Macroeconomic Management in Fragile States of Africa: Issues and Challenges


3rd and Final Draft (comment included)

Alemayehu Geda
Department of Economics
Addis Ababa University
June, 2017

E-mail: ag112526@gmail.com or Alemayehu.Geda@aau.edu.et
Web: www.Alemayehu.com and www.Researchgate.net/Profile/Alemayehu_Geda

Abstract

"Social conflict is inevitable, every change throws up new conflicts, and the mark of successful societies is their management of such conflicts rather than the lack of them" (Hirschman, 1995)

Fragile states in Africa are found to need a unique macroeconomic management which ensures macroeconomic stability as well as help ensure state legitimacy to avoid or minimize the risk of relapse to conflict. Macroeconomic stability in such states is found to depend on political and economic governance as well as the nature of financing development, that includes dependence on natural resource exports. The empirical analysis confirmed, 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. Second, in general, an accumulation of debt in the long run and dependence on natural resource exports in the short run are found to lead to macroeconomic instability. Aid and the financial sector depth are found to be helpful to avoid macroeconomic instability. Finally, since these activities are difficult to handle owing to weak human capital base in such states, conflict conscious capacity building is a cross-cutting factor that needs to be incorporated in any reconstruction and peace building effort in such states.

Key Words: Fragile States, Conflict, Post-Conflict Reconstruction, Growth, Macroeconomic Policy, Macroeconomic Management, Africa

Acknowledgment: I am grateful to Addis Yimer for his excellent research assistance and the usual encouragement. Any errors are mine.

I. Introduction

Notwithstanding the various definitions offered about state fragility (see Box 1, Annex I), fragile states generally seem to have similar characteristics such as weak institutions, low level of human capital development, high poverty and inequality and a history of violent conflict that limit their
ability to maintain a stable state and provide basic public services (OECD, 2015; Alemayehu, 2011).

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). In fact, having the OECD definition of state fragility as given in Table 1 below, 30 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. The literature about state fragility asserts that transiting from fragility towards resilience is conditional on sustained and shared economic growth. The latter in turn is conditional on stable macroeconomic environment and hence proper macroeconomic management. However, macroeconomic instability and the related issue of poor macroeconomic management is the rule not the exception in such economies. Thus, it is imperative to understand macroeconomic management issues in relation to state fragility. This is the justification for this study.

Within this broader question of understanding issues of macroeconomic management in fragile states of Africa, there are three specific research questions that this study attempts to investigate. These are: (a) how is state fragility related to macroeconomic instability; do fragile states require unique macroeconomic management that is different from other non-fragile states? If yes, what are these issues, challenges and the determinants of macroeconomic stability/instability? (b) What is the nature of financing development, which is generally central for macro outcome in Africa, in such states and what is its implications for macroeconomic management; and finally (c) what is the implication of capacity (institutional and skill) deficiency, which is an enduring feature of such states, for macroeconomic instability? The study attempts to shade light on these issues both from analytical and empirical perspective.

To address these questions the rest of the study is organized as follows. In section two an attempt to briefly present the stylized facts about issues of macroeconomic management in fragile states of Africa is made. The section argues that macroeconomic management issues in fragile states are unique (in section 2.1). This could be examined by looking at the relationship between factors behind state fragility and macroeconomic instability (in section 2.2), as well as issues of financing development and their macroeconomic implications in such states (in section 2.3). Section two thus will generally focus on how to characterize the link between state fragility and macroeconomic instability. This will be followed by section three that builds on issues raised in section two and offer the empirical aspect of study. This is aimed at uncovering the quantifiable dimension of determinants of macroeconomic stability in fragile states of Africa. Section four concludes the paper.

II. Macroeconomic Management in Fragile States of Africa: Stylized Facts

This sections deals with the issue of identifying the African fragile states. It will also examine if such fragile states do need unique macroeconomic management. This will be followed by an examination of the salient features of such macro management issues and their implication for macroeconomic management. This will be based on the literature about fragile states in general and the African fragile states in particular.

2.1 African Fragile States and Macroeconomic Management

A. Which Are Fragile states of Africa?

For the purpose of this study we will adopt the OECD definition of state fragility for two reasons. First, it includes all countries that are classified as fragile states using the World Bank and the
African Development Bank (AfDB) harmonized “country policies and institutional performance assessment” (CPIA) index with a cut-off value of 3.2 and less (in a score that ranges from 1, the lowest, to 6, the best). This index informs the two institutions’ operational activity such as allocation of resources from the International Development Association (IDA) as well as from AfDB to eligible countries (World Bank, 2008; World Bank, 2010). The CPIA is an index made up of relevant policy and institutional indicators categorized under four clusters: policies and institutions for “economic management” [cluster A], “structural policies” [cluster B], “policies for social inclusion” [cluster C] and policies for “public sector management and institutions” (cluster D). The CPIA is believed to show the quality of a country’s present policy and institutional framework, with “quality” referring to their conduciveness for poverty reduction, sustainable growth, and the effective use of development assistance. Although the CPIA is a very good indicator that emphasize economic and social policy and related institutional issues, its emphasis on political issues is limited (World Bank, 2010; OECD, 2015).

On the other hand, the OECD definition is broader than the CPIA criteria as it defines state fragility as “a state that has weak capacity to carry out basic governance function that denies peoples entitlement to basic services and lack the ability to develop mutually constructive relation with societies. Such state also exhibits lack of capacity, political commitment, and legitimacy to govern its population and territory” (OECD, 2013; Jones, 2013; Alemayehu, 2011). This is the second reason for adopting this OECD definition as it emphasizes the political dimension, which we assumed is very important in African context. The list of African countries classified as fragile states using these two approaches is given in Table 1.

### Table 1: Fragile States of Africa

<table>
<thead>
<tr>
<th>AfDB and WB (Based on CPIA index &lt;3.2)</th>
<th>OECD-DAC (Countries On OECD 2015 List)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burundi</td>
<td>Libya*</td>
</tr>
<tr>
<td>Central African Republic</td>
<td>Cameroon*</td>
</tr>
<tr>
<td>Chad</td>
<td>Central African Republic</td>
</tr>
<tr>
<td>Comoros</td>
<td>Chad*</td>
</tr>
<tr>
<td>Congo</td>
<td>Comoros</td>
</tr>
<tr>
<td>Cote d’Ivoire</td>
<td>Congo*</td>
</tr>
<tr>
<td>DR Congo</td>
<td>Cote d’Ivoire*</td>
</tr>
<tr>
<td>Egypt</td>
<td>DR Congo*</td>
</tr>
<tr>
<td>Eritrea</td>
<td>Eritrea</td>
</tr>
<tr>
<td>Guinea</td>
<td>Ethiopia</td>
</tr>
<tr>
<td>Guinea-Bissau</td>
<td>Guinea*</td>
</tr>
<tr>
<td>Liberia</td>
<td>Guinea-Bissau</td>
</tr>
<tr>
<td>Libya</td>
<td>Kenya+</td>
</tr>
<tr>
<td>Madagascar</td>
<td>Liberia*</td>
</tr>
<tr>
<td></td>
<td>Zimbabwe</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Source:</strong> IMF, 2014; OECD, 2015. Number of countries 25</td>
<td><strong>Source:</strong> OECD (2015) Number of countries 32</td>
</tr>
</tbody>
</table>

* Excluded from our sample in the econometric model; 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.

### B. Do fragile states have Unique Macroeconomic challenges?

The starting point for understanding macroeconomic management issues in fragile states should be to ponder on whether such states face unique macroeconomic challenges and hence require unique macroeconomic management that is different from other (non-fragile) countries in Africa?
In short, “[I]s there anything that is systematic about state fragility which implies that as a group such countries will tend to need policies and assistance that differ from those of countries that are identical other than not having had a recent conflict?”, questions Collier (2009). His answer is in the affirmative. 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\(^1\) (Miguel et al, 2004\(^2\); 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, at least not in the short run (Collier et al, 2004; Collier, 2009).

Second, pursuing prudent macroeconomic policies and building institutions towards that end (such as tax authorities and taxing citizens; managing natural resources and/or aid on behalf of citizens, issuing currency etc.) by the governments of fragile states is important not only to bring about macroeconomic stability but also have the additional dimension of signalling at (and eventually ensuring) state legitimacy which is invariably at the root cause of conflict in such societies (IMF, 2014). As noted by IMF (2014), recent studies has pointed at the special role of fiscal institutions in coming out of state fragility. These studies show public financial management reforms that include revenue management in resource-rich countries are important as they build the legitimacy of the state by increasing transparency, accountability, and efficiency (Besley and Persson, 2011, cited in IMF, 2014; 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 such as terms of trade deterioration or natural disaster. Thus, the international community 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 needs in the long run, at the heart of such intervention. Addressing such concerns, paying heed to their macroeconomic implications, is taken as important task for, inter alia, poverty reduction, aid effectiveness, avoiding relapse to conflict, as well as global and regional security and stability (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 for reconstruction and financing development. This entails unique macroeconomic (such as the ‘Dutch Disease’) and fiscal management (such as revenue sharing and managing sovereign funds)

---

\(^1\) Current events in Ethiopia could lead one to question even the validity of this statement. For one thing Ethiopia today reverted to violent conflict exactly after 10 years (2005-2015). Thus, despite strong growth and infrastructure development in the country for the same decade, the risk of conflict is not avoided – indicating the importance of getting the politics right at the same time.

challenges. Failure to address them in a 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 parallel market exchange rate as well as a high propensity to be indebted. This would generally make the country ineligible for further borrowing, including for post-conflict reconstruction and capacity building until the outstanding arrears are cleared (Obidegu, 2004: 17-18). On the bright side, according to many studies recently reviewed in IMF (2014), getting out of fragility and building resilience is strongly associated with economic reforms and sound macroeconomic policies that brought about macroeconomic stability, better fiscal outcomes and budget institutions, managing to mobilize more revenue and make enough room for investment. These cross-country based findings are consistent with the findings in the case studies that are reported in detail in IMF (2014).

In sum, political stability and shared growth which are central to escape from state fragility are conditional on stable macroeconomic environment. The latter has the additional unique task of helping fragile states transit from state fragility. Macroeconomic stability, in turn, is a function of the nature of that growth (whether it is pro-poor or not; shared growth or not) (Alemayehu et al, 2008), its financing and the condition of its financial sector (Addison et al, 2005) as well as the country’s human and institutional capacity (Alemayehu, 2011). Thus, the basic building blocks of a prudent macroeconomic management practice in fragile states of Africa requires understanding the link between macroeconomic stability and: (a) the nature of state fragility and its relations with: (i) weak political and economic institutions that characterize such states, (ii) significant capacity deficiency, vulnerability to external shocks and inability to respond to them adequately, and, hence, the need to build capacity for economic management and durable peace; as well as (b) the basic features of such economies in financing development: (i) dependence on natural resources or a significant inflow of aid and its macroeconomic effect, and (ii) reconstructing the financial sector, which is weak or destroyed. Each of these issues is briefly described below.

2.2. State Fragility and Macroeconomic Instability: Weak Political and Economic Institutions and Weak Capacity

Most fragile states are characterized by low per capita income, high youth unemployment, high level of poverty & inequality (about 48.5 per cent below poverty line & an average Gini coefficient of 0.46 for those that have data in the mid-1990), weak institutions and low level of human development, among other (Ali, 2009: 27-32; Alemayehu, 2011). The literature (see for instance IMF, 2014) also shows that not only state fragility is associated with poverty, poor growth and macroeconomic instability but also getting out of fragility into resilience is dependent, inter alia, on macroeconomic stability and sustained and shared growth. This points at the need to focus on unraveling the factors behind achieving macroeconomic stability. This in turn requires examining how macroeconomic stability/instability is related to the two major factors behind state

---

3 According to the AfDB data (see Jones, 2013), Africa as a whole has grown at 6.6 and 4.8 per cent in 2012 and 2013, respectively. During this time, factor-driven economies of Africa have grown at 9 and 6.5 per cent. Fragile-African economies, on the other hand, grew just at 4.5 and 5.5 percent, respectively, at the same period (investment-driven African economies, which are relatively the most advanced African economies, grew at 2.8 and 3.1 percent). The AfDB country groupings are based on analytical classification given in Alemayehu and Addis (2016).
fragility: “weak political and economic institutions” and “weak human capacity and the related issue of fragile state’s vulnerability to external shocks and finance”.

A. **Weak political and Economic institutions and Macroeconomic Instability**

Weak political and economic institutions are the major causes of state fragility (Ncube and Jones, 2013; IMF, 2014; Collier and Hoeffler, 2002b; Fearon and Laitin, 2003; Cramer, 2001, 2006; Sambanis, 2001; Reynal-Querol, 2002; Elbadawi and Sambanis, 2002b; Bertocichi and Guerzoni, 2010). Among such weak institutions, weak institutions of economic management such as lack of independent central bank, fiscal authorities and stable financial sector are the prime causes of macroeconomic instability that hamper sustained and shared growth (Acemoglu et al, 2003; Addison et al, 2005).

Using the AfDB/WB classification scheme of fragile states, Jones (2013) noted that in a number of state and institutional indicators of the ICRG such as “bureaucratic quality”, “military in politics”, “government effectiveness”, “control of corruption” and “rule of law”, it took 15 to 30 years (in best of condition over a decade) for fast reforming fragile states in the 20th century to reach what could be described as a threshold level of ‘good governance’ (Jones, 2013). Thus, in such states and during this transition period, 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).

At specific level, these macroeconomic management institutions and the required activity at them include: (i) public financial and fiscal institutions and their proper management (including revenue management in resource-rich countries) that build the legitimacy of the state by increasing transparency, accountability, and efficiency; (ii) independent central bank and efficient and stable financial sector; as well as (iii) appropriate regulatory and institutional environment that encourage investment and 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 has resulted, according to the IMF (2014) study, in a marked decline in inflation – an important indicator of macroeconomic instability. 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).

It is imperative to note how such macroeconomic management institutions are interwoven with political institutions in such states. The literature on the factors behind state fragility shows that such states have: scant constraints on executive power and lack civil liberties (Bertocichi and Guerzoni, 2010; David et al, 2011; Collier and Hoeffler, 2004 cited in IMF, 2014), 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). These factors are strongly associated with macroeconomic instability. These interrelated aspects of political and economic institutions and macroeconomic outcomes can also be read from IMF’s (2014) recent cross-country based empirical study. This study shows 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

---

4 See Tello et al (2005) for views that challenges this latter assertion.
the median resource-poor fragile country; and finally, the study underscored the importance of capacity building for macroeconomic stability in fragile states (IMF 2014). The case studies reported in the same study confirmed these cross-country based findings.

In terms of the measurable aspect of such political and economic institutions and related policy weaknesses, their impact on getting out of fragility can be read from Table 2.1 and Figure 1 which are based on CPIA index and its four clusters noted in section one 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.

An overall CPIA score for the Sub-Saharan Africa has shown an improvement in policy and institutional indicators in the last decade though there are significant variations across the four clusters that constitute the overall CPIA (Figure 1). The sharp decline in global commodity prices in 2014 and the resulting terms of trade deterioration complicated economic management in several of the region’s countries and underscored weaknesses in the fiscal framework of these countries, according to the World Bank (2015). As a result, the overall quality of economic management [Cluster A] deteriorated in 2014. It is interesting to note here how economic management in Africa is significantly affected by the external sector (see also Alemayehu, 2017a). In the social inclusion and equity cluster [Cluster C], performance was generally weak and remained so in the last five years (Figure 1). As World Bank (2015) shows, countries that saw a decline in this later indicator were generally in some condition of conflict – indicating the importance of such social policies in fragile states. The score for structural policies [Cluster B] was largely unchanged in the last decade (Figure 1).

Figure 1: Trend of the Four Clusters that Constitute the CPIA for Sub-Saharan Africa (2007-2014)

Table 2.1 shows the evolution of the change in average CPIA and its four clusters in fragile states of Africa between 1991-2001 and 2011-2013. It is interesting to note that the changes in the scores significantly vary between fragile and non-fragile states as well as between resource rich and non-resource rich within the fragile category. The latter indicating the role of resource dependence in such states. Although non-resource rich fragile states performed the worst in

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).
overall CPIA, resource-rich fragile states (that are not improving) performed relatively badly in economic management and structural policies. This suggests that macroeconomic management, which in turn is strongly associated with the political and economic institutions is crucial to get out of state fragility. As IMF’s (2014) study 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 which was lost in periods of conflict. The IMF study also noted, in most cases such fragile states of Africa restored to good macroeconomic management within two to four years after the conflict and this has helped them a lot to make significant progress towards resilient (IMF, 2014).

### Table 2.1 Average Change in CPIA Scores by Country Groups between 1991-2001 and 2011-2013

<table>
<thead>
<tr>
<th>Country Group</th>
<th>Overall CPIA</th>
<th>Economic Management</th>
<th>Structural Policies</th>
<th>Policies for Social Inclusion/Equity</th>
<th>Public Sector Management and Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resilient</td>
<td>0.41</td>
<td>0.43</td>
<td>0.26</td>
<td>0.37</td>
<td>0.23</td>
</tr>
<tr>
<td>Fragile resource-rich</td>
<td>0.40</td>
<td>0.29</td>
<td>0.17</td>
<td>0.33</td>
<td>0.31</td>
</tr>
<tr>
<td>Improving</td>
<td>1.01</td>
<td>1.24</td>
<td>0.85</td>
<td>0.76</td>
<td>0.71</td>
</tr>
<tr>
<td>Other</td>
<td>-0.21</td>
<td>-0.42</td>
<td>-0.33</td>
<td>0.00</td>
<td>0.01</td>
</tr>
<tr>
<td>Fragile non-resource-rich</td>
<td>-0.33</td>
<td>-0.20</td>
<td>-0.28</td>
<td>0.12</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Source: World Bank; and IMF staff calculations

In sum, although there is no “one fits all” solution to exit from state fragility and, hence, policies and interventions need to be tailored to each countries’ circumstances, and that such transition may take decades, appropriate policies are required to exit from state fragility. Such policies need to be part of a long-term vision for the country that aims at strengthening security, fostering inclusive politics, implementing selected legal, governance and economic reforms, and building capacity for deterring violence and building democratic institutions (IMF, 2014; Jones, 2013; Ajakaiye and Ali, 2009; Alemayehu, 2011). As IMF (2014) noted, these states in Africa typically display an elevated risk of both political instability (including civil conflict), and economic instability (through a low level of public service provision, inadequate economic management, and difficulties to absorb or respond to shocks). Furthermore, transiting from state fragility requires 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). The implication for macroeconomic management is that macro policies need to be framed in such broader reform policy and institutional building context (IMF, 2014; World Bank, 2015).

### B. Weak capacity and Vulnerability to External Shocks and Finance

The external sector and related shocks have strong bearing on macroeconomic management in Africa (IMF, 2014; World Bank, 2015; Alemayehu, 2017a). The issue of external shocks and the inability to come up with appropriate policy response to such shocks in African fragile states stems from the general characteristics of such states which are either aid or commodity dependent, or both. The implication of this for macroeconomic management is discussed in section 2.3 below. The issue here is to emphasize 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 (Jones, 2013; Ncube and Jones, 2013; IMF, 2014; World Bank, 2015). Thus, capacity building is central in such states. Studies on capacity building in fragile states outlined three core areas of focus (see Addison et al, 2005; Alemayehu, 2011): capacity building to
address: (i) the immediate needs of post-conflict states that includes emergency relief activities, (ii) the core economic and political causes of conflict, as well as, (iii) capacity building related to the issues of finance and financial sector reconstruction. Macroeconomic policies, thus, need to be designed in such a way that they simultaneously address these capacity building challenges while also aiming to bring about macroeconomic stability (Cramer, 2006; Ali, 2009; Ajakaiye and Ali, 2009; Alemayehu, 2011; Jones, 2013; ACBF, 2013).

2.3. Financing Development, Financial Sector Reconstruction and Macroeconomic Instability

The nature of financing development such as monetization of deficit, dependence on natural resource exports or official development assistance (aid) and the related issue of financial sector reconstruciton are crucial for macroeconomic stability in fragile states. 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 trigger 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 managing such resources, resource inflows from natural resources exports have similar macroeconomic implications to significant inflow of aid that need a careful macroeconomic management (Alemayehu, 2002). These issues are discussed in this sub section.

A. Natural Resource Dependence and Macroeconomic Instability

A number of African fragile states are characterized by heavy dependence of their economy on natural resources exports-commodity dependence. For example minerals as proportion of total merchandise exports is about 78, 65 and 54 per cent for Congo, D.R., Guinea and Sierral Leone, respectively. Similarly, fuel accounts for about 90 per cent in Sudan and Chad, about 98 per cent in Angola and about 80 per cent in Congo Republic in 2013 (Jones, 2013; Alemayehu 2017a). The empirical conflict studies shows that such commodity dependence is found to have strong association with the risk of conflict (Collier and Hoeffler, 2002b; Elbadawi and Sambanis, 2009; Reynal-Querol, 2002; Fearon and Latin, 2003; UNDP, 2011). More specifically, for instance, Elbadawi and Sambanis (2000b) found four important factors, that includes dependence on natural resource, that trigger war in Africa. Similarly, Collier and Hoeffler (2002b) identified three common factors that could give rise to opportunities for conflict: extortion of natural resources, remittances from the Diaspora and subversion from hostile governments. Using an empirical model and comprehensive data of civil wars over the period 1960-99, they arrived at concrete empirical findings about the risk of civil wars in relation to primary commodity dependence. At its peak (primary export being 32 per cent of GDP) the risk of civil war owing to this dependence is about 22 per cent. In addition, the governance of revenue from such natural resource export is also found to be among major factors behind state fragility in many studies (see for instance Cramer, 2006; Ali, 2009; Ajakaiye and Ali, 2009; Alemayehu, 2011; Jones, 2013; Ncube and Jones, 2013; ACBF, 2013).

On the positive side, IMF (2014) noted, improvements in external sector has benefited resource rich countries recently. Persistent improvements in their recent terms of trade and their export receipts, which on average increased from 30 to 45 per cent of GDP in the last decade, helped these countries to make a significant progress towards resilience by enabling them to achieve better

---

6 The other factors being low level of per capita income, having an educated and poor young males and failure to develop strong democratic institutions (Elbadawi and Sambanis, 2000b: 9-10)
growth and lower inflation. However, the study also shows, although four of [out of 10] the resource-rich African fragile states in their sample have improved their fiscal institutions (as measured by the CPIA clusters indices), other resource-rich fragile states did not show such progress. Private investment did not pick either (IMF, 2014). In general, resource-dependent countries that avoided conflict have pursued a conflict-sensitive macro policy that includes monetary and fiscal policies that expand credit in a transparent manner that is aimed at raising investment and contend inflation at the same time; revitalize the private sector and promote public investment aimed at employment creation and diversification; appropriate exchange rate aimed at making the non-resource sector competitive and diversified; effective revenue management, broadening the tax base and allocation of revenue to ensure progressive distribution of wealth to address vertical and horizontal inequality. They also employed these policies in a coordinated manner (UNDP, 2011; IMF, 2014).

B. AID Dependence and Macroeconomic Instability

Aid is an important source of financing development in fragile states in general and the non-resource-rich ones in particular. In such states, aid is mostly used to fund relief operation at early stage, physical reconstruction and social reintegration (including demobilization and re-integration of ex-combatants), among others, at the latter stage – in short it is used to restore the capital destroyed by conflict. These are resources that could have been put in more productive use but are necessary to buy peace (Obidiegwu, 2004:11-12; Alemayehu, 2011; Ncube and Jones, 2013). According to Ncube and Jones (2013) since government revenue excluding grants in such states are very low and rarely exceeds 20 per cent of GDP and tax revenue ranges between 6 and 13 per cent of GDP, heavy reliance on aid is the norm, not the exception. However, the modality of aid and its ultimate use is not non-political – complicating its effective use. Thus, another important dimension of aid financing is the relation with donors and the political implications of its use. Englebert and Tull (2007) questioned the extent to which reconstruction exercises in such states are based on logic of cooperation between donors and African leaders, which presumes a shared understanding of failure and reconstruction. They argued, instead, donors typically see failure as systemic breakdown and reconstruction as some new form of social contracting. African elites are more likely to maximize the political opportunities afforded by both failure and reconstruction, including external assistance. They may see the state reconstruction exercise as the continuation of war and political competition for resources by new means (Englebert and Tull, 2007: 5-7). My own observation of post-conflict reconstruction in Ethiopia attests to this view of Englebert and Tull (see Alemayehu, 2004). Such an observation further emphasizes the need for consultation and inclusion of all stakeholders, to break previous patterns of rent-seeking and establish the basis for better addressing vertical and horizontal inequalities that may have been the cause of conflict in the first place or could be reasons for falling back into conflict as suggested in the literature (Alemayehu and Englebert, 2007). In addition, the resumption or increase in foreign aid for fragile states represents a direct rent to holders of state power, where corruption remains rampant, noted Englebert and Tull (2007). In fact, donors eager for peace and stability may well be more lenient towards corruption in fragile states. So it should come as no surprise, therefore, that African elites in such fragile states try to prolong the transition to resilience for as long as possible (Englebert and Tull, 2007: 25-26). This transition could be even longer if the financing comes from the emerging South such as China who don’t have any conditionality and keen to engage in resource sectors of such states in Africa (see Alemayehu, 2017b).
Notwithstanding such political dynamics of financing development through aid, aid is generally found to be effective. Collier and Hoeffler’s (2004) study on the issue suggests that aid is more growth effective in countries just emerging from a conflict than in the rest of the countries - thus arguing for more aid which is well timed and combined with good policies. However, the trend of aid flows shows slow pace of aid flows to such states, partly due to the weak absorptive capacity of most fragile states (Mlambo et al., 2009: 62-64). Thus, aid should also be used on building the absorptive capacity in the long run and bridging the absorption gap in the short-run. (Mlambo et al., 2009: 64; Alemayehu, 2011). However, as highlighted by Englebert and Tull (2007), their data about resources allocated to Africa’s failed states suggest lack of political will to embark on the long-term and cost-intensive efforts that would be consistent with the goals of state reconstruction. In the long run and to transit from fragility, capacity building in the use and managing of aid is crucial. Given the acute shortage of skill at this stage and given the detrimental impact of the size of diasporas in aggravating conflicts (Collier, 2000a, 2009; Collier and Hoffler, 2002a, 2002b), it might be wise to design a capacity building plan with regard to technical assistance (aid) that may use the diasporas with the twin objective of embracing them in post-conflict peace building effort as well as in bridging the huge skill gap prevailed in such states (Alemayehu 2011).

Finally, and in general, in the context of effective use of aid there is a need to focus on three important principles of engagement outlined by the OECD (2005)\(^7\). These are: do no harm: international actors should seek to avoid activities that undermine national institution-building such as bypassing national budget processes; (b) mix and sequence aid instruments to fit the context\(^8\); and finally (c) act fast: assistance to fragile states needs to be fast so as to respond to changing conditions on the ground (OECD, 2005). Lastly, there is a need to fund fragile states in a different framework by IFIs that will ensure the old problems do not recur’ by taking the peculiar needs of fragile states on board (see Mlambo et al., 2009; Alemayehu 2011 for details).

C. Macroeconomic Management Implications of significant inflows of aid and Revenue from Natural Resource Exports

Both financing issues described under A (revenue from booming natural resource export) and B (an influx of aid) have macroeconomic challenges such as the “Dutch disease” (see Salter, 1959; Swan 1960; Corden, 1984; van Wijnbergen, 1984; Alemayehu, 2002) and “fiscal response” (see Griffin, 1970; Heller, 1975; Mosley et al., 1987; White 1992; Alemayehu, 2002, 2012) problems. These challenges could be summarized using Diagram 1 (Alemayehu, 2017a). The Y axis in quadrant one (North-East quadrant) shows the resource flow which has increased from point a to b due to commodity price rise or resource discovery or significant aid inflow which are similar in effect. The fiscal response of an increase in public spending and a possible decline in tax revenue [i.e.; say owing to reluctance to collect tax for there are new resources] which normally follow this phenomenon is summarized in the X axis of the same quadrant using public deficit (public spending less public revenue) that increased in absolute value terms from c to d. The latter is explicitly given in panel b for completeness. In quadrant 2 (North-West), the exchange rate appreciation effect of these inflows is shown by a decline in real exchange rate defined as local

---

\(^7\) This principle refers to all forms of intervention that includes capacity building in the financial sector.

\(^8\) Use mix of instruments such as long-term support to health, education and other basic services as needed in a country might be necessary. Similarly, there could also be a competing need either to prioritize on rehabilitation of structures (which may ensure quick recovery) or spending on social sectors and reduction of poverty (which may ensure political stability).
currency per foreign currency from point \( f \) to \( e \). Quadrants 3 (South-West) and 4 (South-East) show the de-industrialization effect of this real exchange rate appreciation as marked by a decline in manufactured (or non-booming tradable sector) exports from point \( h \) to \( g \). An inward shift of the schedule in the 4th (South-East) quadrant further shows the long term growth and de-industrialization (failure to diversify) effects of the specialization in primary commodity export and aid-dependency- the Dutch disease problem (Alemayehu, 2017a). The African literature generally shows the empirical validity of these problems (Alemayehu, 2013; 2012; Ismail, 2010 cited in Brahmbhat et al, 2010; ACBF, 2013; Renard, 2011).

Diagram 1: Resource Flows from Natural Resource Exports & Aid and Its Macroeconomic Ramifications.

The second macroeconomic challenge relates to the ‘heightened public spending’ and ‘volatility of government revenue and spending’ that usually follow an influx of aid or a rise in revenue from the booming natural resource exports. Problems associated with managing such resource flows is discussed in the literature as the 'fiscal response' problem. Such fiscal policy challenges include: (a) a sudden surge and volatility in government revenue, (b) an associated surge and volatility in spending, and (c) the problem of carrying out an optimal level of savings and a
likelihood of indebtedness (Avendaño et al., 2008; Dehn, 2001; 2003; Westerhoff, 2004; Mehrara and Oskoui, 2007; Obinyeluaku and Viegi, 2007; Budina, et al. 2007; Viegi, 2007; Hawthorne et al., 2005; Humphreys and Sandbu, 2007 cited in ACBF, 2013; Heinrich, 2011; Alemayehu, 2012). These challenges are also compounded by the monetary policy implications of the balance of payment volatility that is associated with such flows. That is, during booms the level of foreign assets and hence the monetary base will grow up while a balance of payment deficit and hence the contraction of the monetary base ensues during bust. This further accentuates the macroeconomic policy challenge of managing them (Alemayehu, 2017b).

The third and the final challenge relates to governance and conflict related challenges of such resource inflows. A boom in government revenue from a booming commodity 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, 2017a). 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 governance institutions to make the best out of such inflows of resource and facilitate transiting from state fragility to resilience in the process (Alemayehu 2012).

D. Financial Sector Reconstruction and Macroeconomic Instability

Financing development in fragile states 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). 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, the linkages between the financial sector and conflict are very close though they appear to be tenuous (Addison et al., 2001; 2005).

In addition to direct disruption and destruction noted, conflict has two important indirect effects on the financial system. First, conflict alters preferences for different types of assets – as between precious metals and deposit accounts for instance – and for domestic versus foreign currency. Second, conflict affects the governance of financial institutions, including the behaviour of their managers as well as those who regulate them and formulate policies (Addison et al., 2005)\(^9\). Third,

\(^9\) Stealing from banks by insiders and elites is one manifestation of the more general breakdown in governance that characterises the slide into civil war. Again, countries show considerable variation in outcomes with policy responses being an important determinant of how badly the financial sector is affected. Some states may resort to the printing press to finance war and post-conflict reconstruction and they may be unable to prevent the breakdown of the banking system and its regulation – or unwilling if state actors themselves steal from banks (the case of
state fragility is usually accompanied by inflation and exchange rate instability and problem of managing finance and payment systems. This puts financial institutions at the centre of redressing such problems. The implication is that, reconstructing the financial system in countries affected by violent conflict is crucial to restore the credibility of these institutions and help to get out of state of fragility by ensuring macroeconomic stability (Addison et al, 2005; Obidegu, 2004) as well as to signal the state’s legitimacy in post-conflict period.

Given such features of the sector, financial reconstruction in such states needs to focus on the following areas: (a) the revitalisation of the banking system, including its recapitalisation and (b) currency reform and the reconstruction (or creation) of a central bank, and ensure its independence and staff quality. This will provide the monetary framework for reconstruction and help in addressing problems that would be encountered in strengthening prudential financial regulation and supervision. Such financial sector reconstruction activities are important because if they are not properly done the financial sector problems can destabilise the overall economy, and the fiscal burden of bank crises limits development and poverty spending – thereby threatening the transition to resilience (see Addison et al, 2005; Mlambo et al, 2009; Alemayehu, 2011). 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).

In sum, in this section we have identified that macroeconomic stability in fragile states of Africa is strongly associated with the proper macroeconomic management of the macroeconomic ramifications of financing development and the reconstruction of the financial sector. These are found to be central for transiting from state fragility to resilience. This in turn is found to be related to the nature of (i) conflict, (ii) political, economic and financial institutions as well as (iii) the available human and institutional capacity in such states.

III. The Empirical Model

The analysis in the previous section is carried using a qualitative approach that is based on existing literature and limited quantitative data. In this section I will resort to the quantifiable dimension of the issues discussed so far. This is aimed at empirically examining factors behind macroeconomic stability/instability in fragile states of Africa and their implications for macroeconomic management. A caveat is in order about the quantitative approach employed below, however.

There are two approaches to conflict studies: “the neoclassical” and “the political economy” approaches. In the neoclassical approach rational choice presumptions and methodological individualism are at the heart of their models (Cramer, 2006). This approach is invariably pursued by economists. It is also generally based on cross country data and seeks to quantify factors behind conflict and state fragility (see among others, Collier, 2009, 2002b; Hoeffler, 2002b; Collier and Hoeffler, 2002b; Fearon and Laitin, 2003; Sambins, 2001; Reynal-Querol, 2002; Elbadawi and Sambanis, 2000b; Azam 2001; Noh, 1999; Grossman, 1991).

Mobutu’s Zaire in the 1990s) – while other states may manage the wartime economy reasonably well thereby retaining the public’s confidence in the currency and the financial system as a whole - largely the case in both Eritrea and Ethiopia during their 1998–2000 war (Addison et al, 2005).
In contrast to the ‘neoclassical approach’ analysts that use ‘the political-economy approach’ argue that (see, inter alia, Cramer, 1999, 2006; Alemayehu and Befekadu, 2005; Stewart, 1998, 2010), conflict directly expresses social, political and economic relations and that conflict studies therefore require analytical tools helpful too understand these associations. Cramer (1999; 2006) argues, the neoclassical approach “airbrushed the significance of context and social (class) relations”. The exclusive focus on economic opportunities in neoclassical approach, Cramer argues, has the danger of being reductionist. The implication is that conflict analysis needs to accommodate the social, economic and political features of society in lieu of the approach that considers the economic and the social and political as separable spheres. He argues for the adoption of a political economy approach that presupposes economic relations, behaviors and performance as organically embedded in the social and the political context. From this perspective, scarcity, poverty and economic and environmental crises are themselves to be understood as socio-political events (see Cramer, 1999, 2001, 2006; Stewart, 1998; Nafziger and Auvinen, 1997; Pastor and Boyce, 1997; DIFID, 2010; Stewart, 2010; Alemayehu, 2011).

The econometric approach in this section is conducted in line with the neoclassical approach as it seeks to focus on the quantifiable dimension of state fragility and macroeconomic instability using cross-country and timeseries (panel) data. This should not be considered as shying away from the political-economy approach, however. It is my view that the sharp distinction between the neoclassical and the political-economy approaches noted above is partly the reflection of the unit of analysis used (see Alemayehu, 2011). It is problematic, if not impossible, to treat the ‘social’ and historically specific features of the political economy approach when one is conducting a cross-country empirical analysis. Similarly, it will be quite mechanical to dwell-upon the quantifiable dimension of conflict alone when one is analyzing a specific country. The ‘social’ and the historic specificity of the country in question are invaluable to understand the dynamics of conflicts and state fragility. In particular, since cross-country studies may not tell us much about causation, as opposed to association, political-economy based country studies are vital to redress this weakness.

It is also my belief that the two methodologies can be creatively used to enhance our understanding of conflict and post-conflict societies. The studies based on the neoclassical approach and underpinned by cross-country evidences, are helpful not only to identify factors that are strongly associated with societies in conflict but also to evaluate their relative importance. It is conceivable that researchers can use the political-economy approach and hence use the ‘social’ and historical specificity of a country to analyze the ‘stylized’ facts that emerge from the cross-country evidence. Such country level political-economy based analysis may also complement the neoclassical-based cross-country studies by helping to identify other important factors that could be empirically examined using the neoclassical approach. In fact it will be quite interesting to compare and contrast the two approaches so as to ‘infer to the best explanation’ (see Lipton, 1991; Lawson, 1989; Wuyts, 1992; Alemayehu, 2017c). It is within this general methodological framework and caveat the empirical analysis below needs to be understood.

3.1. The Analytical Framework

The model begins from the presumption that the main task of macroeconomic management in any economy, fragile or not, is to ensure macroeconomic stability and sustained growth. Macroeconomic stability in fragile states in turn is a function of, inter alia, both political and economic factors. These factors are assumed to be unique and significant for fragile economies. This is because the environment of fragility and the legacy of conflict means there is a deficiency
and at times the absence of institutions which are responsible for macroeconomic management such as an independent central bank and appropriate fiscal and financial institutions. It also means the need to re-build such macroeconomic management institutions. This is important not only to bring about macroeconomic stability but also, perhaps more importantly, to ensure the legitimacy of the state and address the root cause of the conflict. The flip side of this is that failure to rebuild such institutions in a transparent and professional manner may mean the risk of relapse to conflict. It is for these reasons macroeconomic management in fragile states is more delicate and more demanding. Thus, in the model below, the determinants of macroeconomic stability in fragile states of Africa, as conceptualized in the previous section, need to include economic and political factors and related institutions that could help to capture the quantifiable dimension of these issues.

In the model of this type, indicators of macroeconomic instability such as high inflation, parallel market exchange rate premium, significant balance of payment and fiscal deficits and monetization of such deficit are generally used. These indicators usually result from overly expansionary macroeconomic policy, as noted by Sachs (1989) and Hirschman (1985) long time ago. They are also the result of deep social and political structure and related conflict. Inflation in particular, which is widely used as a summary indicator of the other macro instability indicators noted above, is widely used in the literature. Inflation also results from underlying social or distributional conflict as heterodox economics (see Alemayehu, 2017c) and the quotations below point out (the first two cited in Satyanath and Subramanian, 2004).

“It has long been obvious that the roots of inflation...lie deep in the social and political structure in general, and in social and political conflict and conflict management in particular.” (Hirschman, 1985).

“This particular type of overly expansionary macroeconomic policies which lead to high inflation and severe balance of payments crisis has been repeated so often, and with such common characteristics, that it plainly reveals the linkages from social conflict to poor economic performance.” (Sachs, 1989).

“Conflict directly expresses social, political and economic relations and that conflict study therefore requires analytical tools directly geared towards understanding these associations...from this perspective, scarcity, poverty, growth and economic & environmental crises are themselves to be understood as social events” (Cramer, 1999).

These perspectives show the importance of using inflation as an indicator of macroeconomic instability and related social conflict, the relevance of which is more pronounced in fragile states of Africa. Inflation is also to a larger extent a summary reflection of the state of fiscal and balance of payment deficit as well as related monetization which are the other competing indicators. Inflation is, thus, the dependent variable in our model. Having this dependent variable, our model attempts to quantify the effects of institutional, political, development financing as well as macroeconomic related variables that are believed to be the major causes of macroeconomic management problems in African fragile states as discussed in the previous section. Thus, in our model below, macroeconomic instability is ultimately assumed to be not only an economic issue but also a distributional and therefore political issue (Satyanath and Subramanian, 2004). This overarching framework is given as Figure 1, and the resulting empirical model, in logarithmic form, is specified using equations 1 to 3:
\[ \log(MI_{lt}) = \alpha_0 + \alpha_1 \log(Pol_{Inst_{lt}}) + \alpha_2 \log(Econ_{Inst_{lt}}) + \alpha_3 \log(Mpolicy_{lt}) + \alpha_4 \log(Debt_{lt}) + \alpha_5 \log(M2_{lt}) + \alpha_6 \log(RD_{lt}) \] \text{[1]}

Where:
- \(M_{lt}\) – Macroeconomic Instability Indicator [Inflation]
- \(Pol_{Inst_{lt}}\) – Political Institution that determines state fragility
- \(Econ_{Inst_{lt}}\) – Economic Institutions and Macro policy quality Indicators

Equation 1 may suffer from endogeneity problem. For instance, state fragility leads to macroeconomic instability. However, the converse could also be true. This is, thus, an empirical question. In addition, we also know that the kind of macro policy pursued could be a function of the nature of political and economic institutions in the country in question. If this is the case, we need to substitute for “macro policy” indicators that may include the M2 and Debt/Aid variables the political and economic institutions indicators and write equation 1 in a reduced from as equations 2 and, finally, 3. Such issues are further explored at the estimation stage.

\[ \log(Mpolicy^*_{lt}) = \alpha_0 + \alpha_1 \log(Pol_{Inst_{lt}}) + \alpha_2 \log(Econ_{Inst_{lt}}) \] \text{[2]}

Where: \(M_{policy}^*\) could also include M2 and Debt/Aid variables as well as the macroeconomic ramification of the nature of [Resource based] financing development (RD).

\[ \log(MI_{lt}) = \alpha_0 + \alpha_1 \log(Pol_{Inst_{lt}}) + \alpha_2 \log(Econ_{Inst_{lt}}) + \alpha_3 \log(Mpolicy^*_{lt}) + \alpha_4 \log(RD_{lt}) \] \text{[3]}

Alternatively, by substituting the right hand side variables of equation [2] in [1] we can estimate equation [1] with the “macro policy” variables replaced by their determinants (i.e., political and economic institutions) which basically means estimating equation [1] that excludes the macro policy indicators. This is also an empirical issue which is further pursued at estimation stage.
3.2 The Econometric Approach and the Econometric Model

3.2.1 The Econometrics Method/Approach

Since our data has both cross-section (country) and time dimensions – and hence is a pooled (panel) data, there are various techniques of modeling to be considered. This includes the fixed effect, random effect and panel co-integration approaches. The latter has, in turn, an autoregressive distributed lag, ARDL (Pesaran and Shin, 1995; 1999; Pesaran et al, 1995, 1997), and the Johanson (1988, 1991) cointegration based alternative approach. Owing to possible endogeneity problem in the model of our type, the general method of moments (GMM) approach has also been used in some studies.

Owing to the path dependent nature of state fragility and the importance of history in explaining conflict in Africa, the long run and time series property of variables is important in our empirical analysis. In addition, since macroeconomic instability is also a short run phenomenon, a short run analysis is important. Thus, we need an estimation approach that takes both these long and short term issues on board. The panel ARDL technique is one such approach that recently being widely used in the literature. It is a co-integration technique introduced by Pesaran and Shin (1995; 1999) and Pesaran et al, (1995, 1997).

Be that as it may, a number of micro studies (and also increasingly macro studies) are also using the GMM approach to address issue of endogeneity in the model of this type. The GMM-difference estimator in particular is widely used for this purpose. This estimator, however, captures only the short-run dynamics. Moreover, the stationarity of the variables used tends to be ignored because these models are mostly restricted to short time series. Thus, the estimated results may not represent a structural long–run equilibrium relationship or could be a spurious one (see Christopoulos and Tsionas, 2004 cited in Samargandi et al, 2013; Samargandi et al, 2013). In addition, Kiviet (1995, cited in Samargandi et al, 2013) argues that in GMM estimation the imposition of homogeneity assumptions on the slope coefficients of the lagged dependent variable could lead to serious biases, and is likely to produce inconsistent and misleading long-run coefficients (Pesaran and Smith, 1995; Pesaran, 1997; Pesaran and Shin, 1999 cited in Samargandi et al, 2013). The ARDL approach, on the other hand, can address these issues. In addition, another justification to move away from GMM and use the ARDL model relates to the latter's ability to provide consistent coefficients despite the possible presence of endogeneity. This is because it includes lags of the dependent and independent variables as regressors in the model (Pesaran et al, 1999; Loayza and Ranciere, 2006, all cited in Samargandi et al, 2013).

The Panel VECM version of the ARDL formulation offered in the next sub-section could be estimated by three different estimators: the mean group (MG) estimator (Pesaran and Smith 1995; Dogan et al, 2014; Samargandi et al, 2013), the pooled mean group (PMG) estimator (Pesaran et al, 1999), and the dynamic fixed effects estimator (DFE) (Samargandi et al, 2013). All these estimators take on board the long-run equilibrium and heterogeneity of the dynamic adjustment process (Demetriades and Law, 2006, cited Samargandi et al, 2013) and are computed by maximum likelihood method (Samargandi et al, 2013). The choice among them, however, depends, inter alia, on our assumption about homogeneity of the slope coefficient. The MG approach allows estimating separate regressions for each country and calculating the long

---

10 This includes the GMM-difference estimator proposed by Arellano and Bond (1991) and the GMM system estimator by Arellano and Bover (1995) and Blundell and Bond (1998).
run coefficients as unweighted mean of the estimated coefficients for each cross-section units. This technique allows for heterogeneity. However, the consistency and validity of this approach is conditional on having a sufficiently large time-series dimension of the data (see Samargandi, 2013; Favara, 2003). Hence, it could not suit our model as our time series data for each country is very limited. Similarly, we will not be using the dynamic fixed effects estimator (DFE) although it is similar to the PMG estimator. This is because it restricts the speed of adjustment coefficient and the short-run coefficient to be equal. Moreover, according to Baltagi et al (2000, cited in Samargandi, 2013), DFE is subject to a simultaneous equation bias due to the endogeneity between the error term and the lagged dependent variable in case of small sample size model of our type.

Thus, for our model, the ARDL approach using the PMG technique is quite relevant because we believe the general pattern of African fragile states is similar and hence its macroeconomic environment is affected in a similar way by the attributes of state fragility, although there could be some limited variation across countries. In addition, as the PMG estimator assumes homogenous slope coefficient and also allows short-run coefficients, including the intercepts, the adjustment terms, and error variances to be heterogeneous across country (see Samargandi, 2013), it does tally with the basic idea that our empirical model attempts to capture. Notwithstanding our analytical justification for choosing the PMG approach, we have carried an empirical test to identify the choice among the MG, PMG and DFE methods. The Hausman test with the null that “the difference between estimated coefficients using these techniques is not significant” is conducted for the purpose (see Samargandi, 2013; Dogan et al, 2014). Our test shows that the hypothesis of homogeneity is accepted at p-value of 96 per cent (with Chi-square value of 0.98), thus, supporting the use of the PMG approach.

The ARDL-PMG technique we have chosen also assumes that the resulting residual of the error-correction model be serially uncorrelated and the explanatory variables to be treated as exogenous. Such conditions can be fulfilled by including the lags of the dependent (p) and independent variables (q) in error correction form in the standard ARDL (p, q) model (see Samargandi, 2013) - thus tackling the endogeneity problem in the process\(^{11}\). In addition, since the ARDL approach is also found to be useful for long-run analysis as it is valid regardless of whether the regressors are exogenous, or endogenous, and irrespective of whether the underlying variables are I(0) or I(1) (see Chudki et al, 2013), these features are appealing for our model as reverse causality that may lead to biased coefficients could potentially be a possibility in a model of our type.

Finally, given that state fragility in a particular country is contagious and could potentially be associated with political and economic condition of neighboring states, one would expect the existence of cross-section dependence in a model of our type. But, this is an empirical question. We have carried a cross-section dependence test to this effect and found no cross-section dependence in our data, however (Table 4.2). This result not only indicates the lack of contagious effect in African fragile states but also provide support for the use of the ARDL, and not the cross-section augmented ARDL approach (CS-ARDL) in this study. In sum, the review of different econometric approaches in this sub-section justifies our choice of the ARDL

---

\(^{11}\) Recently, however, (see Chudik et al, 2013; 2015) it is suggested that if the interest is to estimate only the long run coefficients, a cross-section augmented distributed lag model (CS-DL) developed by Chudik et al (2013) has a number of desirable properties for applied work.
approach and the PMG estimator. This approach is formally presented in the next sub-section and used in section IV.

3.2.2 The Econometric Model

As argued in the previous section, the econometric model specified and estimated is a single equation based on an auto-regressive distribution lag model (ARDL) formulation of a VAR formulation of the variables of the model. In general, in ARDL formulation, a long run (equilibrium) relationship between two variables, $Y^*$ and $X^*$ (where $\log(Y^*)=Y$ and $\log(X^*)=X$), could be given by equation [1]

$$ Y_t^* = KX_t^* \quad \text{where: } K, \gamma_1 \& \gamma_2 \text{ are constants; } \gamma_1 = \log K $$

As this equilibrium relationship cannot be observed, the observable disequilibrium formulation of this long run (equilibrium) relationship between $Y$ and $X$ (both in log), in a simplified form, can be given by equation [2]. Equation [2] is a simple ARDL $(m,n,p)$ [where $m$ is the number of lags, $n$ & $p$ the number of endogenous and exogenous variables, respectively], ARDL$(1,1,1)$, formulation of equation [1] could be given by:

$$ Y_t = \beta_0 + \beta_1 X_t + \beta_2 X_{t-1} + \alpha Y_{t-1} + u_t \quad 0 < \alpha < 1 $$

With some re-parametrization$^{12}$, the ECM representation of equation [2] could be given by equation [3] (Benerjee et al, 1993; Thomas, 1993; Hendry, 1995; Alemayehu, 2002; Morales and Raei, 2013).

$$ \Delta Y_t = \beta_1 \Delta X_t - (1 - \alpha)[Y_{t-1} - \gamma_0 - \gamma_1 X_{t-1}] + u_t $$

Where:

$$ \gamma_0 = \frac{\beta_0}{1-\alpha} ; \gamma_1 = \frac{\beta_1+\beta_2}{1-\alpha}; \text{ and } \{- (1 - \alpha)\} \text{ is the ECM term and is expected to be negative.} $$

This formulation could be generalized for a general ARDL of the form,

$$ Y_t = \beta_0 + \sum_{i=1}^{m+1} \beta_i X_{t-i+1} + \sum_{i=1}^{m+1} \alpha_i Y_{t-i} + u_t $$

The estimable ECM formulation of [4] could be derived in similar way as,

$$ \Delta Y_t = \beta_0 + \sum_{i=1}^{m} \beta_i \Delta X_{t-i+1} + (1 - \sum_{i=1}^{m} \alpha_i)[Y_{t-i} - \gamma_0 - \sum_{i=1}^{m} \gamma_i X_{t-i}] + u_t $$

Where: $\gamma_0 = \frac{\beta_0}{1-\sum_{i=1}^{m} \alpha_i}$ is the constant; & the long run coefficients are given by $\gamma_i = \frac{\sum_{i=1}^{m} \beta_i}{1-\sum_{i=1}^{m} \alpha_i}$.

$^{12}$ Subtracting $Y_{t+1}$ from either side of equation [3] and adding and subtracting $X_{t+1}$ in the right hand side of the resulting equation gives equation [4].
Equation 5 could be written as an ARDL\textsuperscript{13} formulation with $p$ lags, in a single equation equilibrium/error-correction (EqCM/ECM) form as follows (all variables are in natural logarithm form, and the prefix log is left out for convenience). This is the model that we have estimated in the next section:

$$\Delta MI = \sum_{i=0}^{p} \beta_{1i} \Delta MI_{t-i} + \sum_{i=0}^{p} \beta_{2i} \Delta PI_{t-i} + \sum_{i=0}^{p} \beta_{3i} \Delta EI_{t-i} + \sum_{i=0}^{p} \beta_{4i} \Delta Debt_{t-i} + \sum_{i=0}^{p} \beta_{5i} \Delta M 2_{t-i} + \sum_{i=0}^{p} \beta_{6i} \Delta RD_{t-i}$$

$$+ \beta_{7} [MI - \varphi_{1} PI - \varphi_{2} EI - \varphi_{3} Debt - \varphi_{4} M 2 - \varphi_{5} RD_{t-i}] + u_{i}$$

[6]

Equation [6] is a general empirical model that attempts to capture the major quantifiable determinants of or factors behind macroeconomic instability in fragile states of Africa.

IV. **Data and Estimated Results**

Table 4.1 offers the definition and source of data used. Inflation is used as the macroeconomic instability indicator, and hence, is the dependent variable. Although some studies use an index that could be constructed based on inflation, budget and trade deficit data, we have used inflation owing to its simplicity, its potential to show social conflict as discussed in section two above and its wide use in the literature. Moreover, budget and trade deficits in Africa invariably lead to inflation through monetization and imported inflation, respectively, and hence could be captured by the inflation variable used. The estimation of the model is based on annual data for the period 1999 to 2014 using a sample of 16 fragile African states for which all the required data is available.

**Table 4.1: Definition of variables and data source (1999 to 2014)**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Definition</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log of Inflation</td>
<td>The natural log of Inflation</td>
<td>ADI(2013) and WDI(2016)</td>
</tr>
<tr>
<td>Log of External Debt &amp; Aid to</td>
<td>The natural log of external debt to GDP ratio – an indicator of external</td>
<td>ADI(2013) and WDI(2016)</td>
</tr>
<tr>
<td>GDP Ratio</td>
<td>vulnerability for finance, debt management capacity. An alternative here is</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AID/GDP ratio which an inflow of aid (which is a debt creating flow)</td>
<td></td>
</tr>
<tr>
<td>Log of M2 to GDP Ratio</td>
<td>The natural log of money supply (M2) to GDP ratio: Money supply (M2, broad</td>
<td>ADI(2013) and WDI(2016)</td>
</tr>
<tr>
<td></td>
<td>money). Significant growth in this ratio shows financial sector development.</td>
<td></td>
</tr>
<tr>
<td>Log of Natural Resource</td>
<td>The natural log of royalty from natural resources as a share of GDP which is an</td>
<td>ADI(2013) and WDI(2016)</td>
</tr>
<tr>
<td>Abundance</td>
<td>important financing development feature of most fragile states in Africa.</td>
<td></td>
</tr>
<tr>
<td>Aggregate Governance/Political</td>
<td>The aggregate sum of Voice and Accountability, Political Stability and</td>
<td>IGRC(2016)</td>
</tr>
<tr>
<td>Indicator</td>
<td>Absence of Violence/Terrorism, Government Effectiveness, Regulatory</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Quality, Rule of Law and Control of Corruption index of the World Bank</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-2.5=low to 2.5=high)</td>
<td></td>
</tr>
</tbody>
</table>

\textsuperscript{13} This final form could also be given in a vector error-correction model (VECM) given in appendix 1A.
Macroeconomic governance institutional and macro policy Indicator:
CPIA cluster A which is an indicator of institutions for macroeconomic management of the World Bank. It covers the quality of monetary, exchange rate, fiscal and debt policies; its rating is between 1 to 6 (1=low to 6=high).

**4.1 The ARDL Model Results**

The model is estimated using the ARDL approach with PMG estimation technique, as noted. Although the ARDL approach can handle both I(0) and I(1) variables and hence do not require to take a unit root test, we have conducted such test to check, at least, the absence of I(2) variables, in the presence of which the approach is problematic. The test for stationarity revealed that all the variables of the model are I(1) (not reported). We have also tested for the existence of long run or co-integration relationship among the variables of the model using the "bound test" as well as panel cointegration tests and found them to be co-integrated. This is reported in Appendix 1. The model also passed all post-estimation diagnostic tests (Table 4.2). The estimated result is given in Table 4.2.

Table 4.2 shows, in the short run, all the variables have their *apriori* expected sign. Thus, in the short run, better governance of the social and political spheres and having better institutions are found to bring about macroeconomic stability. Natural resource dependence is found to trigger macroeconomic instability in the short run (with no statistically significant effect in the long run). The M2/GDP ratio, taken as an indicator of financial depth or development, as it is usually taken in the finance and growth literature, indicates the strong and potent positive association between financial sector development (financial depth) and macroeconomic stability thereby strengthening our argument for focusing on financial sector reconstruction to transit from state fragility.

In the long run, an increase in the external debt stock is found to bring about macroeconomic instability. On the other hand, the presence of strong macroeconomic management institutions and related macroeconomic policies are found to bring about macroeconomic stability. The rest of the variables are not found to be statistically significant in the long run.

The error correction term is also found to be significant with a very high value. The latter shows about 86 per cent of the previous period’s deviation from the equilibrium value is adjusted in the current period. This is encouraging because any errors that led to macroeconomic instability could be corrected quickly. Finally, it is also interesting to note that state fragility in Africa doesn’t seem to be contagious from macroeconomic instability perspective. This is because our cross-section dependence tests (last items in Table 4.2) reject the null of cross-section dependence in our data.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log of External Debt to GDP Ratio</td>
<td>0.0132*</td>
<td>2.513</td>
<td>0.013</td>
</tr>
<tr>
<td>Log of M2 to GDP Ratio</td>
<td>0.012</td>
<td>0.320</td>
<td>0.750</td>
</tr>
<tr>
<td>Log of Natural Resource Abundance</td>
<td>-0.038</td>
<td>-1.057</td>
<td>0.293</td>
</tr>
<tr>
<td>Aggregate Governance Indicator</td>
<td>-0.004</td>
<td>-0.783</td>
<td>0.435</td>
</tr>
<tr>
<td>Macro Institutions &amp;Policy-CPIA Macro</td>
<td>-0.053*</td>
<td>-2.227</td>
<td>0.028</td>
</tr>
</tbody>
</table>

Short Run Equation/Elasticities

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log of External Debt to GDP Ratio</td>
<td>0.0132*</td>
<td>2.513</td>
<td>0.013</td>
</tr>
<tr>
<td>Log of M2 to GDP Ratio</td>
<td>0.012</td>
<td>0.320</td>
<td>0.750</td>
</tr>
<tr>
<td>Log of Natural Resource Abundance</td>
<td>-0.038</td>
<td>-1.057</td>
<td>0.293</td>
</tr>
<tr>
<td>Aggregate Governance Indicator</td>
<td>-0.004</td>
<td>-0.783</td>
<td>0.435</td>
</tr>
<tr>
<td>Macro Institutions &amp;Policy-CPIA Macro</td>
<td>-0.053*</td>
<td>-2.227</td>
<td>0.028</td>
</tr>
<tr>
<td>Variable</td>
<td>Coefficient</td>
<td>t-Statistic</td>
<td>Prob.</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-------------</td>
<td>-------------</td>
<td>-------</td>
</tr>
<tr>
<td>ECM</td>
<td>-0.86*</td>
<td>-8.73</td>
<td>0.000</td>
</tr>
<tr>
<td>Δ(Log of External Debt to GDP Ratio)</td>
<td>-0.050</td>
<td>-0.89</td>
<td>0.750</td>
</tr>
<tr>
<td>Δ (Log of M2 to GDP Ratio)</td>
<td>-0.57**</td>
<td>-1.78</td>
<td>0.077</td>
</tr>
<tr>
<td>Δ(Log of Natural Resource Abundance)</td>
<td>0.13***</td>
<td>1.60</td>
<td>0.113</td>
</tr>
<tr>
<td>Δ (Aggregate Governance Indicator)</td>
<td>-0.09*</td>
<td>-3.28</td>
<td>0.001</td>
</tr>
<tr>
<td>Δ (Macro Institutions &amp;Policy-CPIA Macro)</td>
<td>-0.23</td>
<td>-1.43</td>
<td>0.156</td>
</tr>
<tr>
<td>Constant</td>
<td>2.59*</td>
<td>9.22</td>
<td>0.000</td>
</tr>
</tbody>
</table>

### Normality, Hausman and Cross-section Dependence (CD) Tests

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jarque – Berra Normality Testes</td>
<td>1.63(0.44)</td>
</tr>
<tr>
<td>Breusch-Pagan Chi-square CD Test</td>
<td>117.6 (0.54)</td>
</tr>
<tr>
<td>Pearson LM Normal CD Test</td>
<td>-1.19(0.24)</td>
</tr>
<tr>
<td>Pearson CD Normal</td>
<td>0.76(0.0.45)</td>
</tr>
<tr>
<td>Friedman Chi-square</td>
<td>21.21(0.27)</td>
</tr>
<tr>
<td>Hausman Chi-square (homogeneity test)</td>
<td>0.98 (0.95)</td>
</tr>
<tr>
<td>Adjusted-R²</td>
<td>0.65</td>
</tr>
</tbody>
</table>

Note: *, **, *** indicate the coefficient significance at 1, 5 and 10 per cent level, respectively; P-Values are given in parenthesis for the diagnostic tests; null hypothesis for CD Test is cross-sectional independence; null hypothesis for Normality Test is errors are multivariate normal; the null of the Hausman test is homogeneity of the slope coefficient.

Before arriving at the model result reported in Table 4.2, we have experimented with a number of models as well as alternative indicators or measures for the variables used in the model. For instance, we have excluded the M2/GDP and Debt/GDP indicators, on the believe that they might be captured by the CPIA cluster A macro policy and quality indicator used in the above model. This did not change the result and hence we have maintained these variables in the result reported in Table 4.2 (see Appendix 1b). Similarly, replacing the "aggregate governance/political and institutional" indicators in the above model by the IGRC "political stability" as well as the WB's "CPIA public sector institutions and policies indicator (cluster D)" and the "CPIA macro policy and institution indicator (cluster A)" doesn't change the general result found here (Appendix 1b). Finally, as an alternative to the panel ARDL model used above, we have also estimated a fixed/random effect model (using six-year average values). The model offered statistically insignificant value for all regressors (not reported). Moreover, notwithstanding the possibility of spurious regression owing to the time dimension of the pooled data, as the panel co-integration literature asserts (see section 3.2.1 above; also Alemayehu et al, 2012), we have estimated the same fixed/random effect model using the pooled data with annual values running form the year 1999-2014. The result (not reported but could be obtained upon request from the author) shows that both in the fixed and random effect versions of the model all regressors except "the proxy for macroeconomic management" indicator are found to be statistically insignificant. This, indirectly suggests at the robustness of the result reported in Table 4.2.

### 4.1 The Logit/Probit Model Results

To further check the robustness of the above finding we have employed a logit/probit model which is similar to the one used by IMF (2014). The model is used to further quantify the impact of the determinants of macroeconomic instability in the above ARDL model in helping countries transit from state fragility to resilience or not. The sample in this model is different from the ARDL model above as it has African countries that are both fragile and those transited from state fragility. Using
34 such African countries for which all the required data is available, we have created a dependent dummy variable called "resilient" that takes the value of "1" if a country transited from state fragility to resilience in a particular year and "0" otherwise. This variable is regressed on the above macro variables that includes economic growth and aid using both logit and probit models. The estimated results and their marginal effect coefficients are given in Tables 4.3a and 4.3b, respectively.

Table 4.3a: Transiting from State Fragility and Macroeconomic Management: The Logit and Probit Models Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Logit</th>
<th>Probit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-24.03*</td>
<td>-14.16*</td>
</tr>
<tr>
<td>Log (Inflation)</td>
<td>-0.50</td>
<td>-0.25</td>
</tr>
<tr>
<td>Log (Aid/GDP)</td>
<td>1.33*</td>
<td>0.78*</td>
</tr>
<tr>
<td>Log (External Debt Stock/GDP)</td>
<td>-1.22*</td>
<td>-0.73*</td>
</tr>
<tr>
<td>Log (Resource Abundance)</td>
<td>-0.87*</td>
<td>-0.47*</td>
</tr>
<tr>
<td>Log (Real GDP)</td>
<td>1.02*</td>
<td>0.59*</td>
</tr>
<tr>
<td>Log (M2/GDP)</td>
<td>2.11*</td>
<td>1.27*</td>
</tr>
</tbody>
</table>

Diagnostic Tests

- McFadden R-Squared: 0.34, 0.34
- LR Statistic: 144(0.00), 145(0.00)
- H-L Statistic: 14.05(0.08), 10.67(0.00)
- Andrews Statistic: 38.22(0.00), 33.86(0.00)

Note: *, **, *** indicate the coefficient significance at 1, 5 and 10 per cent level of significance respectively; P-Values in Parenthesis for the diagnostic tests

Table 4.3b: Marginal Effects of the Logit and Probit Models above

<table>
<thead>
<tr>
<th>Variable</th>
<th>Logit Model</th>
<th>Probit Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log of (Inflation)</td>
<td>-0.07</td>
<td>-0.08</td>
</tr>
<tr>
<td>Log of (AID/GDP)</td>
<td>0.20*</td>
<td>0.26*</td>
</tr>
<tr>
<td>Log of (External Debt Stock/GDP)</td>
<td>-0.18*</td>
<td>-0.24*</td>
</tr>
<tr>
<td>Log of (Resource Abundance)</td>
<td>-0.13*</td>
<td>-0.16*</td>
</tr>
<tr>
<td>Log of (Real GDP)</td>
<td>0.15*</td>
<td>0.19*</td>
</tr>
<tr>
<td>Log of (M2/GDP)</td>
<td>0.31*</td>
<td>0.42*</td>
</tr>
</tbody>
</table>

The result generally confirms the findings reported in Table 4.2 above. Thus, resource dependence, rising level of debt and macroeconomic instability whose indicator is inflation (though it is not statistically significant at the conventional level\(^\text{14}\)), in order of importance, are found to inhibit transiting from state fragility to resilience. On the other hand, rising level of aid, economic growth and financial depth (and hence financial sector development) are found to enhance transiting from state fragility to resilience. In terms of the potency of the effects financial sector depth followed by aid, external debt and economic growth, in order of importance, are found to be the most important factors behind transiting (or not) from state fragility to resilience. The significant effect of the financial depth indicator is interesting because it indicates not only the importance of the financial

\(^{14}\) The statistically insignificance result of the inflation variable apparently seems to contradict to the findings of the ARDL model above where 'inflation' is assumed as the vital indicator of state fragility. However, inflation is still crucial. We have got statistically insignificant result in the Tobit/Probit models because the rest of the regressors are variables that explain inflation as shown in the ARDL model above. Thus, it is a redundant variable in this Tobit/Logit models. To see that we have run a separate regression without inflation (not reported) and the results here remained unchanged. In addition, in another version the same models where we used inflation (without log, suspecting if the result has to do with its growth rate, not level, nature) we found it to have statistically significant negative coefficient (not reported).
sector growth as such but also, perhaps most importantly, the signaling effect of financial depth as an indicator of both economic and political stability as well as state legitimacy. This gives further credence to the importance of financial sector reconstruction in fragile states as noted in section two of the study.

Similar to the ARDL model above, we have also experimented with various logit/probit models specifications before arriving at the model given as Table 4.3. For instance, replacing GDP by GDP growth doesn't change the result. Similarly, replacing the inflation variable by a dummy variable for "double digit" inflation doesn't change the above model result either. The latter makes sense since only 12 out of 340 observations used in the model show episodes of double digit inflation. We have also experimented by including the "political" and "institutional" [i.e. CPIA Clusters A and D] indicators of the previous model to augment the logit/probit models above. These new variables became statistically insignificant though they have right sign. This is understandable as regressors used in the logit/probit model of Table 4.3 are determined by these "political" and "institutional" variables and hence a proxy for them. Finally, we have also augmented the above logit/probit models by including the lagged value of resilience to check the impact of path dependency on the state of state fragility/resilience. The lagged dependent variable becomes statistically significant with strong potency. However, all the other variables, expect the aid/debt variable with weak potency, became statistically insignificant. Again, this is a sensible result as the lagged resilience is a function of all lagged regressors as can be read from the basic model reported in Table 4.3 and hence it is effectively replacing these variables, rendering them statistically insignificant values. All these experiments shows the model reported in the Tables 4.3 is the best and robust one.

V. Conclusion and Policy Implications

In this study an attempt to understand the macroeconomic management issues in fragile states of Africa is made. The study shows, in addition to inclusive politics, inclusive growth is a key policy that can help fragile states in Africa transit to resilience and durable peace. Such growth is conditional on stable macroeconomic environment, however. This calls for proper macroeconomic management. Related to the latter, the study has also attempted to examine whether such fragile African states need a unique macroeconomic management and what its salient features are. In line with this, the first message from the study is that fragile states need a unique macroeconomic management because macro policy in such states have the additional objective of establishing state legitimacy, avoiding the risk of relapse to conflict and capacity building with significant support coming from development partners.

Having such unique needs, fragile states in Africa are found to be characterized by the following three features that needs to inform macroeconomic management in general and macro policy aimed at bringing about macroeconomic stability and inclusive growth in particular.

a) Political economy based understanding of the cause of conflict and how it shapes the nature of growth – whether such growth is distribution conscious or not. This underscores the need to frame macroeconomic management in a broader political economy and institutional context of growth-conflict nexus.

b) Standard financing of growth through domestic resource mobilization is usually limited and hence growth in such economies could be highly dependent on earnings from natural resource exports if the country is resource-rich and/or on significant inflow of aid that includes debt creating flows. Deficit/inflation financing usually features when the first two
are not forthcoming - further aggravating state fragility through macroeconomic instability. In addition, there is the problem of absorptive capacity and the challenge of financial sector reconstruction as enduring features of such states.

c) All this is done in weak institutional, governance and human capital context, which itself needs further financing for capacity building. As that of other facets of such states, this deficiency is also evident in sphere of macroeconomic management.

All these have macroeconomic ramifications which need appropriate macro policy and careful macroeconomic management. The empirical analysis conducted in the study confirms the importance of recognizing the above features of African fragile states for macroeconomic stability. Thus, we found, first, improving governance and building an inclusive and democratic politics to be an important factor for macroeconomic stability in the short run. In the long run, an improvement in economic governance and relevant institutions is found to be much more important, however. Second, in general, an accumulation of debt is found to lead to macroeconomic instability in the long run. Third, the degree of financial depth and hence financial sector reconstruction to that end is found to help countries to avoid macroeconomic instability and transit from state fragility, especially in the short run. Fourth, resource dependence is found to lead to macroeconomic instability only in the short run. In the long run, it is found to have no statistically significant effect. Finally, in addition, we found growth and macroeconomic stability as well as rising inflows of aid as important factors to transit from state fragility to resilience.

The implications of these findings for policy are multifaceted but need to be country-specific. Notwithstanding the latter, we can chart the general approach to policy response in fragile states of Africa from the findings in this study. This may serve as a framework for designing macro policy response in each country. The first important policy response relates to issue of addressing deficiencies in building inclusive politics and proper economic governance institutions. The details of this could be country-specific that takes on board the history and political economy specificity of the country in question. Second, the financing issues noted in the study (large inflow of resources either from export of natural resources or aid) is found to lead to macroeconomic management challenges that relate to: the “Dutch disease” and the “Recipients’ fiscal response” problems as well as “prudent and transparent management of aid or revenue from natural resources”.

*Diagram 2: Macro Policy Options to Deal with the Challenge of an Inflow of foreign exchange from natural resource export and significant aid inflows*
The generic approach to such appropriate policy responses to these challenges could be summarized using Diagram 2. As can be read from Diagram 2, there is a need to establish medium-term spending plan, to decouple current spending from volatile government revenues, and to enact a strategy for counter-cyclical fiscal policy (policy response 1 in Diagram 2) to deal with the macroeconomic ramifications of financing development in fragile states of Africa. The fiscal policy direction needs to be combined with an exchange rate and monetary policies that would avoid the possibility of real exchange rate appreciation and an increase in money supply which comes with the nature of financing development that may lead to inflation. An important policy objective in this regard could be inflation targeting that requires deploying relevant policy instruments such as tighter monetary policy (policy response 2 in Diagram 2). Such monetary policy could be combined with a managed floating exchange rate regime that follows a more gradualist path to exchange-rate flexibility (policy response 3 in Diagram 2). In addition, counter-cyclical fiscal policy will provide a degree of automatic sterilization that will tackle the monetary base raising effect of such resource flows. Successful economic transformation also requires macroeconomic and financial frameworks for promoting national savings, fiscal stability, diversification (policy response 1a and 1b in Diagram 2) and a political and social contract for managing capital inflows, based on democratic participation and transparent economic governance (policy response 4 in Diagram 2).

Finally, weak institutional capacity and deficiency in human capital are noted as the defining characteristics of the African fragile states. In addition, financial sector reconstruction/enhancing financial depth is also found to help avoid macroeconomic instability. Thus, all essential macroeconomic management issues as well as financial sector reconstruction need to be accompanied by capacity building to carry out such task, especially in the long run (policy response 4 in Diagram 2). In the short run, capacity deficiencies could be addressed through technical assistance. However, such technical assistance needs to have the dual objective of doing the actual job and building local capacity (say through on job-training) at the same time.
Engaging the diaspora for this purpose could be helpful as it also simultaneously help avoid relapse to conflict as this diaspora may refrain from financing another round of conflict (see Collier and Hoeffler 2002b; Alemayehu, 2011).

**Reference**


IMF (2014) Regional Economic Outlook: Sub-Saharan Africa Staying the Course. Washington, D.C.: International Monetary Fund,


Annex I: Defining State Fragility

**Box 1: Defining State Fragility**

A number of organizations have contributed to the operationalization of the concept of state fragility and its measurement. The UK’s Department for International Development (DFID) and the Organization for Economic Cooperation and Development (OECD) have similar definitions of fragile states, which focus on service entitlements. DFID defines fragile states as occurring where ‘the government cannot or will not deliver core functions to the majority of its people, including the poor’, where core functions include service entitlements, justice and security (DFID, 2005). The OECD definition is similar, but emphasizes the ‘lack of political commitment and insufficient capacity to develop and implement pro-poor policies’ (Morcos, 2005, quoted in Prest et al, 2005: 5). Canada’s Country Indicators for Foreign Policy Project (CIFP) definition of fragile states extends beyond service entitlements to include those states that ‘lack the functional authority to provide basic security within their borders, the institutional capacity to provide basic social needs for their populations, and/or the political legitimacy to effectively represent their citizens at home or abroad’ (CIFP, 2006). The USAID approach is similar, but differentiates between states ‘in crises’ and those that are ‘vulnerable’. Stewart and Brown (2009) provide a definition close to CIFP, but extend the first dimension – capacity – to include lack of will by defining fragility as: loss of comprehensive service entitlements, authority and legitimacy, whereby service entitlements may fail due to capacity or political will. Failure to deliver services is defined to include a failure to reduce monetary poverty as well as a failure to provide public services. USAID uses the term fragile states to refer generally to a broad range of failed, failing and recovering states. Finally, the World Bank identifies fragile states with ‘low-income countries under stress’ (LICUS). ‘LICUS are fragile states characterized by a debilitating combination of weak governance, policies and institutions, indicated by ranking among the lowest (<3) on the country policies and institutional performance assessment (CPIA) index. According to OECD (2015), such function-oriented indices include the Carleton University Country Indicators for Foreign Policy Index, the Brookings Index of State Weakness in the Developing World (Rice and Patrick, 2008), and the State Fragility Index (Marshall and Cole, 2014). The World Bank’s CPIA, according to OECD (2015), focuses on basic state functions and policies, but emphasizes bureaucratic capacity and economic and regulatory policy, and does not address political, human and civil rights (World Bank, 2011a) [all cited in OECD, 2015].

The Development Assistance Committee (DAC) identifies four types of fragile states: deteriorating; arrested development; early recovery; and post-conflict. Such a typology is useful in thinking through the different stages as well as in understanding post-conflict economies as a special case of fragile states. Overall, the post-conflict concept is blurred. The political and social situation may remain fragile for a long time, with a high degree of polarization among groups and communities because of past brutality. Post-conflict public authorities are usually weak, both in technical capacity and effective control of their territory. Consequently, the former conflict area may remain a “gray” area for a long time (Michailof et al, 2002). Since they fall within the broader definition of fragile states yet have a hope of durable peace, post-conflict states are basically a special case of fragile states.

Extracts from Alemayehu (2011); OECD (2015)
APPENDIX 1A: Cointegration Test and Alternative Model Results

Test for Cointegration: Table A1: Pedroni Residual Cointegration Test

<table>
<thead>
<tr>
<th>Series</th>
<th>Statistic</th>
<th>Prob.</th>
<th>Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel v-Statistic</td>
<td>-0.321818</td>
<td>0.6262</td>
<td>-0.905966</td>
<td>0.8175</td>
</tr>
<tr>
<td>Panel rho-Statistic</td>
<td>1.523423</td>
<td>0.9362</td>
<td>1.333059</td>
<td>0.9087</td>
</tr>
<tr>
<td>Panel PP-Statistic</td>
<td>-7.344073</td>
<td>0.0000</td>
<td>-8.234115</td>
<td>0.0000</td>
</tr>
<tr>
<td>Panel ADF-Statistic</td>
<td>-7.209165</td>
<td>0.0000</td>
<td>-7.082521</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Alternative hypothesis: common AR coefs. (within-dimension)

| Group rho-Statistic     | 3.030552  | 0.9988|
| Group PP-Statistic      | -9.270880 | 0.0000|
| Group ADF-Statistic     | -8.477234 | 0.0000|

Alternative hypothesis: individual AR coefs. (between-dimension)

Table A2: Kao Residual Cointegration Test

<table>
<thead>
<tr>
<th>Series</th>
<th>Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADF</td>
<td>-4.806824</td>
<td>0.0000</td>
</tr>
<tr>
<td>Residual variance</td>
<td>0.046744</td>
<td></td>
</tr>
<tr>
<td>HAC variance</td>
<td>0.021256</td>
<td></td>
</tr>
</tbody>
</table>

Appendix 1A: An Alternative VECM Formulation of the Model

The final estimable version of the ECM equations [5], in panel form can also be given as:

\[ \Delta Y_{it} = -\Pi Y_{i,t-1} + \sum_{n,j=1}^{n} \Phi_i \Delta Y_{it-n-1} + \phi D + u_{it} \]

Where:

\[ Y = \begin{bmatrix} \log(M1_{it}) \\ \log(M2_{it}) \\ \log(Debt_{it}) \\ \log(M2_{it}) \\ \log(Debt_{it}) \end{bmatrix} \quad \text{and} \quad \Phi_i = -\left( \sum_{n,j=1}^{n} A_{nj} \right) = -A^* \left( L \right) \]

The indices “i” and “t” refer to countries and time, respectively. Y shows the vector of endogenous variables that include our macroeconomic instability indicator (MI). The rest of the variables are as defined in the theoretical model.
Appendix 1B: ARDL Estimation with Alternative Political and Institutional Variables and Without M2 and Debt (the Macro) Variables

Dependent Variable: $\Delta (\text{Log of Inflation})$
Sample: 1999 2014
Included observations: 240
Maximum dependent lags: 1 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Selected Model: ARDL (1, 1, 1, 1, 1, 1)

### Long Run Equation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log of Natural Resource Abundance</td>
<td>0.02</td>
<td>0.01</td>
</tr>
<tr>
<td>Political Stability</td>
<td>-0.003</td>
<td></td>
</tr>
<tr>
<td>CPIA public sector management and institutions</td>
<td>-0.04</td>
<td></td>
</tr>
<tr>
<td>CPIA economic management</td>
<td>-0.07**</td>
<td></td>
</tr>
<tr>
<td>Political Indicator(Aggregated)</td>
<td></td>
<td>0.00</td>
</tr>
<tr>
<td>Institutional Indicator</td>
<td></td>
<td>-0.10*</td>
</tr>
</tbody>
</table>

### Short Run Equation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECM</td>
<td>-0.85*</td>
<td>-0.91*</td>
</tr>
<tr>
<td>Constant</td>
<td>2.59*</td>
<td>2.93*</td>
</tr>
<tr>
<td>$\Delta$(Log of Natural Resource Abundance)</td>
<td>0.13***</td>
<td>0.13**</td>
</tr>
<tr>
<td>$\Delta$ (Political Stability)</td>
<td>-0.11**</td>
<td></td>
</tr>
<tr>
<td>$\Delta$ (CPIA public sector management and institutions)</td>
<td>-0.02</td>
<td></td>
</tr>
<tr>
<td>$\Delta$ (CPIA economic management)</td>
<td>-0.03</td>
<td></td>
</tr>
<tr>
<td>$\Delta$ (Political Indicator) (Aggregated)</td>
<td></td>
<td>-0.07*</td>
</tr>
<tr>
<td>$\Delta$ (Institutional Indicator)</td>
<td></td>
<td>0.00</td>
</tr>
</tbody>
</table>

### Normality and Cross-section Dependence (CD) Tests

<table>
<thead>
<tr>
<th>Test</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jarque – Berra Normality Testes</td>
<td>4.38*(0.11)</td>
<td>7.89*(0.02)</td>
</tr>
<tr>
<td>Breusch-Pagan Chi-square CD Test</td>
<td>157.9*** (0.01)</td>
<td>154.2*(0.2)</td>
</tr>
<tr>
<td>Pearson LM Normal CD Test</td>
<td>1.41*(0.16)</td>
<td>1.18*(0.24)</td>
</tr>
<tr>
<td>Pearson CD Normal</td>
<td>3.64(0.00)</td>
<td>2.71*** (0.01)</td>
</tr>
<tr>
<td>Friedman Chi-square</td>
<td>45.61(0.00)</td>
<td>35.61*** (0.01)</td>
</tr>
</tbody>
</table>

**Note:** *, **, *** indicate the coefficient significance at 1 per cent, 5 per cent and 10 per cent level of significance respectively; P-Values in Parenthesis for the diagnostic tests; null hypothesis for CD Test is Cross-sectional independence; null hypothesis for Normality Test is errors are multivariate normal