania, hundreds of years would have been required to settle these cases. Revisiting traditional systems of governance and adapting them to current realities might be more productive than embracing a purely Western system that may be inconsistent with some African realities.

Insitutions

A well-established result in the literature is that countries with higher income and growth rates are much less likely to experience armed conflict (Collier and Hoeffler, 2004a; Fearon and Laitin, 2003 and Hegre et al., 2001). Consequently, international agencies, such as the World Bank, have invested in economic development in the belief that this is the best way to reduce the risk of armed conflict. While these stimulation packages and associated reforms are likely to be important for violence prevention, peace and prosperity require good governance.

Governance

Governments that provide political rights to their citizens and face strong political accountability as well as legal constraints are much less likely to be challenged in armed conflicts (Walter, 2014). Constraints on the executive serve as a check and help incumbent elites to credibly commit to legal reform. This helps to create a situation where rebels do not need to maintain a military force to put political elites under pressure. Furthermore, this reduces the odds of repeated armed conflicts because good governance leads to not only fewer grievances, but also fewer opportunities to recruit rebels willing to fight. Governance therefore clearly matters, but what is less clear is what aspects of good governance are most important in deterring armed conflict. All of the measures of governance highlighted by Walter (2014) make it easier for citizens to check the bad behaviour of their leaders and make it easier for incumbent elites to commit to and carry out legal and political reforms. Although improving governance is crucial for peace and prosperity, it is difficult to achieve this objective and the pathways to better governance will vary from country to country. Improved governance will also invigorate the economy and thus support the stabilization effort.

Although the need is clear to make elites more accountable, to constrain their power and to increase political participation, a number of studies demonstrate that the region as a whole is sliding back on the democracy scales. However, there are some counter examples (see Box 1 on Ghana). Since the early 1990s, competitive elections have been held in almost every African country. However, these elections often do not meet international quality standards. They are neither free in the run-up to election day (e.g., irregularities in the registration of voters, limited media access to the opposition, intimidation of opposition supporters and bribery) nor fair (e.g., miscounting of votes and refusal to accept the results). Bishop and Hoeffler (2014) show that over the past 25 years only 26% of elections in sub-Saharan Africa were free and fair. Most African countries are ethnically diverse and this provides challenges and opportunities. The most ethnically diverse country is Tanzania. Over the past 50 years the country has generated a shared sense of identity and avoided ethnic violence.[23] However, in many other countries ethnic diversity can lead to the monopolization of the political space by one group to the exclusion of others. This can give rise to sectarian conflict, making peaceful coexistence a major challenge. Mbaku (2018) analyzes the main challenges of constitutional design and the construction of governance institutions in Africa and argues that protecting the rights of citizens, in particular those of minorities, should be the overarching aim of state reconstruction through constitutional reform. Each African country has to provide its own laws and institutions that reflect the realities of their society.

Box 1: The state of democracy in Africa – Case study: Ghana

Although Ghana is in many ways 'typical' of the region, the country bucks the general trend of democratic backsliding. It is socially diverse in terms of ethnic and religious groups, and the economy is dependent on cash crops (cocoa) and sub-soil assets (oil, gas, gold and diamonds). After a long period of political instability characterized by coups d'états and military governments, Ghana has held seven consecutive democratic elections. In some of the elections the contests were won by very narrow margins and the losers accepted defeat with no resort to violence. For example in 2012 the incumbent president, John Mahama, won by gaining 50.7% of the votes; this winning margin equated to just a few thousand votes. In 2016, despite legal wrangling over some of the candidacies, the elections were free and fair and the challenger, Nana Akufo-Addo of the opposition New Patriotic Party, won with 53.9% of the votes.

23 The data in Table 1 associating Tanzania with conflict refers to external wars the country was engaged in, including the war with Uganda and the association with liberation movements in Southern Africa.

Institutional reform for resource mobilization

Many countries in the region are rich in natural resources and do not need more, but require institutional reforms to turn their natural richness into benefits for the whole of society. However, other countries have few or no revenues from natural resources and have to generate tax revenues. On average, African countries are characterized by high levels of development aid on the one hand, and low levels of taxation on the other. States can only fulfil their role with sufficient resources. State capacity depends on generating revenues and on using these revenues efficiently. Tax authorities in many African countries rely heavily on corporate taxation of a limited number of large firms. The many firms in the informal sector remain untaxed and taxation provides an obstacle to formally registering firms. The bulk of the tax revenue may therefore come from a small number of large firms that strike deals with the tax authorities. Corruption is commonplace. In order to improve tax revenue, and therefore state capacity, taxation should no longer be deal-based but should become rule-based (we borrow this terminology from Pritchett et al., 2017). However, as the case study of Burundi shows (Box 2),[24] reforming the collection of tax revenue has many pitfalls.

Box 2: Reforming tax collection – Case study: Burundi

Tax revenue in Burundi is about 14 per cent of GDP, four percentage points below the African average. This low level of tax collection reflects low compliance, poor fiscal governance, and low state capacity. As part of tax reforms, an independent tax revenue authority was established through donor assistance, which was headed by a foreign director, someone unconnected with Burundian politics and business. There was some success initially as tax collection increased. However, tax evasion and discretionary tax exemptions have always been identified as sources of important loss of fiscal revenue. Moreover, over time it became clear that the capacity and competence of staff dealing with revenue collection need to be developed. The infrastructure put in place to modernize the work also requires proper maintenance. The work of the Office burundais des recettes (OBR) can stop for days due to problems with its servers, resulting in revenue loss and causing heavy costs to tax payers. Some processes are also cumbersome, and the costs are systematically passed on to taxpayers. If anything, this case illustrates the need for external aid to be extended over a relatively long period, in agreement with the beneficiary country, to accompany reforms to a point where the likelihood of reversal is minimized.

continued next page

24 This box is based on Nkurunziza (2018).

Box 2 Continued

According to available data, Burundi's tax to GDP ratio is 14%, on average, well below the African average of 18.16%. This particularly low level of tax revenue reflects low compliance, poor fiscal governance, and low state capacity. With respect to low compliance, tax evasion and widespread discretionary tax exemptions in favour of politically-connected individuals have been identified as representing an important loss of fiscal revenue.

There are three types of tax exemptions:

1. Granted by law or through adherence to an international agreement, such as duty-free imports by international organizations or imports relating to aid projects.
2. Exemptions in Burundi's investment code, designed to attract investment.
3. Discretionary exemptions granted by authorities.

In 2012, for example, total exemptions represented about one-fifth of the total revenue collected by the Office Burundais des Recettes (OBR) – Burundi Tax Authority – during the same year (Holmes et al., 2013). Of all these types of exemptions, discretionary exemptions are the most prone to abuse

Third-party support

So far the focus has been on reforms within countries, but there are also third-party interventions that can affect state fragility. These range from diplomatic to economic to military interventions. Hoeffler (2014) provides an overview of the effectiveness of these measures. Here we want to focus on the role of peacekeeping operations. Throughout Africa, peacekeeping is provided by a number of organizations, for example the African Union, or smaller regional organizations, such as the Economic Community of West African States (ECOWAS). Worldwide, the UN is the most important provider of peacekeeping and, over time, it has significantly strengthened its involvement in Africa.

During the Cold War there was only one operation in the region, namely in the Democratic Republic of the Congo in the early 1960s.[25] Only after 1989 did the UN begin to deploy more peacekeeping operations (UNPKOs). Of the current UNPKOs, about 83 per cent of all peacekeepers are deployed in Africa and 86 per cent of the

25 Organisation des Nations Unies au Congo (OUNUC), 1960–64.

entire UNPKOs' budget is spent in the region. It is, therefore, of particular interest to African policy makers whether UNPKOs keep the peace. Sadly, some failures incurred terrible human costs, for example the failed UNPKO in Somalia (1992–93) and in Rwanda (1993–96). Other UNPKOs have been accused of misconduct, for example of sexual violence against women and children in Darfur and the DRC.[26] Many studies have statistically explored the effectiveness of UNPKOs (for example, Fortna 2004 and 2008) and the evidence suggests that UNPKOs are effective in keeping the peace. Recent evidence suggests that UNPKOs keep the peace when they are deployed after formal settlements of an armed conflict (Caplan and Hoeffler, 2017). For Africa, Hoeffler (2019) finds that although African peace episodes are more likely to break down, UNPKOs in the region are just as likely to stabilize the peace after settlements as outside the region.

Following from this research the recommendation is that African combatants should receive assistance to reach negotiated settlements, and UN peacekeepers should support these settlements to overcome the inherent commitment problems. Two cases in Africa, the UNPKOs in Sierra Leone (UNAMSIL) and Liberia (UNMIL), suggest that some key factors can considerably contribute to peace stabilization. UN peacekeeping must be well resourced, there should be a strong mutually supportive relationship with the host government and peacekeeping should be pursued in partnership with other regional organizations (such as the African Union). Peacekeepers in Africa have to tackle particularly difficult problems due to the complexity of local power relationships (Williams, 2016: chapter 10). These are rooted in the colonial and post-colonial history of state formation (Herbst, 2014 and Reid, 2011). These historical processes enabled a high concentration of political power in some African states, supporting the formation of a neo-patrimonial system where powerful patrons use state resources to buy the loyalty of individuals (Bratton and Van de Walle, 1994). In addition, global political power shifts and economic shocks contributed to state failure in Africa (Bates, 2015). While none of this history can be undone, it is important to be mindful of this complexity and not be overly optimistic that one measure alone (e.g., negotiated settlements, UNPKOs, power sharing or elections) can stabilize the peace.

Resources for peace-and state-building

Peace-building and state-building in societies emerging from armed conflicts face a major resource constraint. Human resources are inadequate because many qualified personnel leave the country to seek refuge if they are not killed. Financial resources are also scarce because shattered economies invest less, economic growth slows, and domestic resource mobilization is weak due to the narrow economic base, the lack of trained personnel, and poor institutional set-ups that are not conducive for efficient resource collection, as previously discussed. Aid cannot fill the gap given that it is mostly

26 For more information see http://www.codebluecampaign.com (accessed 29 January 2019). The Code Blue Campaign is a pressure group with the aim to end immunity for sexual exploitation and abuse by UN peacekeeping personnel.

humanitarian and not necessarily geared towards developing a sustainable economic system. These issues are briefly discussed below.

Human resources

Whereas physical capital may be easier to rebuild after devastating armed conflicts, it is not the case with human capital. Conflicts displace people who leave the country to seek livelihoods in foreign countries as refugees. Once the highly skilled among them are established in their host countries, they do not necessarily return after a conflict has ended. It is usually only destitute refugees who are repatriated in the aftermath of a conflict as they do not have much to lose. Some also wait for years before returning until they feel peace has been solidly established. Indeed, refugees go through personal painful experiences before deciding to flee so it may take a long time after the end of a conflict before they no more associate their country of origin with these painful experiences.

An additional problem may be the quality of the resources that are available. Armed conflicts affect individual behaviour through the erosion of moral standards. Generally, institutions such as the judiciary and other oversight bodies weaken or even collapse during severe armed conflicts. This legal vacuum encourages ills such as corruption. Relying on corrupt actors to build peace and the state poses a challenge in post-conflict societies. It is also the case that long periods of armed conflict affect the quality of training through, among other things, the destruction of training infrastructure, the death or fleeing of teachers, and the little financial resources devoted to this activity as most of the resources are directed towards funding the war. As a result, societies that experience long periods of armed conflict may have poorly trained human resources, limiting their capacity to positively contribute to peace-building and state-building.

What should countries in this situation do? In the short term, the most expeditious way of putting a country back on its feet seems to be through foreign technical assistance. This could be through bilateral cooperation or through international organizations such as the United Nations and its different agencies, as well as specialized international non-governmental organizations (NGOs). However, this form of "humanitarian technical assistance" sometimes has unintended negative consequences for a society. Two of them are that it may deepen inequality and negatively affect state-building efforts. International organizations and NGOs pay higher wages to locals working with expatriates, creating a new class of high-income individuals living in a generally low-income environment. This can cause tensions and rent seeking, and have long-term negative effects on social cohesion. The second problem is that high wages attract the most highly-skilled individuals to work for these foreign entities operating in the country. Many of them come from state institutions where they are crucially needed to drive the process of state-building. The unintended consequence may be that the presence of these foreign agencies retards rather than accelerates state-building.

In the medium term, while it is important to train new nationals who would complement and later replace expatriates, countries can tap their diaspora to fill the human resource

gap. As long as the country is peaceful, skilled people from the diaspora are generally willing to contribute to the reconstruction of their country of origin not just through their in-kind and financial remittances. They also send social remittances, which are intangible assets such as "ideas, know-how, practices and skills, as well as the norms, beliefs, practices and attitudes to which migrants may be exposed during their migration and that they bring home on return or share with their families while away" (UNCTAD, 2018: 140). Through the brain-gain process, countries of origin can benefit from its diaspora's expertise, know-how and technology transfer. Highly-skilled members of the diaspora do not need to resettle in the country of origin. Their contributions can be time bound, giving them the flexibility to keep their links with their countries of adoption. International organizations, such as the International Office for Migrations (IOM), have established specific mechanisms to encourage these exchanges. Moreover, several developing countries have put in place mechanisms to harness this potential (see Box 3 for a discussion of Liberia's programme).

Box 3: Diaspora-centred development – Case study: Liberia

A number of countries have diaspora engagement programmes. Liberia is one of the poorest countries and with about 500,000 Liberians abroad there is a great opportunity to benefit from diaspora engagement. The initial programme was initiated under president Ellen Sirleaf-Johnson in 2010 and reactivated in 2015. The programme receives financial support from the International Organization for Migration (IOM) and the World Bank. A website, and Facebook and Twitter accounts inform about the programme, but it is unclear how successful this strategy has been to date. So far there is no evaluation of the programme, but it appears to have performed below expectations. If the reactivation is to be successful, lessons should be learned from the first phase, although allowance has to be made for the fact that the Ebola outbreaks delayed the development and implementation of a diaspora policy. However, policy makers should be clearer in their formulation of a strategy. The diaspora can take on many different roles, for example as a donor, investor, knowledge network or market, or provide a source of brain gain and ambassadors (Boyle and Kitchin, 2014). While it is difficult to define diaspora-centred development, it is important to recognize these different spheres of influence. Governments should build diaspora strategies, policies, schemes, and programmes to capture, enhance, and scale up positive contributions in each sphere. The Liberian strategy seems to be lacking focus and appears to have followed a narrow approach by only appealing to a small subset of the diaspora community. A further problem is that Liberia does not allow multiple citizenships, thus adding an important legal dimension to the decision process of returning to Liberia.

Financial resources

While initiatives aiming to encourage development through sectoral change are important in the long run, governments and international organizations should prioritize short-term growth strategies in order to stabilize peace. In an essay, Collier (2009) suggests a policy mix of low taxation, high aid, intense scrutiny of public spending and low inflation to achieve short-term growth. Low taxation and increased efficiency of public spending would encourage tax compliance in a period during which fiscal institutions are being re-built and tax revenue relatively low. Frontloading aid, which should be more than humanitarian aid, is also necessary to quickly help repair physical and human capital inherited from the war period. High inflation eats away the benefits brought about by reconstruction, so it is important that inflation remains low during the post-conflict period.

Public revenue: Taxation

The major challenges that post-conflict countries face include the reconstruction of infrastructure, rebuilding the health and education sectors, and the revival of the private sector. Post-war countries typically have a very low capacity to raise revenues to address these needs. How should revenues be raised post-war? How should public service delivery be organized, and how high should the fiscal deficit be?

Typically, tax revenue will be low in post-war economies, although cross-country evidence is sparse. Boyce and Forman (2010) provide figures for selected fragile countries and demonstrate that their tax revenue as a percentage of GDP is lower than regional averages. Tax revenues are likely to be low for several reasons:

- High military expenditure during the war is likely to have distorted the tax system.
- The tax authorities may have become extremely weak and corrupt.
- The formal sector of the economy will have shrunk disproportionally during the war. Since the formal sector provides the main tax base, tax revenues will have decreased.

In the long term, taxation is an integral part of state-building (Brautigam et al., 2008 and Besley and Persson, 2011), not only for providing revenue, but also for generating government accountability (Boyce and O'Donnell, 2009). However, according to Collier (2009) aggressive taxation would only exacerbate the three problems listed above and depress growth. The sections below suggest some ways of raising revenues that do not stifle growth.

Taxing Natural Resource Rights. One revenue opportunity that post-war countries can take advantage of is to tax natural resources. During the war, the exploration and extraction of sub-soil assets will have dramatically declined. After the war, countries with such natural resources will therefore experience a commodity boom. If correctly handled, such booms can generate much-needed public funds to assist the recovery.

Countries dependent on agricultural commodities are also likely to experience a boom. The return to peace will encourage farmers to come out of subsistence agriculture and to produce higher quantities for the domestic as well as overseas markets. Aggressive taxation will prevent this boom, thus closing off rural income and employment opportunities.

Delivering Public Services. The willingness to pay taxes crucially depends on whether the state is seen to be providing public services. Many countries have never been able to build an effective public sector. A civil war and its aftermath typically make it even harder to deliver public services like health care and education. Post-war situations provide opportunities to rethink and reform public service delivery. However, many public administrations are either unable or unwilling to deliver public services and often the poor have little or no access to public services (for a thorough discussion and examples see Kimenyi and Ajakaiye, 2012).

Instead of relying on a conventional system of public administration within spending ministries, Collier (2009) advocates the development of a system of independent service authorities (ISAs). The role of an ISA is to contract a range of suppliers to deliver core public services, health and education through local governments, NGOs and private firms. This would separate the function of setting policies from the function of implementing the service delivery. Policy remains the responsibility of ministers and ministries, but implementation is decentralized to a quasi-independent public agency.

However, other researchers argue strongly against the establishment of a dual public sector such as that created by ISAs (Boyce and O'Donnell, 2008). A dual public sector can also arise when, in an attempt to increase efficiency, donors generate and manage their own parallel public sector. This can drain the government public sector, since the donors can pay larger salaries than the government (Boyce and O'Donnell, 2008), as discussed above. However, the introduction of a dual public sector has to be evaluated by comparing the efficiency gains in revenue mobilization and public service delivery against the sovereignty and accountability issues arising from administering a public sector system by donors who are unaccountable to the local population. The Commission on State Fragility, Growth and Development (2018) also cautions against eroding the state-building process by creating parallel structures that are directly controlled by donors. To our knowledge no study has yet assessed the efficiency of a dual public sector in this way, so it is not possible to say for sure that it is a good or bad idea.

Finally, every government must decide on the size of their fiscal deficit, also referred to as the fiscal "space". Collier (2009) advocates the use of aid rather than taxation to maintain high levels of spending in situations of great social need. Furthermore, inflation is to be avoided because post-war economies are particularly sensitive to capital flight. In order to avoid further capital flight and to encourage repatriation of capital, post-war countries should abstain from inflationary finance (Davies, 2008).

External aid

Although the literature on development aid is vast, there is no consensus on the effect of aid on development. While some see aid as an essential tool to end poverty (e.g., Sachs, 2005) others regard aid as a hindrance to development (e.g., Bauer, 1971). The former school of thought assumes that aid fills a financing gap that makes a big push out of a poverty trap possible. The latter school of thought regards development aid as increasing the power of government, which can then lead to corruption, a misallocation of resources, and an erosion of moral standards. Much aid is provided as bilateral aid, i.e., by one government to another, and this has implications for the political accountability mechanism. When citizens are taxed, they hold their governments to account. However, when revenue comes in the form of aid, the recipient government is accountable to the donor government. Thus, aid does not strengthen local accountability mechanisms and may in some cases seriously undermine accountability to citizens (Collier, 2006). This is particularly problematic in fragile states where accountability mechanisms need to be strengthened in the process of state-building.

A further problem is that the motivation to provide bilateral aid is often dominated by donor self-interest (Hoeffler and Outram, 2011). For example, the recent report by Seely and Rogers (2019) suggests explicitly linking the United Kingdom's geopolitical capability with international development. It is therefore unsurprising that the statistical evidence also suggests that aid effectiveness depends on who provides the aid. Multilateral donors are less dominated by political considerations and are more poverty-oriented (e.g., Findley et al., 2017), as are the Nordic[27] donors and the Netherlands (Minoiu and Reddy, 2010). Fragile states receive relatively more aid from these Northern donors when compared to non-fragile recipients, but not more aid from multilateral donors (Dreher et al., 2018).[28]

The literature on aid is dominated by measuring the effect of aid on economic growth. The broad conclusion from this literature is that, on average, aid has no impact on growth (e.g., Rajan and Subramanian, 2008). Despite some misgivings about the statistical methods, the claim that aid is more effective in good policy environments (Burnside and Dollar, 2000) is intuitively appealing. Well-governed societies will make the best use of aid. For fragile states this result is troubling. Fragile states are characterized by poor policy environments and if effectiveness is the decisive allocation criterion, fragile states should receive little aid although that is where the need is greatest.

More fundamentally, the question is whether aid effectiveness should be measured by examining the effect of aid on growth. After all, growth is an imperfect measure of social and economic development (see Stiglitz et al., 2009). Much development aid is also not designed to be growth-enhancing (e.g., humanitarian aid and disaster relief) and some aid finances investments that only influence growth in the future (e.g., aid for education).

27 Denmark, Finland, Norway and Sweden.

28 Measure: Aid as a percentage of GDP.

Fragile states attract a large share of the overall global aid budget, which has two main consequences. First, in fragile states there are at least 20 donors present (Dreher et al., 2018). This causes inefficiencies because the weak administrations have difficulties coordinating donor requests. Second, the average fragile state receives 15% of its gross national income as aid. This is possibly "too much" aid, because Clemens et al. (2012) show that beyond a share of 15%, aid becomes ineffective. When the amount exceeds a manageable range, the recipient countries do not have enough absorptive capacity to use the aid effectively (e.g., Feeny and de Silva, 2012). A number of fragile states are in this range and this should receive special attention.

Generally, aid does not increase growth, but there is some evidence that aid is growth-enhancing in post-conflict societies (Collier and Hoeffler, 2004b). However, this effect is only apparent when there is no further collective violence in the society. If armed conflicts rumble on, albeit with a lower level of violence, there is no growth-enhancing effect from aid (Hoeffler et al., 2011). Thus, in order to ensure the growth-enhancing effect of aid in post-conflict situations, donors should promote peace as the top priority.

Although the literature on aid effectiveness in fragile states is very small, the survey by Dreher et al. (2018) makes some tentative suggestions. Donors know that their aid may increase the chance of survival for autocratic leaders and hinder governance reforms (De Mesquita and Smith, 2010). They are often suspicious of the political authorities in the recipient countries and bypass the state's institutions. Conversely, this may undermine domestic state-building efforts. Specifics matter and should be carefully considered because the effectiveness of aid depends on: (1) the type of fragility the state suffers from, (2) the donors' interest, and (3) the amount of aid (absorptive capacity and donor coordination). Very few donors are willing to provide budget aid, so aid to projects should be carefully chosen and evaluated. Effectiveness of aid should be more broadly understood and aimed at improving human wellbeing rather than macroeconomic growth.

Aid effectiveness, especially its effect on long-term peace-building is often hindered by its scale and disbursement modalities. Countries that are emerging from extreme fragility may need humanitarian aid in the short to medium term. In the long-term, they need a different type of aid that builds their productive capacities, both physical and institutional. This requires a sizable amount of aid, guaranteed for and disbursed over a relatively long period. However, donors usually do not have the same long-term horizon. Too much aid in a short period of time raises the issue of absorption (Collier and Hoeffler, 2004b) and the recipient is usually blamed for this. On the other hand, too little aid, even when it is guaranteed over a long period of time, does not make an impact. If a country needs to both build a road and generate electricity in order to boost its production, it needs both at the same time. Providing either might not make a big difference.

Another issue why aid seems not to be effective relates to its disbursement. Many governments receiving aid from donors complain about the fact that aid disbursements

are generally made in the third or fourth quarters of the year, which is too late to enable careful planning about its spending. For example, according to the UK's National Audit Office, the Department for International Development spent 40% of its budget in the last two months of the calendar year.[29] Frontloading aid at the beginning of the fiscal year allows a country to integrate these resources in its spending plan. In this respect, donors should be encouraged to improve their aid disbursement modalities.

Public debt

In the past, African countries mainly relied on grants and loans from bilateral and multilateral donors to finance development. However, since 2006 this has changed considerably: 15 countries have now issued sovereign bonds.[30] At the root of these changes in financing is the global financial crisis. Low returns in high-income countries made investors look for new opportunities and found them in the frontier economies in sub-Saharan Africa. Natural resource discoveries, e.g., oil in Ghana, high commodity prices and GDP growth rates in the region, resulted in a strong economic outlook. For African governments, borrowing in the international markets is an attractive option, because they can use the funds for purposes of their choice rather than adhere to the conditions stipulated by donors.

African governments raise funds for a number of different purposes. The issue prospectus states the intended use of the funds. Infrastructure investments and debt restructuring of existing debts are the main uses. Examples include the issuance of bonds by the Ethiopian Government to build the Gibe III hydroelectric power plant and by the Mozambican government to buy a tuna fishing fleet. Debt becomes unsustainable when the investments turn out to be unproductive. In Ethiopia the power plant was built on budget and on time and helps to alleviate the previous shortage of power in the country. This investment will generate considerable returns and thus provides a positive outlook on Ethiopia's ability to pay back the loan when it matures. By contrast, funds in Mozambique were not invested in a tuna fishing fleet but in speed boats for the navy and a large proportion of the funds seem to have been embezzled. Mozambique defaulted on the US$2 billion loan in 2017 and legal proceedings are ongoing.

There are international as well as domestic risks associated with bond issuances. International risks include changes in the currency and commodity price markets, which

29 National Audit Office (2017: 26).

30 The discussion draws on Gichuki and Hoeffler (2017). A sovereign bond is a debt issued by a national government. Money is borrowed and interest is paid until the loan matures, i.e., has to be repaid. Maturity rates for these sub-Saharan African bonds are typically between 10 and 15 years. The terms on which a government can sell bonds depend on it creditworthiness and their maturity period. All sub-Saharan African government bonds are issued in dollars. When governments run into financial difficulties this can result in a default. In times of financial difficulties, lenders agree to either delay the repayment (debt restructuring) or to reduce the debt ("haircut" or "write-off'). Complete default on sovereign debt is extremely rare.

small sub-Saharan African countries cannot influence. However, the ability to absorb exogenous shocks and make African countries' economies more resilient is shaped by domestic policy choices. Other risks are entirely due to domestic causes. Corruption, poor project planning and oversight and the misuse of funds for purposes other than the intended use jeopardize the debt repayment.

In order to gain from these additional funds, governments need to develop a clear plan on how the funds are going to be used and tackle legal, institutional and capacity bottlenecks before the funds arrive. Better cost benefit analyses could guide countries in their choice of infrastructure investment. Botswana's procedures could serve as a useful benchmark, and the Nigerian debt management office, advising the government on how much to borrow, how to invest and how the debt can be repaid sustainably, could decrease the risk of defaults. Donors could support such efforts by providing technical assistance.

To take advantage of these additional funds for development, countries need to further deepen their financial markets and support them with macro-prudential policies. Commodity exporters should make their economies more resilient through, among other things, economic diversification and an increase of tax revenue. All countries would be advised to implement project management systems to manage and supervise projects in order to avoid project overruns and corrupt diversion of funds. If countries are not able to improve their macro policies and the management of their projects, it will ultimately lead to unsustainable levels of debt. This will then result in debt restructuring with support from the International Monetary Fund (IMF). This has already happened in the cases of Angola, Ghana and Mozambique. The assistance was granted under the condition of implementing several reforms and policy improvements. This is where the story comes full circle. Although government bonds provide opportunities to pursue sovereign development choices, the markets' demands on government behaviour are very similar to those demanded by the IMF and multilateral development banks. Without sound macroeconomic policies, strong institutions and anti-corruption measures, none of the loans, whether concessional or non-concessional, will result in economic growth and development.

Remittances

Remittances can take different forms. They may be cash, in-kind, or social. Cash remittances have several advantages over other forms of international flows. First, in many African countries, they are higher than official development assistance (ODA), making them a major source of foreign currency. In 2016, they accounted for 51% of private capital inflows. In 2014–2016, they amounted to US$64.9 billion, representing 14.8% of total exports. This amount is considered to be under-estimated given that a number of transfers are carried out outside official channels, particularly in countries where transfer costs are high. In Cabo Verde, the Comoros, The Gambia and Liberia, remittances exceeded total exports in 2014–2016 (UNCTAD, 2018). But remittances flows are unevenly distributed, with Nigeria and Egypt alone accounting for 60% of total remittance flows to Africa.

Second, remittances are more stable than FDI and portfolio investment. Indeed, even though remittance flows may partly depend on the business cycle in sending countries, the absence of synchronicity of business cycles between sending and receiving countries may help receiving countries to smooth out their resource base, particularly during periods of economic downturns. This makes remittances a more stable source of revenue. Third, remittances are sent directly to households helping them to address more directly the challenges they face. By contrast, foreign aid reaches households through many layers, with a risk of leakages along the way. So, remittances target the needs of households, consumption and investment, better than other external inflows.

For Africa to benefit fully from its remittance transfers, several actions could be considered. First, transfer cost should be reduced, at least to the world average. Currently, the average cost of transferring US$200 to Africa is 8.9%, compared to 7.3% globally (UNCTAD, 2018). Encouraging more competition in the transfer industry might reduce this cost. Moreover, adapting national and regional technological breakthroughs to international money transfer such as mobile money banking could slash transfer costs to remarkably low levels. Second, misaligned exchange rates encourage informal transfers, fuelling operations in the parallel market for foreign currency in receiving countries. This phenomenon is particularly acute where beneficiaries of remittances are handed local currency converted through the unfavourable official exchange rate. Aligning the two exchange rates would encourage transfers through official channels, especially if such a measure is combined with reduced transfer costs. Third, more remittances through official channels would imply better forecasting of transfer flows, helping to plan for their best use. Microeconomic data from Ethiopia and Zimbabwe show that regular and high transfers are more conducive to investment (e.g., Ethiopia), whereas small and irregular amounts, as is the case in Zimbabwe, are mostly used for regular expenditure (UNCTAD, 2018).

Conclusion and policy recommendations

In this paper we provided an overview of the current knowledge of how fragile states can recover and become more stable and peaceful. Peace and stability are the necessary preconditions for any economic growth and development. Conversely, economic development will enhance the chances of lasting peace. Stability and peace are necessary, but not sufficient, conditions for economic growth. Changes in governance structures are essential to enable a peace-building process that is followed by the longer task of state-building. Only well-governed states can provide security and economic opportunity to all of their citizens.

Governance is typically poor in fragile states, dominated by elite interests, and governments are generally not regarded as legitimate by the majority of their citizens. Provision of security, infrastructure and public services is poor and results in limited opportunities outside the political and state institutions. These narrowly based economies are less able to manage political and economic shocks and are therefore likely to remain in a fragility trap.

The vast majority of armed conflicts are recurrent conflicts and it is therefore of great importance to understand why conflicts break out again. Statistical evidence shows that peace is most likely to break down if no formal settlement was reached, followed by formal settlements. Military victories tend to be associated with longer lasting peace, but they are rare. Third-party interventions in the form of peacekeeping operations can significantly increase the chance of prolonging the peace, in particular when they support a negotiated settlement. As 86% of the entire UNPKO's budget is spent in Africa, it should be of particular interest to African policy makers to improve the chances of peacekeeping success. There is no evidence that UNPKOs are less likely to succeed in Africa, but given the complexities of many post-conflict situations, it is important to equip the UNPKOs well and not believe that one measure alone (e.g., negotiated settlements, UNPKOs, power sharing or elections) can stabilize the peace.

Other forms of third-party support come in the form of development aid. There is evidence that aid is most effective in situations of good governance, but fragile states are characterized by poor governance. Aid is therefore less likely to be growth-enhancing, but the needs are particularly high. In fragile situations, donors should operate to the highest standards with humanitarian interests overriding geopolitical calculations. Northern donors (Netherlands, Finland, Sweden, Norway and Denmark) as well as multilateral donors are less motivated by their self-interest and could be regarded as examples of good practise. All fragile states have more than 20 donors and coordination is essential to reduce the administrative burden in the recipient country. Many fragile states receive amounts of aid that are beyond their absorptive capacity; this deserves attention. Donors are also often rushing out money towards the end of the financial year, leading to poor project selection and realization. Donors should have more flexibility across financial years to fulfil their aid targets.

Aid substitutes for a shortage of other financial resources in the immediate post-conflict situation. The longer-term consequences of aid dependence deserve serious consideration. High aid dependence undermines good governance by distorting political accountability. Governments who are dependent on aid pay too much attention to donors and too little to their citizens. Wood (2008) proposes capping aid to developing countries at "…50 per cent of the amount of tax revenue …". Although this proposal is not specific to fragile states it would prevent a long-term dependence on aid. If aid were capped at 50 per cent of tax revenue, governments would have an incentive to pay more attention to their own citizens. A cap should be phased in gradually – possibly over a decade for aid-dependent peaceful countries and 15 years for post-conflict countries. But in fragile countries where aid is so important, it is crucial that the engagement of the donor community be predictable over several years and respond to specific needs of recipient countries.

Remittances are much higher than aid and should be encouraged because many studies show their importance for domestic investment. Transfer costs should be reduced to further increase existing flows and to make them less volatile. Putting in place a

macroeconomic framework that is conducive for remittance transfers through official channels would boost the developmental impact of remittances.

Debt finance through sovereign bonds has become more popular during the past 15 years, mainly due to the changes after the global financial crisis. Investors are looking for different opportunities while African governments want to finance projects for which they would not be able to receive funding from the multilateral development banks. However, sovereign development choices can only be financed through the markets when governments follow prudent macro-policies. Strong institutions (e.g., good oversight and low corruption) are essential to turn these funds into growth and development. Banking regulation in the eurobond markets should also be tightened to ensure that bonds are only issued after a process of due diligence. The recent case of Mozambique's default suggests that insufficient checks were in place in Mozambique as well as in the banks offering the bond sale.

Domestic policy makers should first run a high aid, low tax regime and then slowly build up tax revenues and reduce aid dependency. Tax compliance will improve when citizens perceive the state as providing public goods efficiently. The tax authorities have to be reformed, but the reforms have to be supported politically and financially. The provision of public services can be achieved in many ways and it depends on country specificities: whether services should be provided by state organizations or through independent delivery authorities. However, it should be kept in mind that taxation and public service delivery by the state are important processes of state-building.

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Reversing Fragility in African Economies through Inclusive Growth

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Introduction

African economies have, on average, grown robustly in the last one and half decades (from 2000), averaging 5% per annum (Martins, 2013), significantly above the average population growth rate of 2.9%[31]. This is despite the recent global financial crises that caused a significant economic recession in most parts of the world. However, in the midst of this laudable performance, inequality has remained persistently high, and poverty not responding to growth in a commensurate measure relative to other regions of the world like South East Asia and Latin America. There is strong concern that the high economic growth has not been beneficial to the majority of African population (McKay, 2013). Despite the robust economic growth of the last decade, the region's 14% poverty reduction between 1990 and 2010 (UNECA, 2015) is still just half of the regional target of 28% (Ngepah, 2016). This is despite marked improvements recorded in SSA's human development indicators.[32]

identifies persistently high inequality as the underlying reason for the slow pace of poverty reduction amidst high and robust economic growth in Africa. Inequality is a key determinant, not only of the ability of growth to reduce poverty, but also of the level of growth itself. There are three concerns about inequality in this respect. First, it may reduce economic growth. Second, it may hinder the poverty-reducing power of growth. Third, it may promote the inefficient use of resources and breed unstable societies, leading to unsustainable development (Ngepah, 2016).

At the same time, a number of countries in fragile situation are caught up in a vicious cycle of violence, chronic poverty, inequality and exclusion from the gains of growth. OECD (2009) defines states in fragile situation as those that *lack political will and/or capacity to provide basic functions needed for poverty reduction, development and to safeguard the security and human rights of their populations* (OECD, 2009: p76). In this respect, making growth more inclusive can contribute in reducing or even reversing fragility. The key characteristics of states in fragile situation are lack of capacity or effectiveness on one hand, and low trust of citizens in the state mechanism, i.e., low levels of legitimacy. Cilliers and Sisk (2013) identify up to 26 countries in Africa in the category of 'more fragile' states, characterized by a much slower trajectory to long-term peace and development. The shear proportion of "more fragile' states in Africa pose a significant risk in the African renaissance rhetoric and the underlying realities. Cilliers and Sisk (2013) also group the drivers of fragility into four dimensions: poor and weak governance; high levels of conflict and violence; high levels of inequality and economic exclusion; and poverty. These imply that the robust growth story in Africa is potentially in jeopardy. Their conclusion about what it takes to get these countries on a trajectory out of fragility is the improvements of the population towards greater resilience. This is posited to come

31 Average for 2005-2010, from World Development Indicators (WDI).

32 Up to 70% primary enrolment rates in 2010, 60% adult literacy, falling child mortality from 175/1000 to 125/1000 between 1990 and 2010 (International Labour Organization, 2013).

through the quality of leadership and the commitment of the governing elite to inclusive growth and developmental policies.

While fragility has been wildly recognized as an issue of significant importance, little has been done, not only in terms of its determinants but how inclusive growth can influence it. This gives the underlying importance of the objective of this study, which is to identify various dimensions of inclusivity of economic growth and study their impact on state fragility in order to draw policy implications for curbing or reversing fragility in Africa. The paper begins with a brief exploration of the theoretical relationship between inclusivity of growth and fragility in section two. The paper presents the limitations of modelling fragility in existing literature in section three. It proceeds in section four to discuss various dimensions of economic exclusivity of growth in a view of constituting a set of proxies and links to fragility in a prospect-theoretical framework. In section five, the methodology of estimating the effect of the different dimensions of inclusive growth on fragility and the derivation of its combined effects are explained. The results and discussion are presented in section six; while conclusions and policy implications are drawn for the paper in section seven.

Inclusivity-fragility relationship

"All of Europe and all of Germany are rightly focused on the refugee crisis on the continent today, but if fragile states still have 47% of their people living on less than 2 euros a day by 2030, while the developed world prospers, the flow of migrants and refugees will not stop," by Jim Young Kim (World Bank, 2016).

This was the statement of the World Bank President, reiterating the conjecture that inclusive growth can reverse the adverse conditions in fragile states that are responsible for the migrant efflux and the refugee crises in the developed world, especially Europe and other parts of Africa, like South Africa. In South Africa, waves of xenophobic violence against African immigrants have often erupted. These have generally been concentrated in poor townships where immigrants compete for limited resources and business opportunities in these poor areas of the country. Ngepah (2017) has established a link between inequality within the poor and negative economic growth, suggesting that inequality of resources and poverty can interact to fuel conflicts, which are fundamental elements of state fragility.

Social and economic exclusion is often quite entrenched within states in fragile situations, where the lack of solidarity in the society and the production process run very deep. In such societies, even if growth occurs, it ends up benefiting only a few, perpetrating further fragility. As such, inclusive growth will not happen spontaneously but will take some significant policy efforts.

The relationship between fragility and growth is a deep-seated one. At the heart of it are three key concerns. The first one relates to the connection of fragility with poor and non-existent delivery of basic services. Delivery of services is, not only important for the

development of human capital necessary for an enhanced production system, but also supposes that even the delivery and maintenance of the complementary facilities of infrastructure of all types may be completely absent. In this context, the establishment of the private production system may be totally hindered.

Secondly, one of the key consequences of neoclassical growth theory to the debate is that fragility does not allow for sufficient levels of human and physical capital required to fuel economic growth (Maier, 2010). While low levels of capital accumulation perpetuate low growth, the distortions and inefficiencies due to fragility can also hinder the adoption of new technologies and constrain the possibility of a successful industrialization process. Low levels of resources do not also allow fragile states to be able to afford the costly but essential technology adoption or upgrades to enhance productivity.

The third element consists of both formal and informal institutional constrains within states in fragility, which hinder such from playing the role of supporting private sector development. Such constrains, in the view of new institutional economics, can increase transaction costs and reduce or completely hinder the efforts of transformation of the production process, due essentially to uncertainty. There is a clear empirical evidence pointing to the growth-enhancing effects of reforms of political institutions in Africa both at macro and micro levels (Bates et al., 2013).

The fact that the empirical determinants of fragility have included socioeconomic aspects means that the relationship of fragility and economic growth is mutually reinforcing. The link between poverty and instability is a documented fact, in that not only does armed violence take place in low-income countries (Cilliers & Sisk, 2013), there are more socio-political unrests in times of significant economic down-turns. The deep relationship between fragility and the underlying determinants of growth and development supposes a complex and bidirectional relationship between fragility and economic growth.

Cilliers and Sisk (2013), in their discussion on long-term state fragility in Africa, identify high levels of income inequality and the related skewedness in allocation of benefits and resources along ethnic/tribal and geographic entities, as key distinguishing characteristics of states in fragility. This identification agrees with the discussion of which socio-political tensions caused by such inequality underlie low growth (Alesina & Perotti, 1996), and now, also fragility. However, inequality also sets the stage for adoption of distortionary policies and polarized power relations which in turn fuel conflicts and reinforce fragility.

Although the relationship between fragility and growth may be a very interdependent one, that with inclusive growth may be less endogenous. In causality terms, it can be justified to posit that inclusive growth will determine fragility much more strongly than the other way round. Hence, the few existing literature show that the relationship of poverty and inequality on inclusivity of growth has always preceded state fragility

(Ngepah, 2017; Cilliers & Sisk, 2013; Kaplan, 2008; World Bank, 2016). For example, it is a stylized fact that, except in a few cases of religious ideological hysteresis, the onset of events that kick-start the process of fragility is always a sense of marginalization on one or a few groups by others in the wealth creation and or distribution process. From the recent case of Cameroon where the Anglophones feel excluded somewhat from the resources and processes of wealth creation and distribution, to that of the DRC, Somalia, Zimbabwe, etc., we can trace lack of inclusivity of growth, or at least of the fundamentals for growth, at the root of fragility.

Two key arguments of inclusivity of growth therefore are poverty and inequality. Lack of inclusive growth can drive both high fragility and low ensuing growth, resulting in a vicious cycle of a highly fragile society with very low or negative economic growth. In this respect, the relationship of poverty and inequality on growth itself is paramount in understanding how exclusion in the process of wealth creation and the distribution of the wealth can stifle the socioeconomic development of a state. Alesina and Perotti (1996) have argued that higher political instability can result from high inequality, the resulting uncertainty then reduces investment levels. Rodrik (1996) has confirmed that divided societies with weak institutions also witnessed the sharpest fall in post 1975 growth. This situation brought about a weakness in their capacity to effectively respond to external shocks. This element does not only affect growth, but directly impacts the fragility of the state as well.

Modelling of fragility in existing literature

Various studies have looked at the determinants of fragility. They do so either in descriptive or econometric frameworks. Studies that have used the descriptive frameworks (e.g., Maier, 2010; Cilliers & Sisk, 2013; Kaplan, 2008) aim to establish intuitively, and by borrowing from previous literature, the theoretical determinants of fragility, without some formal statistical or econometric tests. This exploratory approach has ended up with some set of possible determinants of fragility. The notable determinants according to this approach are employment and job creation (Haider, 2009); infrastructure development (Jones and Howarth, 2012); Foreign Direct Investment (Zhu, 2007; EC, 2009); trade openness (EC, 2009) and the problems of reliance on natural resources (Mcloughlin, 2012).

Another set of studies are those that use econometric frameworks for the assessment of the determinants of fragility. Two available examples that we look at are the works of Carment et al. (2008) and Feeney et al. (2015).

Carment et al. (2008) specify a parsimonious model of state fragility, in which the regressors are selected from a list of possible determinants from previous literature. They do the selection by taking bivariate correlations of a fragility measure and a given candidate regressor. Their statistical approach leads to the inclusion of income levels (income); economic growth (growth); democracy (demo); trade openness (trade) for a given country. They argue that the absence of direct formal models of

state fragility justifies the use of this approach to selection of the variables. Based on this, Carment et al. (2008) specify a cross-country econometric equation for fragility as follows:

$$fragility_i = \beta_0 + \beta_1 income_i + \beta_2 growth_i + \beta_3 demo_i + \beta_4 trade_i + \varepsilon_i \quad (1)$$

In the framework, β is a vector that contains coefficients to be estimated and ε is an error term assumed to be independently and identically distributed (iid). The authors adopt the Carleton's Country Indicators for Foreign Policy (CIFP) index and the quintile method of the OECD to convert the measures to binary. They extend the baseline model in (1) with some interactions to account for non-linearity and a set of other variables that appear significant in previous literature, such as human rights empowerment index, human development index, ethnic diversity and ethnic risk. They find that income levels, economic growth, democracy, trade openness, human rights empowerment index and ethnic diversity and risk variables are the key determinants of fragility. Their analysis also confirms an inverted-U relationship between fragility and democracy. More importantly for reversing fragility in Africa, they find that of all the regional dummies, only the African dummy is high and strongly significant in causing fragility, underscoring the emphasis of this project on Africa.

Feeney et al. (2015) start the econometric exercise by stating an empirical model in which fragility ($\gamma_{i,t}$) of country *i* at time period *t* depends on a set of factors borrowed from previous literature. These factors are colonial dummies (C); a vector of natural disasters (D); a dummy for Small Islands Developing States (SIDS); and a vector (Z) of other variables grouped into fundamentals for stronger policies and institutional contexts, and fractionalization. They rely on previous studies to select democracy, per capita GDP, economic growth, primary school enrolments and population as fundamentals for strong policies and institutional environment. Their fractionalization indicators include ethnic, religious and linguistic dimensions.

Based on these, Feeney et al. (2015) specify the following panel econometric model:

$$y_{it} = \alpha_0 + \alpha_1 SIDS_{it} + \beta' C_{it} + \delta' D_{it} + \varphi' Z_{it} + \gamma_t + u_{it} \quad (2)$$

The framework contains α, β, δ, φ as vectors of parameters to be estimated, γ_t as fixed time effects and u_{it} as an IID error term. They use the Country Policy and Institutional Assessment (CPIA) scores, and the thresholds of fragility, defined by the World Bank at the 3.2 CPIA score cut-off point, and the OECD's quintile approach. The resulting dependent variables are binary and therefore, they apply a logit estimator. To overcome endogeneity, they lag income levels, economic growth and democracy variables. Feeney

et al. (2015) conclude based on their findings, that democracy, income levels, economic growth, levels of education, country size, natural resource rents and being a SIDS are the major determinants of fragility.

We can observe two facts from the findings of both Carment et al. (2008) and Feeney et al. (2015). First, that income levels and economic growth are important for curbing or reversing fragility. This implies that policies that bring about economic growth, and consequently higher levels of incomes, are fundamental in states marked by fragility. This agrees with the conclusion of Dollar and Kraay (2002), that growth is good for the poor. The second observation is that income levels and growth alone are necessary, but not sufficient to reduce or reverse fragility. A set of other factors are necessary to complement income levels and economic growth for fragility to reduce or be reversed. In the next section, we will argue in a new framework, that these additional factors are variables that qualify the quality of growth, i.e., the ability for that growth to reach all segments of the population. Finally, it is also apparent that there is no systematic formal theoretical basis for a framework of modelling fragility.

Proposition of a framework for modelling state fragility

Observing from the above econometric papers, we deduce that fragility determinants are grouped into three set of factors. These factors are the level of income, the change in income, and a set of factors that we qualify as determinants of the nature of growth. The argument put forward here is that levels of income and income growth are necessary, but not sufficient conditions for a state to be in the non-fragile trajectory. The host of other factors documented in previous literature are those that affect the level of distribution of the growth, either from a government policy perspective or from market forces perspective. We can further collapse these three sets into two. One is the level of income, and the other is the magnitude and spread of the variations in this income.

From here, we make two propositions:

i. *The level of income is a necessary but an insufficient condition for addressing fragility in fragile states.* This means that high income countries may be stable in terms of fragility, but they are still vulnerable to socio-political forces that brew instability depending on what happens to the level of income in the next period. This leads to proposition two.

ii. *Economic growth must lead to inclusivity for fragility to be definitely reversed*. The eyes of socioeconomic agents are not just on the level of income, but on what happens to that income in the next period and how they are affected. In this respect, the other factors that appear significant in the fragility function are only capturing the extent of inclusivity of the ensuing growth. The response of these agents to changes in the national wealth depends on how each of them is personally affected and can be better understood through the prospect theory framework. In this respect,

it can be proposed that in addition to the level of income, the other state variables in the fragility function would be poverty and inequality, of both opportunities and outcomes.

Prospect theory and the formalization of the fragility-generating process

Before we go to the fundamentals of the proposed theoretical framework, it is important to briefly present the basis of the prospect theory as distinct from the conventional expected utility theory.

The traditional welfare analyses present an individual (i) with consumption (c_{it}) at time period t with utility $u(c_{it})$ such that $u' > 0$ $u'' < 0$. Such a function predicts one's preferences and the level of wellbeing. For a cardinal and interpersonal comparability assumptions, the social welfare function can be obtained from the aggregation of individual utilities as $SWF_t = \sum_i u(c_{it})$. The intertemporal difference in social welfare is $\Delta SWF_t = \sum_i [u(c_{it}) - u(c_{it-1})]$. In an uncertain world, the utility function will take the form of expected utility with outcomes weighted with their respective probabilities.

In contrast to the expected utility approach is the prospect theory which is founded on the following principles:

i. Reference-dependent welfare measures, relying not on levels of consumption/income, but on the changes relative to the reference point. The reference point could be income level at an immediate past, say last period, or some community-level mean or reference.

ii. A negative growth rate of a given magnitude has a higher impact on individual's welfare than a positive growth rate of the same magnitude. That is, consumers or agents are loss-averse.

iii. There is diminishing marginal utility and disutility, such that the utility function could be convex at points of losses.

iv. Probability distributions are subjective, such that individuals give too much weight to less probable outcomes and too little weight to highly probable outcomes.

Let this new value function based on the prospect theory be . If one assumes that the reference ($\bar{c}_{it}$) is the immediate past or the income level of the high-income earners, or the mean of the neighbourhood, then the utility function according to the prospect theory is:

$$v = v(c_{it} - \bar{c}_{it}) \tag{3}$$

Where, $v'(c) > 0;\ v'(-c) \geq v'(c);\ v'' > 0\ for\ c < 0;\ v'' < 0\ for\ c > 0$, which are the mathematical equivalences of conditions i to iii.

The only difficulty with the prospect theory is that it is based on changes in welfare rather than levels of it. This is appropriate to model the effect of inequality. However, absolute poverty can only be captured by absolute levels of welfare, though below a certain threshold. In addition, we have already argued, based on previous literature, that there are two parts to the fundamental arguments of fragility. One is the level of welfare or income, and the other is not just the change in income, but how the effects of the change are spread across the individuals of the society. This reasoning necessitates a function that combines levels with changes. This problem is overcome in the same way as Jantii et al. (2015). They adopt a hybrid function $h(c_{it})$, based on the reference-dependent utility function proposed by Koszegi and Rabin (2006). In the formulation, the value function has two parts. One is the level of welfare and the other is the change in state, relative to a reference point. The hybrid function is of the form:

$$h(c_{it}) = u(c_{it}) + v(c_{it} - \bar{c}_{it}) \tag{4}$$

This form allows defining an individual's wellbeing as the sum of utility from current consumption plus the deviation from the reference point.

The fragility-generating decisions

In a prospect theory economy, losers are likely to overreact following (or at the expectation of) a loss relative to a gain. In a situation where the political process, economic opportunities and the wealth of the nation are not benefitting everyone, the losers become a greater threat to the winners, much more than the winners are willing to compensate the losers, if any. Consider a monotonic fragility function (), where higher values of the function indicate the deterioration of the society through increased fragility. Suppose further, that there is a certain societal welfare into which every member of the society contributes either negatively or positively according to their respective abilities and motivation depending on their relative position in the welfare rank at each round of the wealth creation game. Consider three agents of the society: the household, the firm and the government.

The household sells labour to the labour market. The labour market may take the form of self-employment or a contractual employment. The household gains wages from the sale of labour, which it uses to obtain consumptions to attain a higher level of welfare called development. The household will get a good return for it's labour if the necessary resources are accessible to it and if the playing field is level enough, that is the market forces and the remainder of the societal forces are fair, such that the household gets an equivalent wage to the labour sold (L). At each point, the societal conditions are

such that the individual (i) in a given household is either employed, or unemployed/ underemployed, depending on the opportunities and resources available to him. If he is not employed, relative to the employed members of his immediate society, he is at the losing end and therefore contributes negatively to the national welfare (Y), consequently, we observe a high level of fragility (φ), otherwise low.

The firm buys labour to produce goods and services. The firm manager is a highly skilled individual whose productivity is high. The more productive labour is, the more the profit of the firm increases. So the firm watches the marginal productivity of labour to decide whether to contribute to Y positively or negatively. There are therefore two types of productivities at the margin, that of the high-skilled labour (ρ^s) at managerial position and low skilled labour (ρ^l) at the base. The reference productivity growth of the firm owner is ρ^s such that he contributes to Y negatively if $\rho_{it}^{l} < \rho_{it}^{s}$ and positive otherwise. We suppose that the firm's contribution to Y is either to increase the level of low-skill employment, or increase low skill wages.

The government: If we admit that there are market failures, such that some of the parties get less than their marginal efforts, then the government is the third societal agent who corrects these failures through active and tacit redistribution policies. A situation of market failure may arise such that although the labourer might put his best effort, his wage is not commensurate to his marginal productivity. In which case, he is disgruntled and contributes negatively to the societal welfare Y. The government therefore watches the rate of growth of the incomes of individuals at the bottom of the distribution (θ_{it}^{b}), relative to a reference, which is that of an individual at the top (θ_{it}^{t}). Therefore, if $\theta_{it}^{b} < \theta_{it}^{t}$ and the government does not take action due to poor governance or any other cause, then those at the bottom take a loss. The losers who are over-zealous to destroy due to their overvaluation of the losses will contribute negatively to Y and we will observe a higher φ. This relative deprivation can be captured with various types of inequalities such as income (Gini, Palma, etc.) and gender inequality.

Formally, therefore, we propose a fragility function at the aggregate level as follows:

$$\varphi_t = f[Y_t + (Y_t - Y_{t-1})] \tag{5}$$

The first term in the function is the level of national income or welfare of a country at time t, and the second term is an indicator of the nature of growth of the welfare, which aggregating from individual behaviours, translates into efforts in state building in a positive or a negative way. This is equivalent to saying that fragility is determined by the level of income, and the inclusivity of the process that augments the income.

If the process of $(Y_t - Y_{t-1})$ happens such that the labour supplier is a loser, that is he is either unemployed or underemployed, then his share in the state building effort is

negative. This means that any process that increases the share of the employed in the total labour force will reduce fragility through higher positive efforts among those who were previously unemployed or underemployed. Similarly, any process that increases the share of productivity of low skilled workers relative to high skilled will reduce fragility through extra effort from employers who are motivated to employ more and to pay more. Finally, any process that increases the income of those at the lower end of the distribution relative to the top, will lead to less fragility through the positive effort of those who see gains in their relative state.

Putting all these together, a fragility function is as follows:

$$\varphi_t = f[Y_t + (Y_t - Y_{t-1})] = f(Y, \frac{L}{P}, \frac{\rho^l}{\rho^s}, \frac{\theta^b}{\theta^t}) \quad (6)$$

Assuming a basic linear functional form, with economic growth (g), we can model fragility as:

$$\varphi_t = \beta_0 + \beta_1 Y_t + \beta_2\, g_t + \beta_3\, (\frac{L}{P})_t + \beta_4 (\frac{\rho^l}{\rho^s})_t + \beta_5 (\frac{\theta^b}{\theta^t})_t + \varepsilon_t \quad (7)$$

We can also extend Equation 7 for non-linearity by adding various squared terms. Interaction terms of the fundamental variables with some key policy and environmental factors can be added for policy analyses. Government policies are therefore either enhancing the level of income, through a conducive environment for investment; improving employment through the provision of services and opportunities for individuals to occupy themselves with productive activities or sell their labour to employers such that there are no underemployments; enhancing the productivity of employed labour force through the provision of skills development opportunities and investment in health and human capital; watch to correct market imbalances through various social and economic policies, or active redistribution to provide social securities though the fiscus.

The role of poverty

Although Equation 7 expresses fragility in terms of various inequalities, it is very plausible that fragility may be more a result of the frustrations of absolute depravities than relative losses in the income distribution process. For this purpose, we introduce poverty as a possible determinant. The argument for poverty to be a cause of fragility can easily follow the same prospect-theoretical reasoning as with inequality. In the framework, the absolutely poor will value their depravity in the negative sense more than the rich of equivalent gain in the wealth process. As such, instead of participating in the nation-building they contribute negatively in the size of Y. The process of unemployment and

poverty also generates dependency of the unemployed on those who may be employed, adding to the strain on the limited resources of poor households. For this reason, we also introduce adult dependency ratio as one of the determinants of fragility for the same underlying reason as with poverty.

An index of economic exclusion

The different inequality and depravity variables included in the model relate to one another in complex ways. As a result, it is not easy to precisely decipher the contribution of each with exactitude. Since we are interested in how the actions of those excluded from the national wealth creation process will affect the societal cohesion and cause state fragility, we finally propose an index of economic exclusion, using principal component analyses. Due to data dearth, this index may be preferable since it combines all the arguments into one. The resulting model will be more parsimonious with less statistical noise.

Estimating the effects

Given the kind of data we have available, the model in Equation 7 can be specified in a panel form for a country c and time t, to exploit the panel data properties.

$$\varphi_{ct} = \beta_0 + \beta_1 Y_{ct} + \beta_2\, g_{ct} + \beta_3 \left(\frac{L}{P}\right)_{ct} + \beta_4 \left(\frac{\rho^l}{\rho^s}\right)_{ct} + \beta_5 \left(\frac{\theta^b}{\theta^t}\right)_{ct} + \varepsilon_{ct} \quad (8)$$

Where, is a composite error term, *P* is the working age population. To Equation 8 we introduce various inequality and depravity measures in different combinations depending on the performance of the resulting model. Finally, we use the economic exclusion measure in the following specification.

$$\varphi_{ct} = \beta_0 + \beta_1 Y_{ct} + \beta_2\, g_{ct} + \beta_3\, excl_{ct} + \varepsilon_{ct} \quad (9)$$

Variables and data

Fragility (φ): There are differing versions of definition of fragility. For the purpose of analytical engagement, we prefer (though not exclusively) the view of OECD (2009), in which fragility refers to a situation in which a *state lacks political will and/or capacity to provide basic functions needed for poverty reduction, development and to safeguard the security and human rights of their populations* (OECD, 2009: p76). Three main sources of indicators of fragility can be found in literature. One is the Failed State Index (SFI) computed by Fund for Peace, comprising social, economic and political indicators. The other is the Country Policy and Institutional Assessment (CPIA) undertaken by the World Bank. It comprises elements of economic management; structural policies; social inclusion and equity; and public sector management and institutions. The challenge

of using these in analyses for Africa is that they start from 2005 and their span is thus limited. Coupled with poor span of data for other variables, we prefer an indicator that spans a longer period in order to benefit from a larger sample size.

The third source of state fragility indicators is the Centre for Systemic Peace. Their state fragility index is an aggregate index of four constituent dimensions: security, political, economic and social. It is a combination of state effectiveness and legitimacy scores on the four dimensions. It is a continuous variable ranging from '0' for no fragility to 25 for the most fragile. The index spans 1995 to 2017. This large span makes it very useful in African context analyses where data span of other variables is an issue. We also use a dummy classification of 1 if a country is in a fragile situation and 0 if not. This can be obtained by applying the OECD quintile method of classifying countries as fragile if they belong to the two top quintiles.

Level of income (Y): This variable can be proxied by the level of GDP per capita obtained from the World Development Indicators. An increase in this variable is expected to reduce fragility.

Share of employment ($\frac{L}{P}$): This variable is the share of employed people in the total population. To calculate this, the number of employed and the working age population are sourced from the World Development Indicators (WDI). An increase in this variable is expected to reduce fragility

Ratio of bottom to top income $(\frac{\theta^B}{\theta^T})$***:*** This variable is a measure of income inequality (the Palma ratio). Palma (2011) observe that the income shares of the middle 50% of the population (that is deciles 5 to 9) tend to be stable at approximately 50% of total income. The remaining 50% of income is generally shared between the top 10% and the bottom 40% of the population. Hence the Palma ratio, which is the ratio of the income share of the top 10% of the population to that of the bottom 40% of the population. We use the inverse of the Palma such that an increase signifies a relative improvement in the conditions of the poor. An increase implies a reduction in fragility and vice versa. We obtain the income shares from the World Bank's POVCALNET and the World Inequality and Income Distribution database of the UNU-WIDER.

Relative productivity ($\frac{\rho^l}{\rho^s}$): This is the measure of the ratio of the productivity of low-skill labour force to that of high skilled labour force. It is basically the response of output to the respective labour types. So we apply a rolling window regression to obtain a series of productivity responses to low and high skills for each country, and generate the ratio to replace in Equation 9. The equation to be estimated in rolling window is as follows:

$$Y_t = A_t \ e^{\rho^s lnLS_t + \rho^l ln HS_t} K_t^{\alpha_1} L_t^{\alpha_2} \quad (10)$$

Where, *ln* is natural log, *LS* and *HS* are low skill (proxy by share of population with no education and uncompleted primary education) and high skill (proxied by the share of population with completed primary, total secondary and tertiary). α_1, α_2 are parameters. Transforming the equation to per worker to obtain productivities, and taking logs to linearize yield the following:

$$lny_t = a_t + \rho^s lnLS_t + \rho^l lnHS_t + \alpha_1 lnk_t + \varepsilon_t \quad (11)$$

The skills levels are from Barro-Lee database; capital, labour and labour productivity are from the WDI. Barro-Lee dataset is in five year averages and ends in 2010. We apply auto regressive regression with lag lengths chosen using the Akaike information criterion (AIC). We use the fitted autoregressive function to predict the missing values to 2015. We use principal components analyses (PCA) to generate an indicator of low skill using the share of population with no education, primary education and average years of primary schooling. Similarly, we generate an indicator of high skill using the share of population with secondary and tertiary educations, and the average years of secondary and tertiary schooling.

A number of other variables like gender inequality, adult dependency ratio and a host of policy variables together with those explained above are summarized in Table 1.

Table 1: Variables and data sources

Variable	Name and measure	Source	Impact
Dependent variables			
SFI	State fragility index: We use both the disaggregated dimensions and the aggregate index of four constituent dimensions: security, political, economic and social. It is a combination of state effectiveness and legitimacy scores on the four dimensions. It is a continuous variable ranging from '0' for no fragility to 25 for the most fragile	Centre for Systemic Peace	
SFI_B	Binary SFI: "1" for belonging to the top two quintiles and "0" otherwise		

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Table 1 Continued

Variable	Name and measure	Source	Impact
Theoretical determinants (income, growth and exclusion)			
RGDPPP	Real GDP per person: GDP per capita (constant 2010 US$)	WDI	-ve
GDPG	GDP growth rate: GDP growth (annual %)	WDI	-ve
PGAP	Productivity gap: Productivity response to high human capital (share of completed primary, total secondary and tertiary schooling in the population) as a ratio of that of low human capital (share of no schooling, total primary minus completed primary, in the population). Time series of coefficients were obtained by rolling windows regression for each country	HC from Barro-Lee	+ve
LABSH	Labour share in population: Employment share times labour force divided by population	ILO & WDI	-ve
GINI	Gini Coefficient		+ve
PALMA	Palma ratio: Income share of the top 10% of population divided by that of the bottom 40%		+ve
POV	Poverty index: Principal components analyses (PCA) of poverty head count, gap and squared gap	POVCALNET	+ve
GENI	Gender inequality: Ratio of male labour force participation to female labour force participation	WDI	+ve
EXCL	Economic exclusion index: PCA of poverty index, Gini, Palma, adult dependency ratio, productivity gap and (1-labsh)		+ve
ADRT	Adult dependency ratio	WDI	+ve
Policy levers			
DEMO	Democracy indicator: Aggregate score for all categories on democracy arguments	Freedom House	-ve
INFL	Inflation: Inflation, consumer prices (annual %)	WDI	+ve

continued next page

Table 1 Continued

Variable	Name and measure	Source	Impact
Policy levers			
INFR	Infrastructure: Derived from: - quality of overall infrastructure; quality of roads; quality of railroad infrastructure; quality of port infrastructure; quality of air transport infrastructure; available airline seat kilometres; quality of electricity supply; fixed telephone lines and mobile telephone subscriptions	AFDI	-ve
M/Y	Import share of GDP	WDI	-ve
X/Y	Export share of GDP	WDI	-ve
TRADE	Total trade share of GDP	WDI	-ve
TARIFF	Tariff rate, applied, simple mean, all products (%)	WDI	+ve
K	Capital: Gross fixed capital formation (% of GDP)	WDI	-ve
K/L	Capital labour ratio	WDI	+ve
YOSH	Share of youth (15-34 years) in the population	WDI	
GEEXY	Government expenditure on education, total (% of GDP)	WDI	-ve
THEXY	Current health expenditure (% of GDP)	WDI	-ve
GHEXY	Domestic general government health expenditure (% of GDP)	WDI	-ve
GGCY	General government final consumption expenditure (annual % growth)	WDI	-ve
FDI	Foreign direct investment, net inflows (% of GDP)	WDI	-ve
NRR	Total natural resources rents (% of GDP)	WDI	+ve

Estimation technique

We start the estimation of equations 8 and 9 and the different sub-specifications with the basic pooled ordinary least square (POLS). However, the relationship between the variables would raise a number of econometric issues, including country heterogeneity and endogeneity. We add fixed effects, instrumental variable regressions, systems GMM and pooled mean group estimators in dynamic fixed effects. We also estimate the variables in first difference and at level to distinguish between short- and long-run effects. Lastly, we use the binary fragility measure to estimate panel probit, with the lags of regressors. All the basic models of FE and POLS have been specified with lagged regressors to minimize the effect of endogeneity.

Results and discussion

Before interpreting and discussing the estimation outputs, we first present an exploratory analysis of the data by way of simple summary statistics, correlation matrix and scatter plots. Following this, the econometric results are presented with various sets of policy proposals and some country specificities for selected countries.

Descriptive statistics

The descriptive statistics comprises summary statistics in Table 2, correlation coefficients in Table A1 in the appendix and scatter graphs in Figure 1.

Table 2 presents summary statistics by fragile and non-fragile groups following the binary variable of fragility measure. Any fragility score of above 17 (the top 2 quintiles) is considered fragile, and otherwise non-fragile. It is interesting to note that fragile states are significantly lower in terms of per capita income, but the differences in average growth rates are not very significant. This immediately suggests that low levels of income are more of an issue than growth in the income. Labour shares in fragile states are relatively higher (for the 3.9%) compared to those of non-fragile states (35%). Productivity gap is far higher in non-fragile states on average, almost double that of fragile states (43%). Gini-coefficients are marginally higher in non-fragile states on average, and also the Palma. These variables may therefore not be considered the main determinants of fragility in a strong sense, except for income. However, the combined poverty index, adult dependency rate and the economic exclusion index are significantly higher on average within the fragile group relative to the non-fragile. We therefore expect that absolute deprivations would triumph in determining fragility than relative measures and income growth. These agree with the correlation coefficients in Table A1 (in the appendix), where income levels are negatively associated with fragility in a significant way. Poverty, adult dependency rate and the exclusion index are significantly associated with higher fragility.

In terms of policy variables, the index for democracy is higher in non-fragile states. They also present low inflation, higher trade shares (especially exports), lower levels of tariff barriers, higher productive capital contents and infrastructure endowments, far higher FDI inflows, relatively lower levels of natural resource rents and higher shares of government spending on social programmes in GDP. The correlation coefficients (Table A1 in the appendix) somewhat agree with the policy variables. Democracy, all trade measures, capital endowments and infrastructure, and government health expenditures are all significantly associated with lower levels of fragility. Inflation and natural resource rents tend to match higher levels of fragility significantly. Some variables like government consumption expenditure, tariffs on international trade and government educational spending do not associate directly with fragility, but seem to relate with key determinants of fragility. This explains the reason why policy analysis is undertaken within the respective frameworks of determinants of fragility, and not necessarily on fragility directly.

Table 2: Summary statistics

Variable	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
	Fragile states				Non-fragile states			
SFI	18.71	1.07	18.00	21.00	11.94	4.00	3.00	17.00
RGDP	318.93	150.90	223.40	683.00	2179.79	2171.01	391.71	7582.55
RGDPG	4.55	3.71	-3.90	11.17	5.28	3.36	-7.65	19.68
P.GAP	0.43	0.32	-0.54	0.91	0.82	1.80	-1.22	12.21
LABSH	43.86	4.02	33.08	49.68	34.99	6.99	25.13	50.52
GINI	0.38	0.06	0.32	0.48	0.45	0.08	0.32	0.63
PALMA	1.56	1.01	0.84	3.43	2.76	1.86	0.47	11.85
POV	3.93	0.50	2.35	4.39	1.72	1.34	0.00	4.14
GENI	1.01	0.13	0.95	1.46	1.62	0.98	0.89	5.36
EXCL	4.49	0.31	3.73	4.84	2.53	1.24	0.00	4.27
ADRT	88.17	5.98	79.18	102.08	77.43	16.33	48.49	102.21
DEMO	40.57	10.81	32.00	72.00	55.81	20.21	17.00	88.00
INFL	9.78	5.89	2.75	24.41	5.84	4.38	-2.41	26.24
M/Y	3.10E+06	7.81E+05	2.34E+06	5.49E+06	8.62E+06	5.79E+06	7.99E+05	2.86E+07
X/Y	1.15E+06	9.02E+05	5.21E+05	4.12E+06	6.42E+06	4.58E+06	6.62E+05	1.67E+07
TRADE	4.72E+08	7.04E+08	1.16E+08	2.82E+09	1.80E+10	3.04E+10	6.44E+08	1.24E+11
TARIFF	13.23	3.62	9.99	19.73	11.54	3.54	2.54	19.65

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Table 2 Continued

Variable	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
	Fragile states				Non-fragile states			
K	5.46E+08	5.03E+08	2.10E+08	2.10E+09	1.53E+10	2.36E+10	-1.10E+09	9.70E+10
INFR	2.22	0.31	1.71	3.00	2.95	0.62	1.93	4.63
YSH	29.25	1.22	26.25	31.11	28.75	1.67	25.82	32.57
GEEX	5.19	1.07	3.48	6.79	5.23	2.58	0.11	11.98
THEXY	8.87	1.77	4.40	11.28	6.02	1.95	3.17	14.25
GHEXY	1.98	0.80	0.47	3.61	2.17	1.17	0.30	4.98
GCCY	22.61	5.97	13.43	31.57	17.56	6.39	5.92	38.43
FDI	1.25	1.43	0.00	4.30	4.69	6.40	-0.32	41.81
K/L	1.04	0.39	0.25	1.64	0.13	0.13	-0.43	0.69
NRR	19.30	9.25	5.57	33.39	11.18	10.10	0.74	54.79

Figure 1: Scatter plots of economic exclusion and components

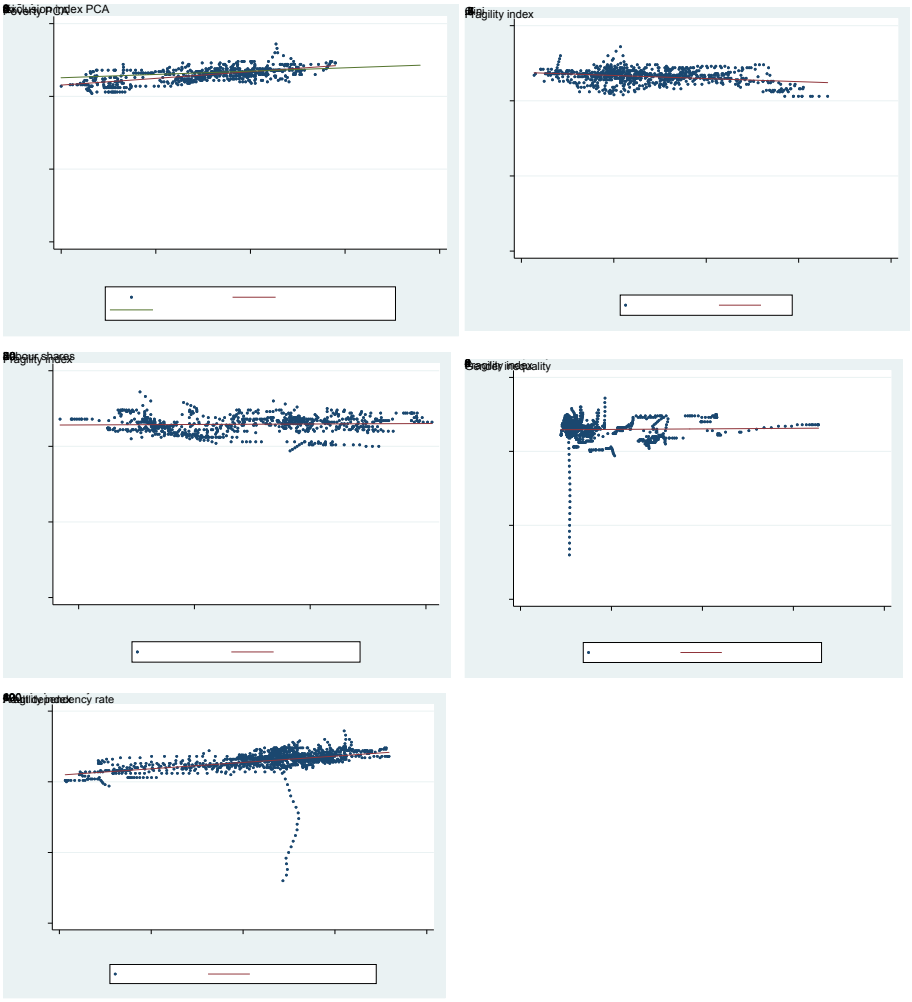

Figure 1 is a set of graphs relating various theoretical determinants of fragility to the state fragility index in scatter plots. The first (upper left plot) shows a strong positive relationship between exclusion and fragility and poverty and fragility. Adult dependency ratio also fits positively with fragility, while Gini, labour shares and gender inequality appears somewhat flat. Notwithstanding, the true nature of the relationship can only be determined in appropriate econometric frameworks, where statistical issues are controlled for.

Estimation results

The results are presented first by various dimensions of exclusion, followed by the exclusion index, and finally for various policy models. A battery of estimation techniques is employed. The presentation begins with basic techniques, then more advanced options like instrumental variable approach, system generalized methods of moments (SGMM), pooled mean group estimator in dynamic fixed effect specification and various panel probit models. We tried to distinguish short- and long-run effects.

Results with various dimensions of exclusion

Table 3 presents the POLS, panel fixed effects (PFE) with contemporaneous and lagged first difference of the regressions. The first differencing gives the short-run and the lagging attempts to attenuate endogeneity bias. Judging from the F-statistics and the R-squares, the models appear acceptable, although not many variables are significant. The coefficients of poverty, dependency rate, and labour shares are significant in the contemporaneous specifications, but in the lag model, only inequality is significantly positive, with a magnitude of close to 10. The short-run probit models of column 1 of Table A2 (in the appendix), equally with lagged regressors appear to support the interpretation that inequality and poverty both matter in the short run in determining fragility. It is worth noting that the Palma ratio, though significant in the probit model, has weak magnitude and is insignificant in all the short-run models. Contrary to our expectation, fragility responds more to a measure of average inequality across the entire distribution, than extreme measures like Palma. This suggests that a very small income gap in the presence of high poverty can spark social instability.

Tables 4 and A3 (in the appendix) both suggest that levels of income, poverty, inequality, productivity gaps, adult dependency ratio, and labour shares matter significantly for fragility. Higher levels of income tend to decrease fragility indicators, while inequality, poverty, productivity gap, and adult dependency ratio tend to increase it. In the presence of poverty, labour shares increase fragility. This may be explained by the possibility that though employment levels may be high in fragile states, as in Table 2, this is likely made of precarious jobs that do not increase income significantly, and therefore leave the poor in poverty traps. The coefficients are also confirmed in panel instrumental variable regressions, and to some extent the dynamic fixed effects in Table A4 (in the appendix). In addressing fragility issues, the quality of employment will therefore be more important than employment itself. The dynamic fixed effect also brings to light the importance of gender inequality, measured in terms of the male advantage over females in the labour market. This variable tends to increase fragility. Therefore, gender balance in the labour market can enhance social stability.

Table 3: Basic estimations in first difference

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	**POLS**	**POLS**	**FE**	**FE**	**FE**	**FE**	**FE - LAGS**	**FE - LAGS**
D.RGDPPP	-0.0008	-0.0006	-0.0008	-0.0004	-0.0006	-0.0008	-0.0004	-0.0003
	(0.0006)	(0.0006)	(0.0007)	(0.0007)	(0.0007)	(0.0007)	(0.0007)	(0.0007)
D.GDPG	-0.0105*	-0.0089	-0.0103	-0.0092	-0.0082		0.0019	0.0021
	(0.0063)	(0.0060)	(0.0063)	(0.0061)	(0.0063)		(0.0064)	(0.0064)
D.PGAP	0.0055	0.0043	0.0036	0.0026	0.0013	0.0005	-0.0166	-0.0171
	(0.0231)	(0.0223)	(0.0231)	(0.0226)	(0.0230)	(0.0231)	(0.0232)	(0.0232)
D.LABSH	-0.1170**	-0.1292***	-0.1062**	-0.1075**	-0.1077**	-0.1170**	-0.0000	0.0081
	(0.0473)	(0.0443)	(0.0470)	(0.0452)	(0.0468)	(0.0464)	(0.0467)	(0.0471)
D.GINI	4.6880		3.8652		3.8639	6.0454	9.8718*	10.9106**
	(5.0997)		(5.1527)		(5.1267)	(5.4406)	(5.1574)	(5.4355)
D.ADRT	0.0757		0.0913*	0.0906*	0.0925*			0.0746
	(0.0483)		(0.0551)	(0.0524)	(0.0548)			(0.0552)
D.POV		0.6606***		0.6292**	0.6571**	0.6710**	0.1536	0.1219
		(0.2426)		(0.2592)	(0.2683)	(0.2712)	(0.2703)	(0.2735)
PALMA						-0.0360		
						(0.0324)		

continued next page

Table 3 Continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	**POLS**	**POLS**	**FE**	**FE**	**FE**	**FE**	**FE - LAGS**	**FE - LAGS**
D.(POV#.GINI)						50.0968		28.7121
						(35.1685)		(35.3684)
CONSTANT	-0.2331	-0.2803	-0.2278	-0.2395	-0.2415	-0.1286	-0.3307	-0.2819
	(0.2160)	(0.2074)	(0.2126)	(0.2082)	(0.2116)	(0.2484)	(0.2115)	(0.2137)
Obs.	544	594	544	572	544	544	544	544
R-sq.	0.0687	0.0755	0.0680	0.0791	0.0793	0.0768	0.0466	0.0513
Number of state			22	22	22	22	22	22
COUNTRY FE	NO	NO	YES	YES	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4: Fixed effects in level

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARariables	**FE**	**FE**	**FE**	**FE**	**FE**	**FE**	**FE**
RGDPPP	-0.0014***	-0.0018***	-0.0017***	-0.0010***	-0.0021***	-0.0021***	-0.0013***
	(0.0004)	(0.0003)	(0.0003)	(0.0003)	(0.0004)	(0.0004)	(0.0003)
GDPG	-0.0123	-0.0122	-0.0079	-0.0068	-0.0221	0.0128	0.0120
	(0.0183)	(0.0188)	(0.0186)	(0.0183)	(0.0178)	(0.0402)	(0.0967)
POV	0.8903***		0.6771***	0.9326***	1.8136***	1.8370***	3.3783***
	(0.1553)		(0.1401)	(0.1525)	(0.2102)	(0.2139)	(0.5536)
GINI	15.8605***				28.6111***	28.3746***	
	(4.9978)				(5.3451)	(5.3591)	
PALMA		0.1425***			0.4096***	0.4439***	
		(0.0523)			(0.0951)	(0.0996)	
ADRT	0.0936***			0.1223***	0.0808***	0.0804***	0.1127***
	(0.0275)			(0.0262)	(0.0266)	(0.0267)	(0.0252)
C.POV1#C.GDPG						-0.0028	
						(0.0095)	
C.GDPG#C.PALMA						-0.0072	
						(0.0068)	

continued next page

Table 4 Continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variables	**FE**	**FE**	**FE**	**FE**	**FE**	**FE**	**FE**
C.POV1#C.PALMA					-0.1890***	-0.1958***	
					(0.0305)	(0.0310)	
PGAP	0.0954***	0.0338	0.0634**	0.0992***	0.1199***	0.1175***	
	(0.0348)	(0.0317)	(0.0318)	(0.0336)	(0.0338)	(0.0340)	
LABSH	0.0057	0.0538	-0.0111	0.0333	0.0184	0.0199	0.2125***
	(0.0612)	(0.0574)	(0.0560)	(0.0582)	(0.0608)	(0.0609)	(0.0687)
C.GDPG#C.PGAP							
C.PGAP#C.POV							
C.PGAP#C.GINI							
CONS.	0.6367	17.6953***	18.2679***	3.5823	-5.4696	-5.5167	-0.4427
	(4.0968)	(1.9130)	(1.8094)	(3.7040)	(4.0744)	(4.0771)	(3.8386)
Obs.	568	616	616	594	568	568	594
R-sq.	0.4228	0.3988	0.4151	0.4299	0.4640	0.4654	0.4445
Number of state	22	22	22	22	22	22	22
COUNTRY FE	YES	YES	YES	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES	YES	YES	YES

Results with economic exclusion index

In the analysis of the effects of exclusion index, we rely on the panel instrumental variable approach in first difference and levels, the SGMM, the mean group dynamic fixed effect, and instrumental variable probit models (reported in Table 5). The SGMM model was specified such that the number of instruments was reduced by taking principal components of all instruments, as opposed to the inclusion of each of the different instruments. It failed the serial correlation test at AR(2). Hence, the model was specified with the third lag of the dependent variable, and the AR(3) was not significant. The Hansen test of over-identifying restrictions was used due to its appropriateness in this specification. The Sargan test assumes homoscedastic and no serial correlation, which is unlikely to be the case in the set of variables. Based on these tests, it is concluded that the model was well specified. The results agree across all the different estimation techniques and models.

The levels of income tend to reduce fragility across all models. Growth rates also reduce fragility according to the GMM and the dynamic fixed effects model. In the short run, only exclusion determines fragility while in the long run, exclusion reduces fragility but levels of income and economic growth in some cases tend to reduce it marginally. The fact that economic growth only matters in dynamic models that embed long-run cointegrating analyses underscore the point we conjectured. That is, that it is not growth as much, than the distribution of the growth for fragility reversal. In the long run, growth translates to incomes and hence shows it effects.

The fact that the magnitude of exclusion if far higher than those of income and income growth suggest that fragility may be the norm in societies where the wealth creation process excludes the majority and the levels of income on average is low with low economic growth. Significant policy efforts have to be put in to curb exclusion in order to attenuate or prevent fragility.

Table 5: IV and pooled mean group estimators

	(1)	(2)	(3)	(5)	(6)	(11)	(13)
Variables	**IV FE SR**	**IV FE level**	**SGMM**	**MG DFE**	**IV probit SR**	**IV probit**	**IV probit**
L3.sfi			0.7428***				
			(0.1566)				
Excl	4.5850*	2.1811***	1.3531**	0.5755***	-4.7668	1.1797***	1.5807***
	(2.3495)	(0.4056)	(0.5149)	(0.1280)	(7.4623)	(0.2005)	(0.2544)
Rgdppp	-0.0000	-0.0013***	-0.0006	-0.0003***	-0.0027***	0.0000	-0.0014***
	(0.0010)	(0.0003)	(0.0005)	(0.0001)	(0.0008)	(0.0002)	(0.0004)
Gdpg	-0.0054	0.0859	-0.0454**	-0.0252***	0.0084	-0.0459***	-0.0672
	(0.0097)	(0.1647)	(0.0200)	(0.0067)	(0.0175)	(0.0132)	(0.0560)
Year			0.0256				
			(0.0351)				
__ec				0.8158***			
				(0.0156)			
cL.exclu#cL.gdpg							0.0071
							(0.0154)
Constant	-0.1155	11.5304***		1.3684***	-0.8685***	-3.4390***	-2.2279*
	(0.2554)	(1.5760)		(0.4776)	(0.2831)	(0.8071)	(1.2786)

continued next page

Table 5 Continued

	(1)	(2)	(3)	(5)	(6)	(11)	(13)
Variables	**IV FE SR**	**IV FE level**	**SGMM**	**MG DFE**	**IV probit SR**	**IV probit**	**IV probit**
Observations	550	572	528	.	552	672	620
Number of state	22	22	22			24	24
COUNTRY FE	YES	YES	YES		YES	YES	YES
Year FE	YES	YES	YES		YES	YES	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Results by sub-dimensions

Following from the previous section, we estimate the models for fragility sub-dimensions. The sub-dimensions considered are security, political, economic and social. We first estimate instrumental variable models for each of the dimensions, then we repeat for the effectiveness and legitimacy subcomponents of each dimension. This distinction is very important as change in fragility depends, not only on the effectiveness of the state in implementing and coordinating development programmes, but also the degree of voluntary compliance by citizens, which relates to the legitimacy of the state apparatus. A current example narrated by Vinck et al. (2019) relates to DRC government's efforts to curb the Ebola outbreak in the country. The hardest hit population in the Northern Kivu province have, not only refused to seek medical help, but have also turned against care workers. They do not believe that the government will be able to help and protect them. This is because the citizens formed a view that, not only the government's health system is unable to help them, but that Ebola was a tool by government to marginalize them; and that the whole thing is a business scheme that benefited aid workers, researchers and government officials. On this basis, it is relevant to look at how the underlying factors of economic exclusion affect government's effectiveness and legitimacy.

Table 6A carries the results of the effects of the fundamentals of exclusion (poverty, inequality, productivity difference between high- and low-skilled workers, labour share of population and adult dependency ratio) on the different dimensions of fragility. Real per capital income still carries weak and significant effect in reducing all dimensions of fragility. Economic growth seems to have significant reduction effects on political and security dimensions of fragility. Table 6B suggest that the effect of growth is limited to economic and social legitimacies. This suggests that citizens are likely to have trust in the economic and social machinery of the state if the economy is growing. However, the effect disappears in the model where we control for exclusion as a single index, suggesting some collinearity of growth and the underlying causes of exclusion in the effect. Poverty and Gini coefficient have the highest effects on increases in economic, political and security fragility. The only significant cause of increased social fragility is adult dependency rate. Poverty and adult dependency rate increase both legitimacy and effectiveness aspects of the different fragility dimensions, except for social. Inequality, as captured by the Gini coefficient on the other hand, affects mostly the effectiveness aspect of the fragility dimensions. This suggests that high inequality is an indication of an ineffective state.

Table 6A: Results by fragility dimensions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	**Security**	**Political**	**Economic**	**Social**	**Security**	**Political**	**Economic**	**Social**
rgdppp	-0.001***	-0.001***	-0.001***	-0.000**	-0.001**	-0.001**	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
gdpg	-0.141**	-0.141**	-0.064	-0.058	0.011	0.011	0.080	-0.050
	(0.064)	(0.064)	(0.053)	(0.044)	(0.088)	(0.088)	(0.100)	(0.086)
pov	0.227**	0.227**	0.145*	-0.069				
	(0.090)	(0.090)	(0.074)	(0.062)				
gini	18.970***	18.970***	6.616*	-4.507				
	(4.444)	(4.444)	(3.660)	(3.047)				
z11	-0.059*	-0.059*	-0.003	0.011				
	(0.031)	(0.031)	(0.025)	(0.021)				
labsh2	0.048	0.048	-0.000	-0.009				
	(0.040)	(0.040)	(0.033)	(0.028)				
adrt	-0.055**	-0.055**	0.025	0.029*				
	(0.024)	(0.024)	(0.020)	(0.016)				
excl					0.390**	0.390**	0.187	-0.202
					(0.163)	(0.163)	(0.186)	(0.159)

continued next page

Table 6A Continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	**Security**	**political**	**economic**	**social**	**Security**	**political**	**economic**	**social**
Constant	-3.812	-3.812	-4.421**	0.597	-0.694	-0.694	0.510	1.701***
	(2.517)	(2.517)	(2.073)	(1.726)	(0.584)	(0.584)	(0.666)	(0.570)
Observations	543	543	543	543	621	621	621	621
Number of cid	24	24	24	24	24	24	24	24
COUNTRY FE	YES	YES	YES	YES	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6B: Econometric results for effectiveness and legitimacy models

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	**Security effectiveness**	**Security legitimacy**	**Political effectiveness**	**Political legitimacy**	**Economic effectiveness**	**Economic legitimacy**	**Social effectiveness**	**Social legitimacy**
rgdppp	-0.001***	-0.000***	-0.000	0.000**	-0.000***	-0.000	-0.000	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
gdpg	-0.025	0.011	-0.017	0.015	0.012	-0.049**	-0.008	-0.039**
	(0.018)	(0.021)	(0.024)	(0.021)	(0.009)	(0.020)	(0.012)	(0.016)
pov	0.102**	0.222***	0.232***	0.330***	0.076***	0.203***	-0.009	0.045
	(0.045)	(0.050)	(0.059)	(0.052)	(0.022)	(0.050)	(0.030)	(0.040)
gini	9.548***	3.667*	-6.380***	2.537	-0.097	6.471***	-3.214**	-1.680
	(1.854)	(2.078)	(2.426)	(2.164)	(0.925)	(2.064)	(1.257)	(1.663)
z11	-0.016	-0.014	0.100***	0.088***	0.008	0.022	0.028***	0.025*
	(0.015)	(0.017)	(0.020)	(0.018)	(0.008)	(0.017)	(0.010)	(0.014)
labsh2	-0.002	0.074***	0.102***	0.073***	0.003	-0.029	-0.018	-0.002
	(0.018)	(0.020)	(0.024)	(0.021)	(0.009)	(0.020)	(0.012)	(0.016)
adrt	-0.036***	0.046***	0.041***	0.076***	0.011**	0.015	0.013**	0.014*
	(0.009)	(0.010)	(0.012)	(0.011)	(0.005)	(0.010)	(0.006)	(0.008)
Constant	0.481	-7.003***	-2.579*	-10.261***	2.105***	-1.708	3.620***	2.399**
	(1.179)	(1.321)	(1.542)	(1.376)	(0.588)	(1.312)	(0.799)	(1.057)

continued next page

Table 6B Continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	**Security effectiveness**	**Security legitimacy**	**Political effectiveness**	**Political legitimacy**	**Economic effectiveness**	**Economic legitimacy**	**Social effectiveness**	**Social legitimacy**
Observations	453	453	453	453	453	453	453	453
Number of cid	22	22	22	22	22	22	22	22
COUNTRY FE	YES	YES	YES	YES	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6C: Econometric results for exclusion on effectiveness and legitimacy models

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	**Security effectiveness**	**Security legitimacy**	**Political effectiveness**	**Political legitimacy**	**Economic effectiveness**	**Economic legitimacy**	**Social effectiveness**	**Social legitimacy**
rgdppp	-0.000*	-0.000**	-0.000	0.000	-0.000***	-0.000	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
gdpg	0.025	0.030	0.030	0.046	0.014	0.026	0.004	-0.033
	(0.033)	(0.038)	(0.043)	(0.042)	(0.017)	(0.036)	(0.022)	(0.028)
excl	0.104	0.709***	0.718***	0.729***	0.209***	0.212*	-0.124*	0.077
	(0.110)	(0.129)	(0.145)	(0.142)	(0.056)	(0.120)	(0.073)	(0.094)
Constant	0.695*	-0.617	-0.123	-0.936*	2.718***	1.052**	3.250***	2.836***
	(0.398)	(0.466)	(0.525)	(0.514)	(0.202)	(0.433)	(0.264)	(0.342)
Observations	503	503	503	503	503	503	503	503
Number of cid	22	22	22	22	22	22	22	22
COUNTRY FE	YES	YES	YES	YES	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6C shows the effects of economic exclusion index on the effectiveness and legitimacy aspects of all the sub-dimensions of fragility. The coefficients suggest that economic exclusion increases both the legitimacy and effectiveness aspects of political and economic dimensions, but only increases the security legitimacy and social effectiveness sub-dimensions of fragility. This implies that citizens quickly lost trust in the security, political and economic apparatuses of the state if the processes of wealth creation are exclusive of some segments of the population; while economic exclusion is an indication of social, economic and political ineffectiveness of the state. The fact that growth is not significant in the models with economic exclusion index means that growth does not matter in situations of economic exclusion. This agrees with the proposition we made in the beginning, that economic growth cannot reverse fragility unless it is significantly inclusive of all the population groups.

Policy diagnostics

In an attempt to come up with policy measures to render economic processes inclusive and reverse fragility, we regress various policy variables against the various components of exclusion, which are productivity gaps, poverty, labour shares, Gini coefficient, Palma ratio, and gender inequality. The regressors are also lagged to curb endogeneity, and fixed effect models are used for the estimation. We also regress the same policy variables on fragility directly (Table A5 in the appendix). The main policy variables that can be applied as anti-poverty measures are democracy and infrastructure development. Total and government health spending do not reduce poverty significantly. This may be tied to the fact that most fragile states may also be marked by corruption in government spending, such that although some level of spending may be observed, the effectiveness may be questionable, and through the fiscus, the impact on the poor would be negative.

For the Gini coefficient, tariff reductions, increases in youth labour market activities and reduction in natural resource rents are measures that can reduce inequality. The coefficients of natural resource rents suggest that its action on fragility is transmitted through the role it plays on inequality. Fum and Hodler (2010) show that natural resource rents tend to increase inequality in ethnically polarized societies. The overall government consumption as a share of GDP tends to increase inequality. This is most likely for similar reasons as government social spending in fragile states, where corruption causes ineffectiveness, leading to increase in poverty and inequality. However, government spending reduces extreme inequality captured by the Palma ratio.

Table 6D: Estimation results of lagged policy variables on fragility and exclusion index

	(1)	(2)	(3)	(4)
Variables	**FE Fragility**	**FE Exclusion**	**FE Fragility**	**FE Exclusion**
L.demo	-0.0379**	-0.0083***	-0.0330**	-0.0092***
	(0.0150)	(0.0020)	(0.0149)	(0.0020)
L.infl	0.0254	-0.0017	0.0368	-0.0015
	(0.0234)	(0.0029)	(0.0238)	(0.0030)
L.import	-0.0000**	-0.0000		
	(0.0000)	(0.0000)		
L.export	-0.0000	-0.0002***		
	(0.0000)	(0.0000)		
L.tariff	-0.0194	0.0056	-0.0293	0.0059
	(0.0411)	(0.0050)	(0.0422)	(0.0052)
L.k	-0.0000	-0.0000***	-0.0000*	-0.0000**
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
L.kl	-0.1873	0.0000**	0.5183	0.0000***
	(0.7628)	(0.0000)	(0.7522)	(0.0000)
L.infr	-0.6227**	-0.1820***	-0.5431**	-0.2014***
	(0.2617)	(0.0328)	(0.2676)	(0.0332)
L.yosh	-0.0394	-0.0530***	-0.1176	-0.0741***
	(0.1282)	(0.0159)	(0.1247)	(0.0155)
L.eey	0.2623***	0.0033	0.2703***	-0.0058
	(0.0975)	(0.0099)	(0.1002)	(0.0101)
L.they	-0.1141	0.0026	-0.0586	0.0116
	(0.0950)	(0.0107)	(0.0926)	(0.0107)
L.hey	0.0523	-0.0118	0.0550	-0.0155
	(0.1640)	(0.0199)	(0.1676)	(0.0204)
L.ggc_y	-0.0326	0.0022	-0.0913**	0.0025
	(0.0459)	(0.0050)	(0.0428)	(0.0050)

continued next page

Table 6D Continued

	(1)	(2)	(3)	(4)
Variables	**FE Fragility**	**FE Exclusion**	**FE Fragility**	**FE Exclusion**
L.fdi	0.0013	-0.0067**	-0.0147	-0.0071***
	(0.0216)	(0.0028)	(0.0207)	(0.0026)
L.tnrr_gdp	0.0085	0.0018*	-0.0048	0.0001*
	(0.0209)	(0.0026)	(0.0209)	(0.0027)
L.trade			-0.0000	0.0000
			(0.0000)	(0.0000)
Constant	18.9046***	5.3696***	20.4277***	5.8705***
	(4.0225)	(0.5217)	(4.0474)	(0.5206)
Observations	214	203	214	203
R-squared	0.3738	0.5125	0.3367	0.4774
Number of state	20	19	20	19
COUNTRY FE	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

On the overall exclusion index, democracy, infrastructure index, youth share in population, and foreign direct investment promote inclusivity. It is worth noting that exports have stronger effects on promoting inclusivity than imports, and imports although with a negative coefficient on the exclusion index, is not significant (see Table 6D). In this respect, it is important to unbundle the measure of trade into imports and exports, and advocate for export promotion, as opposed to trade.

Regarding gender inequality, O'Connell (2011) agrees that it is a useful factor to take into account in tackling fragility. He proposes a rather holistic approach in which gender equity issues should be mainstreamed in every development programme, through gender power analyses in every programme in order to build-in measures to curb it. We adopt this recommendation here also.

Country specificities

Table A6 (in the appendix) presents an order of selected countries by fragility indicator, exclusion and the various dimensions of exclusion. An exploration of the table reveals that different dimension contribute differently to exclusion in the respective countries.

For example, in Central African Republic, fragility may be caused by high levels of exclusion coupled with high poverty and inequality, but low productivity gap and relatively high (precarious) labour shares. Therefore, its high level of productivity gap is caused by exclusion to which poverty and inequality are the biggest contributors. Niger, for example, has moderate levels of poverty and inequality but high levels of productivity gap, also leading to high levels of exclusion and fragility. Burundi has high levels of fragility caused by high levels of poverty, low inequality, but relatively high productivity gaps alongside high labour shares. This is another example of a country that may have high but precarious unemployment, together with Zimbabwe and Cameroon. Highly fragile countries with very high levels of gender inequality are Somalia, Sudan and Mauritania. These differences in the underlying causes of fragility for different countries suggest that average effects policy recommendations may not work well in all countries. In search of policy measures, country specificity has to be taken into account, and the one-size-fits-all approach should be avoided. However, some factors such as democracy and infrastructure are common denominators across most fragile states.

In Table 7, countries are divided into two groups. Those whose levels of exclusion are above the mean, and those below the mean. Policy variables are also segmented in a similar way. Burundi is the most exclusive and surprisingly has the highest share of government consumption to GDP, and government social spending. However, it has the lowest levels of FDI and lowest infrastructure index with relatively high inflation. What is lacking in such a country therefore could be policy strategies to attract foreign direct investment, and also local investment. Key to this is significant infrastructure deficit.

Cameroon, Mali, Mozambique, Zambia and Uganda have above average exclusion rates but very low levels of social expenditure, particularly health expenditures. These also happen to be cases where inequality and poverty are relatively higher, coupled with high labour shares in the population. Countries belonging to these groups therefore have high rates of labour force participation, but not enough support on human capital development, especially health. Most of these countries also present less than average infrastructure endowments. Therefore, the solution is investment in social and economic infrastructure and human capital, together with enhancement of democracy.

Table 7: Country policy options

Country	Excl.	Infl	Exp.	K	K/L	Infr	Youth	Edu. exp.	Tot. H. Exp	Gov. H. Exp.	FDI	Gov. Cons.
Burundi	4.7	10.9	8.7E+05	3.6E+08	1.2	2.1	28.9	5.5	9.7	3.5	0.9	24.8
Niger	4.6	2.1	3.7E+06	2.4E+09	0.3		23.9	4.7	7.3	1.6	9.4	14.7
Malawi	4.2	16.0	9.3E+06	9.9E+08	0.7	2.3	28.8	4.3	8.8	2.3	5.2	
Tanzania	4.0	8.7	9.8E+06	9.5E+09	0.2	2.5	27.1	3.6	7.7	2.2	3.9	14.9
Rwanda	3.9	6.8	1.6E+06	1.8E+09	0.3	3.6	29.2	4.1	8.2	1.4	3.0	14.3
Uganda	3.8	8.2	6.6E+06	4.2E+09		2.7	27.6	2.6	7.9	1.0	3.8	9.2
Zambia	3.8	9.7	6.5E+06	7.6E+09	0.1	3.2	28.3	0.4	5.3	1.6	5.7	12.8
Mozambique	3.7	8.7	9.3E+06	4.0E+09	0.3	2.6	26.8	6.6	5.0	0.0	23.8	23.0
Mali	3.6	2.3	4.0E+06	2.4E+09	0.2	3.3	26.4	3.7	5.2	0.9	3.0	16.5
CAR	3.5	10.7	5.6E+05	2.7E+08	0.7		27.8	1.3	4.4	0.7	1.8	8.0
Cameroon	3.2	2.3	4.8E+06	6.1E+09	0.1	2.6	28.3	2.9	5.0	0.9	1.9	11.8
Sierra Leone	3.0	8.2	2.2E+06	6.6E+08	0.4		27.8	3.2	13.1	1.4	10.8	11.0
Zimbabwe	3.0	1.1	4.7E+06	1.8E+09	0.6	2.9	31.0	6.5	11.4	2.3	2.0	20.8
Ghana	2.8	13.6	8.9E+06	1.0E+10	0.2	2.8	28.1	5.9	6.2	2.5	8.1	9.7
MEAN	**3.7**	**7.8**	**5.2E+06**	**3.7E+09**	**0.4**	**2.8**	**27.9**	**3.9**	**7.5**	**1.6**	**6.0**	**14.7**
Senegal	2.7	1.3	3.4E+06	4.0E+09	0.1	2.3	28.3	6.4	4.0	1.3	2.7	15.2
Kenya	2.6	9.6	8.9E+06	1.1E+10	0.1	3.3	29.1	5.5	5.3	1.6	1.3	14.4

continued next page

Table 7 Continued

Country	Excl.	Infl	Exp.	K	K/L	Infr	Youth	Edu. exp.	Tot. H. Exp	Gov. H. Exp.	FDI	Gov. Cons.
Lesotho	2.4	5.8	8.0E+05	6.4E+08	0.1	2.5	31.8	8.9	7.8	4.3	2.5	35.7
Mauritania	1.7	4.1	1.9E+06	2.4E+09	0.0	2.4	27.6	3.0	4.2	1.6	10.6	20.9
Namibia	1.3	6.2	9.6E+05	2.3E+09		4.2	29.9	3.8	9.4	5.5	6.3	24.6
Botswana	1.1	6.3	1.3E+06	4.8E+09	0.0	3.4	30.5	11.2	6.3	3.7	3.5	18.6
Morocco	1.0	1.4	1.1E+07	3.1E+10	0.0	4.3	27.1	4.9	5.6	2.3	2.6	19.0
Algeria	0.7	5.1	1.3E+07	7.3E+10	0.0	3.2	28.9	3.9	6.3	4.5	1.0	18.2
Tunisia	0.6	4.6	6.1E+06	9.0E+09	0.0		26.6	6.5	6.4	3.5	2.7	18.5
South Africa	0.4	6.0	1.6E+07	6.8E+10	0.0	4.2	28.7	5.9	7.9	4.2	1.5	20.3

Conclusion and policy implications

This paper aimed at investigating how to reverse fragility in African economies through inclusive growth. To achieve this objective, succinct literature was reviewed. The literature identified levels of per capita income, economic growth and a set of other variables as determinants of fragility. There is a lack of systematic modelling framework for fragility analysis in literature. This work uses prospect theory to argue for certain factors as state variables in determining fragility. In the framework, various indicators of economic exclusivity were integrated and an index of economic exclusion was also developed by means of PCA.

A number of estimation techniques were used to assess these indicators' impact on fragility. We endeavour to control for various statistical biases that could arise from traditional estimators, given the nature of the data and underlying relationships. After estimating the determinants of fragility, various models were specified to screen for policy variables. The impact of policy variables was considered first through their direct relationship with fragility, and indirect relationship via their respective impacts on indicators of economic exclusion.

The findings suggest that poverty and inequality are the main determinants of fragility in the short run, together with levels of income. In the long run, income, inequality (average inequality, extreme inequality and gender inequality), poverty levels, adult dependency rate, productivity gap and labour shares all determine fragility at various degrees. Efforts to reverse fragility should target poverty and inequality reduction, reduction of dependency rates, gender balance in the labour market and increase in general levels of income.

It is note-worthy that economic growth does not appear to have any impact in the short run. In the long run, it impacts fragility significantly. This finding ties with the proposition put forward in the paper, that although growth is good for the poor (Dollar and Kraay, 2002), it is not the immediate solution for fragility. Growth without addressing the underlying factors that perpetuate economic exclusion will still leave a state in some sort of a fragility threat. Growth is important only to the extent that it translates into general higher levels of income, and this happens in the long run. This finding leaves policy makers in fragile states with the daunting challenge of pursuing inclusivity at the same time with economic growth.

Various policy levers were found as the means to tackle fragility issues. Democratization was the most important, having both direct impact on fragility, and indirect effects on the underlying causes of economic exclusion. Although employment creation may be important, this work finds that fragile states have a high share of their population in employment. However, these employments are precarious, and a guise for poverty traps. The quality of employment is much more important than simply counting the number of people employed. Taken together with the fragility-enhancing role of productivity gap,

which is a human capital-based measure in this case, there is a strong recommendation therefore to enhance both the productive human and physical capital of fragile states. Infrastructure endowment, export levels and foreign direct investment are factors that can reduce fragility directly or indirectly through their role in economic inclusion. The fact that export share of GDP and not trade in general reduces fragility, suggest that general trade facilitation as opposed to export promotion will be too fluid to have the desired effect on fragility. Inflation, trade tariffs, and ineffectiveness in government social and consumption spending, work together to enhance fragility. Improving these through various policy levers will help in curbing or reversing fragility. Reliance on natural resources also enhances fragility. Economic diversification to reduce natural resource share of GDP will be important for stability and progress in fragile states.

It is worth emphasizing that fragility reducing measures will have to be customized to suit country specificities. In Niger, for example, poverty and inequality reduction through human capital development will yield better fruits, whereas in Burundi, emphasis should be on poverty reduction and quality of labour. There are fragile countries with high levels of government social spending such as Zimbabwe, Mozambique and Niger. In these countries, the solution is not a budgetary allocation, but the quality of spending. The main caveat of this work is that existing fragility indicators generally have short spans. This is more acute for African countries, where data might be missing for other variables. We managed to minimize this challenge, first by using the state fragility indicator of the Centre for Systemic Peace, which has the longest span. Secondly, using various econometric techniques that saves degrees of freedom. This is why most of the inference in this work relies on fixed effects estimators with lagged regressors. In rare cases, we compared results with advanced econometric techniques like SGMM and dynamic fixed effects. We are therefore confident that these measures have preserved the robustness of the findings of this work.

Analyses within the different dimensions, and especially in the effectiveness and legitimacy subdivisions, are very important since change in fragility depends on the effectiveness and legitimacy of the state. A good case is the DRC government's efforts to curb the Ebola outbreak seen in the negative light by the citizens because of low trust in the state (Vinck et al., 2019). Economic growth only reduces political and security dimensions of fragility and the effect is limited to economic and social legitimacies. Citizens are therefore likely to have trust in the economic and social machinery of the state if the economy is growing. Poverty and adult dependency rate increase both legitimacy and effectiveness aspects of the different fragility dimensions, except for social. Inequality, as captured by the Gini coefficient on the other hand, affects mostly the effectiveness aspect of the fragility dimensions. This suggests that high inequality is an indication of an ineffective state.

Economic exclusion reduces state effectiveness and legitimacy in the political and economic sub-dimensions of fragility. Exclusion also worsens the security legitimacy and social effectiveness sub-dimensions of fragility. This implies that citizens quickly

lost trust in the security, political and economic apparatuses of the state if the processes of wealth creation are exclusive of some segments of the population; while economic exclusion is an indication of social, economic and political ineffectiveness of the state. The fact that growth is not significant in the models with economic exclusion index means that growth does not matter in situations of economic exclusion. This agrees with the proposition we made in the beginning, that economic growth cannot reverse fragility unless it is significantly inclusive of all the population groups.

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Appendix

Table A1: Correlation matrix

	SFI	RGDP	GDPG	P. GAP	LABSH	GINI	PALMA	POV	GENI	EXCL	ADRT
RGDP	-0.4992*	1									
RGDPG	-0.0467	0.048	1								
P.GAP	0.0339	-0.1120*	0.026	1							
LABSH	0.0393	-0.3670*	0.0377	0.0544	1						
GINI	-0.2797*	0.4765*	-0.0048	0.1336*	0.014	1					
PALMA	-0.0399	0.2310*	-0.0812*	0.0789	-0.0885	0.6093*	1				
POV	0.4067*	-0.5173*	-0.0457	0.0436	0.3205*	0.0408	0.1625*	1			
GENI	0.0204	0.2103*	-0.0146	-0.0022	-0.5609*	-0.3168*	-0.1587*	-0.4298*	1		
EXCL	0.6306*	-0.8135*	0.01	0.1247*	0.6496*	-0.2185*	-0.1276*	0.7901*	-0.5527*	1	
ADRT	0.3888*	-0.6285*	0.0025	0.0048	0.1988*	-0.1723*	-0.0353	0.5541*	-0.3544*	0.8581*	1
DEMO	-0.5263*	0.1873*	0.0174	0.1021	0.0087	0.3685*	-0.0199	-0.0329	-0.3105*	-0.2228*	-0.2055*
INFL	0.1189*	-0.0293	-0.0461	0.0504	-0.0361	0.0584	0.0942*	-0.0018	-0.0335	0.1787*	0.0408
M/Y	-0.1949*	0.3734*	0.0312	0.0008	-0.3334*	0.0513	-0.0221	-0.3172*	0.3569*	-0.6037*	-0.4388*
X/Y	-0.0361	0.0235	0.0543	0.0182	-0.2233*	-0.1048*	-0.1333*	-0.1711*	0.1895*	-0.4672*	-0.1181*
TRADE	-0.1949*	0.3734*	0.0312	0.0008	-0.3334*	0.0513	-0.0221	-0.3172*	0.3569*	-0.6037*	-0.4388*
TARIFF	0.024	-0.0716*	-0.0216	-0.006	0.1133*	-0.1715*	-0.0412	-0.1886*	0.0285	0.0447	0.002
K	-0.2570*	0.2065*	-0.0116	-0.0009	-0.2530*	0.0131	-0.0464	-0.3728*	0.3111*	-0.5406*	-0.4101*

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Table A1 Continued

	SFI	RGDP	GDPG	P. GAP	LABSH	GINI	PALMA	POV	GENI	EXCL	ADRT
INFR	-0.3741*	0.2852*	0.0453	0.3202*	0.0546	0.1195*	-0.0208	-0.2969*	0.1273*	-0.2495*	-0.4526*
YSH	-0.1206*	0.1249*	-0.0027	0.0131	-0.1168*	0.3407*	0.1564*	-0.3906*	0.1331*	-0.5270*	-0.4027*
GEEX	0.0054	0.1137*	-0.0708*	0.0041	0.0351	0.2686*	0.3272*	-0.2752*	0.0161	-0.2672*	-0.1911*
THEXY	-0.0152	-0.1367*	-0.0298	0.0261	0.2123*	0.1186*	0.1548*	-0.0398	-0.1202*	0.0847	0.0351
GHEXY	-0.2423*	0.1959*	0.0156	0.0146	-0.1276*	0.3573*	0.1788*	-0.1219*	0.0689*	-0.3490*	-0.2885*
GCCY	0.6191*	0.1217*	-0.0416	-0.0309	-0.1889*	0.1317*	0.1210*	-0.0978*	0.0166	-0.3446*	-0.1287*
FDI	0.0166	0.0108	0.1828*	0.0115	-0.0717	0.0515	-0.0282	-0.0267	-0.0797*	-0.0364	-0.0143
K/L	0.0199	-0.0117	0.0017	0.0013	-0.0226	-0.0607	-0.0376	-0.0327	0.0522	0.0218	0.0223
NRR	0.2305*	0.0963*	0.1020*	-0.0517	-0.0911*	-0.3008*	-0.1417*	0.0804	-0.1048*	0.2740*	0.1484*

Table A2: Probit with lagged regressors

	(1)	(3)	(5)	(7)	(9)
Variables	**Panel probit SR**	**Panel probit**	**Panel probit**	**Panel probit**	**Panel probit**
L.RGDPPP	-0.0084***	-0.0038***	-0.0058***	-0.0037***	-0.0044***
	(0.0031)	(0.0014)	(0.0011)	(0.0009)	(0.0006)
L.GDPG	0.0367**	-0.0317	-0.0217	-0.0288	-0.0415*
	(0.0170)	(0.0220)	(0.0184)	(0.0179)	(0.0221)
L.PGAP	0.0264	0.0703		-0.0094	0.0629
	(0.0980)	(0.0738)		(0.0919)	(0.1110)
L.LABSH	0.0108	0.0998	-0.0511		
	(0.1507)	(0.0889)	(0.0890)		
L.GINI	25.4963*	22.7802***			35.6609***
	(13.9148)	(7.9508)			(10.8046)
L.PALMA		0.0500			
		(0.1133)			
L.POV	1.3058**	0.2168	-0.2234	0.0156	
	(0.6266)	(0.2622)	(0.4286)	(0.1827)	
L.ADRT	-0.0788	0.1754***			
	(0.1785)	(0.0587)			
C.GDPG#C.LABSH			-0.0010*		
			(0.0006)		
C.LABSH#C.POV			0.0058		
			(0.0119)		
C.GDPG#C.PGAP				0.0074	0.0142
				(0.0126)	(0.0145)
C.PGAP#C.POV				0.0228	
				(0.0330)	
C.PGAP#C.GINI					-0.1655
					(0.2567)
CONS.	-3.5217***	-28.2102***	7.8874**	2.0961	-15.1347***
	(0.9312)	(7.7978)	(3.8017)	(1.6107)	(4.1111)

continued next page

Table A2 Continued

	(1)	(3)	(5)	(7)	(9)
Variables	**Panel probit SR**	**Panel probit**	**Panel probit**	**Panel probit**	**Panel probit**
Obs.	522	524	552	552	498
Number of state	24	24	24	24	24
COUNTRY	NO	NO	NO	NO	NO
YEAR FE	YES	YES	YES	YES	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A3: Fixed effects with Lagged regressors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variables	**FE with lags**	**FE with lags**	**FE with lags**	**FE with lags**	**FE with lags**	**FE with lags**	**FE with lags**
L.rgdppp	-0.0014***	-0.0011***	-0.0022***	-0.0029***	-0.0019***	-0.0016***	-0.0018***
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0002)	(0.0003)
L.gdpg	-0.0153	-0.0143	-0.0222	0.0907	0.0115	-0.0234	-0.0266
	(0.0164)	(0.0164)	(0.0158)	(0.1260)	(0.0901)	(0.0144)	(0.0175)
L.pov1	0.7990***	0.7911***	5.3763***	5.3217***	2.0976***	0.7408***	
	(0.1392)	(0.1404)	(0.7089)	(0.7307)	(0.4955)	(0.1274)	
L.gini	12.8321***		42.3248***	49.1678***			14.8921***
	(4.4815)		(6.3872)	(6.5674)			(4.5052)
cL.pov1#cL.gdpg				-0.0035			
				(0.0085)			
cL.gdpg#cL.gini				-0.2290			
				(0.2778)			
cL.pov1#cL.gini			-10.3687***	-10.7158***			
			(1.5757)	(1.6251)			
L.z22	0.1016***	0.0957***	0.0927***	0.0607**		0.1306*	0.0803
	(0.0312)	(0.0311)	(0.0298)	(0.0300)		(0.0714)	(0.4007)

continued next page

Table A3 Continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variables	**FE with lags**	**FE with lags**	**FE with lags**	**FE with lags**	**FE with lags**	**FE with lags**	**FE with lags**
L.ls2	0.0922*	0.0938*	0.1025*	0.0655	0.1675***		
	(0.0549)	(0.0551)	(0.0524)	(0.0527)	(0.0604)		
L.adrt	0.1086***						
	(0.0246)						
L.palma		-0.0032					
		(0.0531)					
Adrt		0.1293***	0.1086***				
		(0.0246)	(0.0244)				
cL.gdpg#cL.ls2					-0.0006		
					(0.0022)		
cL.ls2#cL.pov1					-0.0458***		
					(0.0139)		
cL.gdpg#cL.z22						0.0016	0.0024
						(0.0040)	(0.0048)
cL.z22#cL.pov1						-0.0169	
						(0.0221)	

continued next page

Table A3 Continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variables	**FE with lags**	**FE with lags**	**FE with lags**	**FE with lags**	**FE with lags**	**FE with lags**	**FE with lags**
cL.z22#cL.gini							-0.0785
							(0.7920)
Constant	-2.3547	1.2551	-14.5446***	-4.6487	12.9336***	15.9209***	13.2830***
	(3.6736)	(3.3800)	(3.9485)	(3.2976)	(1.9582)	(0.6077)	(2.0384)
Observations	568	572	568	568	616	506	568
R-squared	0.4653	0.4608	0.5067	0.4886	0.4502	0.4851	0.4226
Number of state	22	22	22	22	22	22	22
COUNTRY FE	YES	YES	YES	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES	YES	YES	YES

Table A4: Instrumental variables and dynamic fixed effects

	(5)	(2)	(4)
Variables	**Panel IV FE**	**Dynamic FE**	**Dynamic FE**
pov1	0.9758***	0.1471***	0.1649***
	(0.1440)	(0.0542)	(0.0541)
Gini	9.4587	4.0152**	1.6463
	(5.8605)	(2.0399)	(2.1533)
Palma	0.0025		
	(0.0811)		
Adrt	0.1464***		0.0317***
	(0.0273)		(0.0099)
z22	0.1744***	0.0272*	0.0318**
	(0.0428)	(0.0142)	(0.0142)
ls2	0.1265*	0.0292	0.0502*
	(0.0708)	(0.0251)	(0.0257)
Rgdppp	-0.0012***	-0.0005***	-0.0003*
	(0.0003)	(0.0001)	(0.0001)
Gdpg	-0.0098	-0.0268***	-0.0235***
	(0.0148)	(0.0070)	(0.0070)
__ec		0.8038***	0.7913***
		(0.0175)	(0.0178)
Geni		0.3899*	0.2108
		(0.2330)	(0.2376)
Constant	-6.7772*	-0.2470	-2.5167
	(3.8418)	(1.4130)	(1.5700)
Observations	520	.	.
COUNTRY FE	YES	YES	YES
YEAR FE	YES	YES	YES
Number of state	22		

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A5: Estimation results of lagged policy variables on exclusion variables

	(2)	(3)	(4)	(5)	(6)	(7)
Variables	**FE Prod. GAP**	**FE Poverty**	**FE Labour Share**	**FE GINI**	**FE Palma**	**FE Palma**
L.demo	-0.0486**	-0.0057**	-0.0408**	0.0001	0.0223	0.0033***
	(0.0194)	(0.0027)	(0.0194)	(0.0002)	(0.0178)	(0.0010)
L.infl	0.0122	0.0050	-0.0757**	-0.0005*	-0.0057	-0.0003
	(0.0302)	(0.0042)	(0.0302)	(0.0003)	(0.0272)	(0.0015)
L.trade	-0.0000***	0.0000*	-0.0000	-0.0000	-0.0000***	0.0000***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
L.tariff	-0.0051	-0.0038	0.1568***	0.0018***	-0.0577	-0.0064**
	(0.0551)	(0.0072)	(0.0550)	(0.0005)	(0.0470)	(0.0027)
L.k	-0.0000	-0.0000	-0.0000	-0.0000	0.0000	-0.0000***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
L.kl	-0.0000	0.0000***	0.0000**	0.0116	-0.0000	-0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0087)	(0.0000)	(0.0000)
L.infr	-0.9200***	-0.1802***	-0.1617	-0.0027	0.9567***	-0.0111
	(0.3337)	(0.0462)	(0.3333)	(0.0041)	(0.3016)	(0.0165)
L.yosh	-0.2795*	-0.0062	-0.1270	-0.0064***	0.1213	0.0292***
	(0.1597)	(0.0216)	(0.1595)	(0.0022)	(0.1409)	(0.0079)

continued next page

Table A5 Continued

	(2)	(3)	(4)	(5)	(6)	(7)
Variables	**FE Prod. GAP**	**FE Poverty**	**FE Labour Share**	**FE GINI**	**FE Palma**	**FE Palma**
L.eey	0.1672	0.0186	-0.0828	0.0014	0.1267	0.0009
	(0.1033)	(0.0141)	(0.1031)	(0.0012)	(0.0920)	(0.0051)
L.they	0.1717	0.0658***	0.0852	0.0009	0.0014	-0.0089
	(0.1114)	(0.0149)	(0.1113)	(0.0012)	(0.0972)	(0.0055)
L.hey	-0.2244	0.0567**	-0.6846***	0.0005	-0.1758	0.0172
	(0.2155)	(0.0283)	(0.2153)	(0.0025)	(0.1851)	(0.0107)
L.ggc_y	-0.1524***	0.0037	0.0208	0.0018***	-0.0776*	-0.0078***
	(0.0510)	(0.0069)	(0.0509)	(0.0005)	(0.0451)	(0.0025)
L.fdi	0.0462*	-0.0031	-0.1088***	-0.0002	0.0316	0.0011
	(0.0263)	(0.0036)	(0.0262)	(0.0002)	(0.0234)	(0.0013)
L.tnrr_gdp	0.0653**	-0.0116***	0.0454*	0.0008***	0.0067	-0.0007
	(0.0272)	(0.0038)	(0.0271)	(0.0003)	(0.0247)	(0.0013)
Constant	16.8013***	2.2992***	41.5787***	0.5802***	-0.7774	0.6787***
	(5.1857)	(0.7230)	(5.1792)	(0.0739)	(4.7220)	(0.2569)

continued next page

Table A5 Continued

	(2)	(3)	(4)	(5)	(6)	(7)
Variables	**FE Prod. GAP**	**FE Poverty**	**FE Labour Share**	**FE GINI**	**FE Palma**	**FE Palma**
Observations	236	203	236	162	203	236
R-squared	0.2815	0.6532	0.3668	0.5002	0.3153	0.6034
Number of state	22	19	22	19	19	22
COUNTRY FE	YES	YES	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES	YES	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A6: Country-level picture

Country	sfi	excl	pov	gini	gend. ineq.	prod. Gap	lab. share
Dem. Rep. of Congo	23.2				1.02	0.54	
Central African Republic	22.27	3.47	4.84	0.55	1.22	0.39	37.43
Somalia	21.64				4.12		
Sudan	19.82				3.02	0.44	24.95
Chad	19.55		1.87	0.47	1.2		
Ethiopia	19.45		1.23	0.35	1.13		
Burundi	18.82	4.69	4.21	0.35	0.96	0.5	42.87
Guinea	18		1.84	0.38	1.03		
Niger	17.91	4.57	2.2	0.38	1.33	0.82	39.21
Nigeria	17.55		2.62	0.4	1.21		
Zimbabwe	17.09	3.02	0.81	0.49	1.14	0.42	46.14
Guinea-Bissau	16.91		3.79	0.45	1.18		
Rwanda	16.73	3.87	2.8	0.47	1	0.34	49.4
Cote d'Ivoire	16.45		1.39	0.44	1.43	-0.62	
Angola	16.18		1.3	0.45	1.05		
Cameroon	16	3.23	1.12	0.41	1.14	0.39	41.49
Mauritania	16	1.74	0.29	0.36	2.19	0.91	25.9
Sierra Leone	15.91	3.03	2.37	0.4	1	0.92	32.49
Mali	15.82	3.61	2.14	0.41	1.46	0.2	32.52
Burkina Faso	15.73		2	0.39	1.31		
Liberia	15.55				1.07	0.31	30.49
Malawi	14.64	4.19	4.14	0.46	1.11	0.31	39.5
Gambia	14.4		0.73	0.4	1.34	0.36	
Congo-Brazzaville	13.7				1.06	0.17	
Zambia	13.09	3.84	3.83	0.51	1.14	1.76	37.29
Togo	12.73				1.03	0.33	43.55
Mozambique	12.64	3.67	3.71	0.47	0.91	0.47	32.79
Algeria	12.55	0.71	0.01	0.35	4.49	0.54	27
Madagascar	12.09		4.77	0.42	1.05		

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Table A6 Continued

Country	sfi	excl	pov	gini	gend. ineq.	prod. Gap	lab. share
Egypt	11.45		0.06	0.45	3.24	0.4	
Ghana	11.27	2.81	0.53	0.42	1.05	0.56	44.7
Kenya	11.09	2.57	1.81	0.45	1.12	0.7	33.08
Tanzania	10.64	4	2.06	0.45	1.06	-1.04	44.9
Benin	10.09				1.05	0.36	39.85
Lesotho	9.91	2.39	3.74	0.48	1.22	0.28	30.28
Gabon	9.91				1.4	0.36	25.63
Senegal	9.82	2.71	1.67	0.37	1.59	0.4	30.18
Swaziland	8.18		2.08	0.56	1.58	0.4	
South Africa	7.91	0.38	0.81	0.59	1.27	0.37	28.09
Morocco	6.36	0.96	0.02	0.39	2.93	0.55	31.66
Tunisia	4.73	0.6	0.03	0.4	2.78	0.4	30.81
Botswana	3	1.1	0.62	0.61	1.2	0.4	38.12
Mauritius	0.73				1.61	0.99	43.23

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