The Effects Of Fragility On Macroeconomics Variables In West Africa

Adebayo Mohammed Ojuolape[1], Abdullah Olanrewaju Oladipupo[2], Moshood Kolawole Alabi[3]

Received January 14, 2020
Revised March 10, 2021
Accepted March 16, 2021

Abstract
Studies have shown that African economies have not been performing well compared to other parts of the world in recent times. The region constitutes about the first half of all the indicators of fragility from different perspectives. This research is an empirical investigation of the interactions between selected macroeconomic outcomes and fragility in West African countries. A panel data of 24 years from 1995-2018 for the 17 West African nations were used. The study used Panel Vector Autoregressive (PVAR) estimation techniques. The study found that fragility has a very high impact on macroeconomic variables, affecting West African economies. The study also found that fragility is self-reinforcing. The study, therefore, recommends that the government of West African countries should revisit their trade liberalization policy by specifying policy on the content of trade and putting adequate measure for enforcement. Also, education should not be limited to classrooms alone; rather, vocational training should be part of the national curriculum.

Keywords: Fragility, Macroeconomic outcomes, Panel VAR.
JEL Classification Code: F41, O11

[1] Department of Economics University of Ilorin, Nigeria. ojuolape.ma@unilorin.edu.ng
[2] Department of Economics, University of Lagos, Nigeria. oladipupolanrewaju@gmail.com
[3] Department of Economics University of Ilorin, Nigeria. alabi.mk@unilorin.edu.ng

1. Introduction

Fragility is an essential phenomenon in Africa because four are found in Africa for every five fragile states worldwide (Jones, 2013 as cited in Geda (2019)). Going by the OECD definition, out of the 54 countries in Africa, 31, which accounts for about 60 per cent, which consists of more than 500 million Africans, could be classified as fragile (Oecd, 2008).

It has been hard to get a generally acceptable way to measure, predict and interpret fragility for the past two decades. Fragility has been defined by the Organization for Economic Cooperation and Development (OECD) as the lack of political commitment, accompanied by an insufficient capacity for development and the inability to enact policies in favour of the poor (Stewart and Brown 2010; Prest et al. 2005 as cited in (Olowu and Chanie, 2016). The German government has also defined fragility as the gradual collapse of structures and bad governance. Simultaneously, the British Department of International Cooperation (DFID) described fragility as the government's inability to deliver core functions to its people, most notably, the poor. The Canadian government defines fragility as the situation where there is a "lack of 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." (Stewart & Brown, 2010; Prest et al., 2005 as cited in (Olowu and Chanie, 2016)).

Irrespective of the several definitions of fragility provided by different Organizations and scholars, fragile states tend to have common features like high rate of poverty and inequality, the institutions tend to be weak, human capital development tends to be low, and there is the presence of conflict that leads to instability (Geda, 2017). While it has been established that there is an empirical link between the performance of macro economies and macroeconomic policies, the main pilot of this relationship remains unclear (Chuku & Onye, 2018).

Fragility and instability have been a major macroeconomic issue since the 1980s following the popularity of Minsky's financial instability hypothesis. The global financial crises have, however, exposed policymakers to the damage that could result from fragile financial institutions and hence, the need for policymakers to pay attention to the financial institutions and hence, the need for policymakers to pay attention to the financial system to guide against imbalances that could lead to vulnerability in the occurrence of sudden shock (Aikman, Lehnert, Liang & Modugno, 2016).

Economic debates show that macroeconomic outputs in developing nations result from macroeconomic policies adjustments (Williams, 2000; Stiglitz, 2005). The fact that African economies have lagged on many customary measures of macroeconomic performance in the past three decades has, however, left room for debate. According to Solow (1956), the path of factor accumulation accounts for macroeconomic results. There is also human capital development as well as the building of physical capital Romer (1986), (Aghion & Howitt, 1992; Romer, 1990) also added innovation and technological progress and the inclusion of economic policy and institution by (Easterly (2005); Acemoglu, Johnson & Robinson, (2005)). Nevertheless, these stated factors did not give full explanations to the disparities in the economies' performance in the world as there are nations that met the theoretical conditions necessary to enable them to have promising macroeconomic results but still end up having adverse outcomes. The implication of this is that other hidden conditions may be important, especially for an evolving political system that is dynamic. Furthermore, with the several angles and interconnection, the transmission channels from macroeconomy to state fragility have made it paramount to find the best transmission channels to properly take care of domestic and international intervention to fragile states.

Fragility tends to adversely affect the functioning of the economic system and the international political environment. It includes the nations' role in development, national and international security of people and the maintenance of scarce global resources. Cammack, McLeod, and Christiansen (2006) noted that the term fragility could be substituted with "crises", "collapse", "failed", "failing", "weak", "ineffective", "poorly performed", with each having its manifestation.

According to Menocal (2010), no particular condition or kind of fragility can describe fragility in an economy. Fragility can be transitory as a result of this, causing a different level of challenges from a socio-economic perspective (Rocha, Fritz, & Rakner, 2008). Fragility was widely described as a situation linked with several combinations of inequality and high poverty rate, weak and unstable governance, inadequate provision of basic needs and services, conflicts and lack of territorial control (Bertocchi & Guerzoni, 2011). According to the African Development Bank thematic review report, one of the regions that eloquently show the features of state fragility is Sub Saharan Africa, 22 out of the 48 countries in Sub Sahara African nations, accounting for 46% are fragile due to weak government, poor administration, growing poverty, inadequate security, poor public service, high conflicts among other factors (Giovannetti (2009); Marshal & Cole, (2009)).

There is a high chance that an economy classified as fragile in 2001 will remain fragile by 2009 (European Report on Development, 2009). This shows rising evidence that fragility is persistent. The World Bank classified 35 nations as fragile in 1979, and they all still had the same characteristics as in 2009 (European Report on Development, 2009). A country with the characteristics of fragility is exposed to a vicious cycle of weak investment, poverty and reduced growth (Easterly & Levine, 1997: Sachs & Warner, 1997).

According to the IMF (2014), sound macroeconomic policies and good economic reforms are the way out of fragility, whereas this is contrary to earlier findings that ambiguities surround the fragility-macroeconomic outcomes relationships. The novelty of this research is in its quest to establish that fragility interacts and affects macroeconomic outcomes and to ascertain the extent of these interactions between these duos.

This section lays the foundation for this research; the next section presents the literature review. The third section shows the theoretical and empirical framework of the research. The last section presents the results, and the last section present the findings and conclusion.

2. Literature Review

Previous studies have shown that there is no existing theory of fragility. Many previous studies have based their arguments on the emergence of fragility, which has gained ground amidst several studies. However, this research will be guided by some hypothesis that can aid empirical findings, propagate correct assumptions, and give proper interpretation to the results.

Exclusive macroeconomic management is an important necessity for fragile nations due to the increased objectives of creating state legitimacy, prevent the risk of recurrence of conflict, and capacity building with the vital support being received from development partners by the macro policy, with such needs, fragile nations in Africa have characteristics that must influence macroeconomic engagement in macro policy in order to achieve macroeconomic stability and inclusive growth. As Geda (2017) stated, the three characteristics are that the misunderstanding of the political economy of what leads to conflict and how it reflects like growth irrespective of whether the growth is distributional conscious or not. This stresses the need for macroeconomic management in a wider political economy and growth- conflict nexus in an institutional context. Secondly, the mobilization

of domestic resources to finance growth is customarily limited. This leads to the high dependence of growth in such countries on natural resource export if the country is rich in resource or highly dependent on aid inflow that may include debt. Thirdly, all this is found in an institution that is weak with weak governance and human capital, requiring additional financial support for capacity building.

(Geda, 2017) Further found that the improvement of governance and the development of inclusive and democratic politics is a paramount factor for the macroeconomy's stability in the short run while improving the economic governance and key institutions tend to be of more importance in the long run. In the long-run, debt accumulation results in macroeconomic instability, and the reconstruction of the financial sector helps the countries avoid macroeconomic instability in the short-run. The dependency on resource results in macroeconomic instability in the short-run while it becomes ineffective statistically in the long-run. More importantly, macroeconomic stability, growth and increase in the flow of aids are essential factors in the movement from state fragility to resilience.

It will be difficult, if not impossible, to say that there is one particular solution to exit from fragility in Africa, even though there are similarities in the issues (Geda, 2019). It is, therefore, necessary for policies and interventions to be tailored to the circumstances of each country. The policies will have to be a long term approach for a country that intends to strengthen security, build an institution, foster inclusive politics and build capacity for discouraging violence, develop democratic institutions and working macroeconomic management (IMF, 2014; Jones, 2013; Ajakaiye and Ali, 2009; Alemayehu, 2011 as cited in (Geda 2019)). Findings from (Ansar, Flyvbjerg, Budzier & Lunn, 2016) show that overinvesting in underperforming projects can result in fragility.

If the average country policy and institutional assessment (CPIA) score from Africa Development Bank, Asian Development Bank, and most importantly, the World Bank for a country is lower than 3.2, such country is classified as fragile, or if peacekeeping has lasted for four years in the country (Kuruk, 2018). The findings show that a fragile country's growth tends to be slow and more vulnerable to growth volatility than other states. There has, however, been a higher sustained rate of growth after IMF intervention; furthermore, there tends to be a larger inflow of foreign aid as a result of IMF programs which shows that the involvement of IMF, in general, leads to a positive outcome on macroeconomic performances in fragile countries.

Countries with higher fragility are more exposed to a higher rate of crises, macroeconomic volatility, and weaker growth. However, the leading causes were linked to security and social components, whereas the political component is weak (Chuku & Onye, 2018). However, the differences in macroeconomic performances are more explained by fragility conditions and not macroeconomic policies for African countries.

The challenges fragile countries face are multidimensional, but some countries have exited fragility irrespective of the profound difficulties (Deléchat, Fuli, Mulaj, Ramirez & Xu, 2018). Such countries have implemented consistent and reliable economic policies, developed an inclusive political environment, and developed more reliable economic institutions. One major factor contributing to such a successful exit from fragility is building a sustainable fiscal space through strong fiscal institutions. Only countries that build strong institutions to oversee the fiscal space resulting from resource wealth among the resource-rich countries were prosperous. Increased taxes on profit and income tend to be associated with exit from fragility. The total expenditure on education and health as a percentage of total

expenditure shows a definite relation to exit from fragility while military expenditure, on the other hand, was negative.

2.1 Theory

2.1.1 Resource Curse Theory

Adam Smith and David Ricardo's belief is that nations with natural resource endowments like oil and gas rely on development. However, recent studies have shown that dependence on resource affects growth negatively, according to several indicators. Citizens of countries with reliance on resource have low per capita income, and the quality of life is low (Badeeb, Lean & Clark, 2017). Evidence from empirical studies on resource curse on its causal channels is mixed and are classified into three groups. The first is in line with Sachs and Warner's cross-section specification, showing the variance in resource abundance measurement. The second concentrates on several economic factors that are related to growth that natural resource wealth can affect. The third, however, exposes the uncertainty of the validity of the resource curse hypothesis (Badeeb, Lean & Clark, 2017).

According to Karl (2005), the resource curse theory says that rich nations tend to experience negative economic growth rates. The negative interaction between the rate of economic growth of a nation and its dependence on natural resources is referred to as a resource curse. Countries that over-rely on revenue from oil tend to have economic problems and are the most conflict-ridden and authoritarian. Sachs and Warner (1997) studied ninety-five developing economies. They found that only Malaysia and Mauritius were able to sustain 2% annual growth with the period of study while checking the relationship between natural growth and natural resource-based export, and the study concluded that countries with abundant resources like Mexico and Venezuela have not been able to achieve sustained rapid growth in the economy. The development rate in oil-exporting nations has been negative in the past four decades when checked against other nations. It was revealed that oil-exporting countries are more prone to high poverty, dilapidated healthcare, poor economic performance, poor feeding, low educational standard and life expectancy tends to be low (Karl, 2005). If more than 25% of government revenue is reliant on oil, there is a high chance of conflict springing up (De soysa, 2002).

2.1.2 Growth Theory

The classical and neo-classical assumes a positive and fundamental relationship between growth and accumulation of capital, productive labour, and technology. Part of the assumption is that technological progress is scientifically determined by a different procedure and not dependent on economic forces. They posited that the economy is quick to recover automatically, which is a case of displacement and then meets at a steady growth rate. To them, the growth rate, in the long run, is exogenous. The neoclassical gap was created as the factors that can lead to negative growth or destabilize the economy from a steady growth rate were not explicitly mentioned.

However, the growth dynamics and performance of the economy were explained by the endogenous growth model and other subsequent theories. Examples include natural resource variation, Sachs and Warner (1995, 1999), and the stock of social capital in which education is inclusive, Acemoglu, Johnson and Robinson (2002); Auty (2001). This was divided into six areas- human capital, real capital, social capital, financial capital, foreign capital and natural capital. This theory, however, states that the recovery of an economy is not automatic and has to be internally driven. It was further explained that convergence is not an immediate thing as it takes some time (Gylfason, 2011). The prediction of Barro and Martin (2004) is that the type of capital that is destroyed determines the speed of convergence with the tendency to have a slower recovery if human and physical capital is destroyed as the cost of adjustment is higher. The poverty trap model predicts that the economy steady-state is directly affected by conflicts; hence, similar economy tends not to converge (Azariadis &

Drazen (1990); Collier (1999); Rodrik (1999)). Two measures of political instability were incorporated into the growth model by Barro (1991). The number of coups and revolutions annually Barro and wolf (1989) and the rate of politically instigated killings in millions affects growth negatively. He further explained that the two variables alter property rights and inhibit investment, and reduces growth.

2.1.3 Social Contract Theory

In a situation where a social contract produces and maintains an equilibrium between the expectations of the society and obligations of institutions and state authority is apparent, then the social contract is legitimate and valid (Lessnoff, 1990). The process through which individuals in a political community, whether tacitly or explicitly, consent to the authority, hence limiting some of their freedom as a substitute for the protection of the state for their security and fundamental human rights and also for the sufficient provision of public goods and services is being explained by the social contract theory. In the pursuit of a broader common goal like protection, security and basic amenities, the agreement requires individuals to abide by the state's laws, rules, and practices. The social contract was born out of the interaction between expectations that society has of a given state which is- security, the capacity of the state to provide services, and to generate revenue from its territory and population to provide these services (partially, a function of economic resources; and the will of the elite to manage state resources and capacity to fulfil social expectations). It is pressingly reconciled by the presence of political processes through which the negotiation between state and society is sealed, strengthened, institutionalized and legitimized, which is also essential in influencing expectations and enhancing the political process (OECD, 2008). A fragile setting has been described as a setting that lacks a useful political process that can lead to the equilibrium of social expectations and state capacities (Jones et al., (2008). Fragility can be referred to as a badly unorganized political setting and weak state legitimacy. In such situations, public authorities cannot provide services or collect public revenues. Hence, there is no mutually reinforced bond between the state and society. In the occurrence of internal or external shock, it is difficult for the political communities to renegotiate their social contract; hence, freeway to conflict and the monopoly on legitimate violence is lost by the public authorities. A social contract is therefore fundamental in any economy to guide against or to exit fragility.

2.1.4. The Bad Neighbours Hypothesis

The influence that fragile states have on their neighbours' macroeconomic results are usually underestimated. Even though fragility seems not to be communicable, it leads to the spread of political instability to the neighbouring nations. The Liberian experience is an example. President Charles Taylor provided money, weapons, mercenaries, and infrastructure to fight groups in Sierra Leone to control the regional diamond mines and economic networks (Iqbal & Starr, 2008). Additionally, the movement of refugees to neighbouring countries due to fragility also have macroeconomic implications. These refugees create pressure on education infrastructure (overpopulation in schools), health infrastructure (through the spread of infections/diseases), not to talk of turning the place into an incubation ground for crime and violent groups. A good example is refugees' movement from Burundi and Rwanda to Tanzania and the heavy consequences on the school and health in the Kagera region. These effects are likely to reflect on the country's macroeconomic performance. Evidence from empirical studies shows that approximately 80 per cent of the cost of fragility is being borne by neighbouring countries (Chauvet, Collier, and Hoeffler (2011); and European Report (2009)).

2.2 Empirical Review

Fragility in the context of this paper follows the definitions by Bertocchi & Guerzoni, 2011, as a situation linked with several combinations of inequality and high poverty rate, weak and unstable governance, inadequate provision of basic needs and services, conflicts and lack of territorial control and as captured in the state fragility index.

Economic debates show that macroeconomic outputs in developing nations result from macroeconomic policies adjustments (Williams, 2000; Stiglitz, 2005). Factor accumulation, Solow (1956), human and physical capital development, Romer (1986), innovation, technological progress, Aghion & Howitt, (1992); Romer, (1990), has been theoretically proven to have impacted the macroeconomy and have been the key to growth and development. The fact that African economies have lagged on many of these aforementioned customary macroeconomic performance measures in the past three decades has left room for debate.

To fill this lacuna, Nkurunziza (2017) confirmed how fragility affects or lowers capital accumulation. Capital accumulation was adjudged theoretically as a major mover of growth and macroeconomic performance (Romer, 1986). (Nkurunziza, 2017) noted that countries that experienced symbolic wars in Africa between the 1980s and 2000s have a low and, in most cases, a negative capital accumulation rate during political fragility. Also, the works of Barro (1991), Barro and Lee (1993), Easterly and Rebelo (1993), Persson and Tabellini (2006) have established greater assertions on how fragility affects macroeconomic outcomes. Knack and Keefer (1995) and Easterly and Levine (1997) found that revolutions negatively affect economic performance. Alesina and Perrotti (1996) also affirmed that political violence (coups, assassination, and politically instigated death) reduces the economy's performance. Murdoch, J. C., & Sandler, T. (2004) found that civil war leads to a fall in a country's growth rate by 85% in the first 5years, and as the economy is recovering, growth is still reduced to about 31% after 35 years.

According to Wolf (2005), fragility affects macroeconomic results through channels of investment, human capital and physical investment, and domestic and foreign investments. State fragility does not only reduce the volume of investments, most importantly FDI, it also affects investment composition by shifting incentives to the accumulation of less specialized capital goods, which often have lower returns, which can easily be divested in response to fragility shocks. European Report (2009) posited that the ease with which these investments could be divested relatively or reallocated constitute a source of macroeconomic volatility. On the human capital side, state fragility leads to reductions in the quantity and quality of investments in education and health; it also adjusts the composition of skilled against unskilled labour, as households prefer to spend short periods to learn different vocations that would enable them to cross from one sector to the other in response to fragility shocks, instead of spending years studying a professional course.

Chuku and Onye (2017) studied how state fragility affects macroeconomic outputs, captured by macroeconomic volatility, crisis and performance in sub-Saharan African economies, and some of the notable transmission mechanisms were identified. It was found that economies with more severe fragility suffer more crises and higher macroeconomic volatility, and they also experienced lower growth. Conversely, Campos et al. (1999) suggest that fragility leads to growth. In support of this, Carment, Samy and Prest (2008) found that per capita income is the primary driver of fragility over a cross-sectional sample of world countries, with lower fragility being linked to higher income.

2.3 Methodological Review

Chuku and Onye (2017) identified some of the credible transmission mechanisms and the way state fragility affects macroeconomic outcomes in Sub-Saharan African economies were studied. The study employed dynamic panel estimation techniques and structural vector autoregressive techniques for 48 sub-Saharan African nations from 1995 to 2014. The results showed that economies with higher fragility are affected by higher macroeconomic volatility, and crises also tend to be weaker.

A combination of the Autoregressive distributive lag model and the logit and probit model for robust results was used (Geda 2017). The study found out that the performance of macroeconomic policies is not sufficient in a fragile state. However, a holistic approach that includes improving governance, inclusive and democratic politics, and institutional improvement are necessary conditions for macroeconomic stabilization in a fragile state.

3. Methodology

3.1 Theoretical Framework

This study's theoretical framework finds footings in the Neo-classical growth theory of Solow (1956) and Barro and Sala-I-Martin (1992). Following the general Cobb-Douglas production function model, which is:

$$Y_{it} = A_{it}K_{it}^{\alpha}L_{it}^{\beta} \tag{1}$$

where Y_{it} is the total amount of production of the final good at time t in country i, K_{it} is the capital stock at time t in country i, A_{it} is technology at time t in country i, and L_{it} is total employment in country i, at time t.

Defining $k_{it} = \frac{K_{it}}{L_{it}}$ as the stock of physical capital per unit of effective labour, and $y_{it} = \frac{Y_{it}}{L_{it}}$ as output per unit of effective labour in country i at time t. They derived the following equation:

$$\frac{dk_{it}}{dt} = S_{it}Y_{it} - (g + n + \delta) \tag{2}$$

When g is the technological progress of A, n the growth rate of the labour force and δ is the depreciation of K. The production function in the intensive form could be written as $y_{it} = K_{it}^{\propto}$. Then the intensive form of the steady-state of capital is;

$$\ln K_i^* = \frac{1}{1-\alpha}\ln S_{it} - \frac{1}{1-\alpha}\ln(g_i + n_i + \delta) \tag{3}$$

Substituting the steady-state k* we obtained

$$\ln y^* = \ln(A_{it)} + g_{it}\frac{\alpha}{1-\alpha}\ln S_i - \frac{\alpha}{1-\alpha}\ln(g_i + n_i + \delta) \tag{4}$$

Following Barro and Martin (1992) for unconditional convergent equation will be:

$$\ln y_{it} - \ln y_{it-1} = \alpha + \beta \ln y_{it-1} + v_{it} \tag{5}$$

Since determinants of economic growth differ across countries, Barro (1990), Barro and Sala-i-Martin (1992) favour the notion of conditional convergence:

$$\ln y_{it} - \ln y_{it-1} = \alpha + \beta \ln y_{it-1} + \gamma x_{it} + v_{it} \tag{6}$$

Where t shows the time interval, $(t-1)$ is the initial of the time interval, $\mathbf{x_{it}}$ is the matrix of other variables that can affect economic growth, $\boldsymbol{v_{it}}$ is the error term, and y is real GDP per people.

3.2 Model specification

In analyzing the interaction of fragility with macroeconomic outcomes in the 17 West Africa countries covered in this work, an eight-variable panel vector autoregressive model is specified. The choice of this approach has its 3 importance as follows: firstly, this method makes a flexible framework that combines the traditional VAR approach with panel data and increases the efficiency and the power of analysis while capturing both temporal and contemporaneous relationship among variables (Mishkin and Schmidt-Hebbel, 2007). Secondly, the PVAR method can consider complex relationships and identify dynamic responses of variables following exogenous shocks using both impulse response functions and variance decompositions. In that way, it provides a systematic way of capturing the rich, dynamic structures and co-movements between different variables over time (Omojolaibi et al., 2014). Thirdly, the traditional VAR approach treats all the system variables as endogenous, while the PVAR technique allows for unobserved individual heterogeneity and can tackle the data limitation problems (Kandil et al., 2015).

The model for this work follows Bertocchi and Canova (2002) and Bertocchi and Guerzoni (2011), with the adoption of the Standard Barro Regression Equation to analyze the effect of colonization on growth (2002) and fragility on growth (2011).

$$Y_{it} = \beta X_{it} + \gamma SFI_{it} + \mu_{it} \tag{7}$$

where Y_{it} is the growth rate of real per capita GDP, SFI_{it} is an index of fragility. X_{it} is a set of baseline explanatory variables that have been shown empirically to be robust determinants of growth. In this work, the X variables; macroeconomic outcomes, include the log of initial real per capita GDP, which should capture the tendency for growth rates to converge across countries and over time; the log of the initial gross parity rate (gross secondary and primary school enrollment rate, which should reflect the extent of investment in human capital, others are; Trade per GDP, which captures trade openness, Unemployment rate, Foreign Direct Investment and Inflation Rate.

The panel VAR model is as specified below:

$$Z_{it} = A(L)Z_{it-1} + e_{it} \tag{8}$$

where Z_{it} is a matrix of endogenous variables, (A(L) is a matrix polynomial in the lag operator, L, with country i = 1…….15

Following the base line specification above, the explicit form of the PVAR is as follows:

$$GPGDP_{it} = a_0 + \sum_{j=1}^{n} a_{1j}GPGDP_{1t-1} + \sum_{j=1}^{n} a_{2j}SFI_{2t-j} + \sum_{j=1}^{n} a_{3j}TGDP_{3t-j} + \sum_{j=1}^{n} a_{4j}INF_{4t-j} + \sum_{j=1}^{n} a_{5j}FDI_{5t-j} + \sum_{j=1}^{n} a_{6j}UR_{6t-j} + \sum_{j=1}^{n} a_{7j}GPR_{7t-j} + \sum_{j=1}^{n} a_{8j}PGDP_{8t-j} + \mu_{1it} \tag{9}$$

$$SFI_{it} = a_9 + \sum_{j=1}^{n} a_{10j}SFI_{10t-1} + \sum_{j=1}^{n} a_{11j}GPGDP_{11t-j} + \sum_{j=1}^{n} a_{12j}TGDP_{12t-j} + \sum_{j=1}^{n} a_{13j}INF_{11t-j} + \sum_{j=1}^{n} a_{14j}FDI_{14t-j} + \sum_{j=1}^{n} a_{15j}UR_{15t-j} + \sum_{j=1}^{n} a_{16j}GPR_{16t-j} + \sum_{j=1}^{n} a_{17j}PGDP_{17t-j} + \mu_{2it} \tag{10}$$

$$TGDP_{it} = a_{18} + \sum_{j=1}^{n} a_{19j}TGDP_{19t-1} + \sum_{j=1}^{n} a_{20j}GPGDP_{20t-j} + \sum_{j=1}^{n} a_{21j}SFI_{21t-j} + \sum_{j=1}^{n} a_{22j}INF_{22t-j} + \sum_{j=1}^{n} a_{23j}FDI_{23t-j} + \sum_{j=1}^{n} a_{24j}UR_{24t-j} + \sum_{j=1}^{n} a_{25j}GPR_{25t-j} + \sum_{j=1}^{n} a_{26j}PGDP_{26t-j} + \mu_{3it} \tag{11}$$

$$INF_{it} = a_{27} + \sum_{j=1}^{n} a_{28j} INF_{28t-1} + \sum_{j=1}^{n} a_{29j} GPGDP_{29t-j} + \sum_{j=1}^{n} a_{30j} SFI_{30t-j} + \sum_{j=1}^{n} a_{31j} TGDP_{31t-j} + \sum_{j=1}^{n} a_{32j} FDI_{32t-j} + \sum_{j=1}^{n} a_{33j} UR_{33t-} + \sum_{j=1}^{n} a_{34j} GPR_{34t-j} + \sum_{j=1}^{n} a_{35j} PGDP_{35t-j} + \mu_{4it} \quad (12)$$

$$FDI_{it} = a_{36} + \sum_{j=1}^{n} a_{37j} FDI_{37t-1} + \sum_{j=1}^{n} a_{38j} GPGDP_{38t-j} + \sum_{j=1}^{n} a_{391j} SFI_{39t-j} + \sum_{j=1}^{n} a_{40j} TGDP_{40t-j} + \sum_{j=1}^{n} a_{41j} INF_{41t-j} + \sum_{j=1}^{n} a_{42j} UR_{42t-j} + \sum_{j=1}^{n} a_{43j} GPR_{43t-j} + \sum_{j=1}^{n} a_{44j} PGDP_{44-tj} + \mu_{5it} \quad (13)$$

$$UR_{it} = a_{45} + \sum_{j=1}^{n} a_{46j} UR_{46t-1} + \sum_{j=1}^{n} a_{47j} GPGDP_{47t-j} + \sum_{j=1}^{n} a_{48j} SFI_{48t-j} + \sum_{j=1}^{n} a_{49j} TGDP_{49t-j} + \sum_{j=1}^{n} a_{50j} INF_{50t-j} + \sum_{j=1}^{n} a_{51j} FDI_{51t-j} + \sum_{j=1}^{n} a_{52j} GPR_{52t-j} + \sum_{j=1}^{n} a_{53j} PGDP_{53t-j} + \mu_{6it}. \quad (14)$$

$$GPR_{it} = a_{54} + \sum_{j=1}^{n} a_{55j} GPR_{55t-1} + \sum_{j=1}^{n} a_{56j} GPGDP_{56t-j} + \sum_{j=1}^{n} a_{57j} SFI_{57t-j} + \sum_{j=1}^{n} a_{58j} TGDP_{58t-j} + \sum_{j=1}^{n} a_{59j} INF_{59t-j} + \sum_{j=1}^{n} a_{60j} UR_{60t-j} + \sum_{j=1}^{n} a_{61j} FDI_{61t-j} + \sum_{j=1}^{n} a_{62j} PGDP_{62t-j} + \mu_{7it} \quad (15)$$

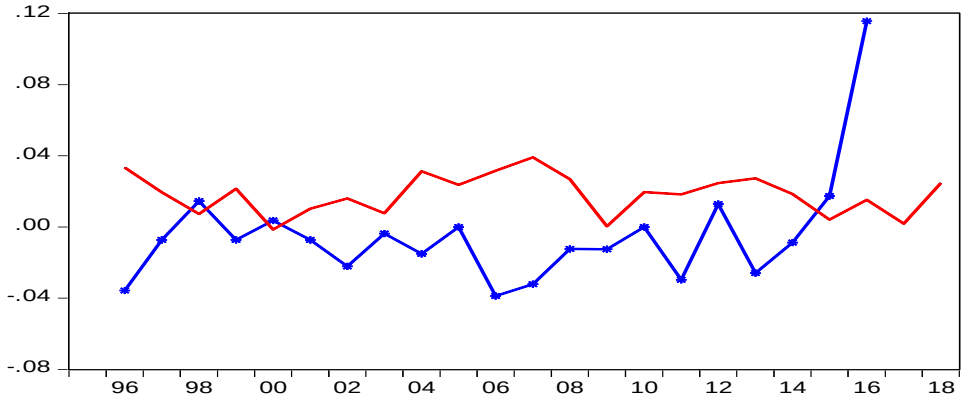
$$PGDP_{it} = a_{63} + \sum_{j=1}^{n} a_{64j} PGDP_{64t-1} + \sum_{j=1}^{n} a_{65j} GPGDP_{65t-j} + \sum_{j=1}^{n} a_{66j} SFI_{66t-j} + \sum_{j=1}^{n} a_{67j} TGDP_{67t-j} + \sum_{j=1}^{n} a_{68j} INF_{68t-j} + \sum_{j=1}^{n} a_{69j} UR_{69t-j} + \sum_{j=1}^{n} a_{70j} FDI_{70t-j} + \sum_{j=1}^{n} a_{71j} GPR_{71t-j} + \mu_{8it} \quad (16)$$

where; $a_0 \ldots a_{71}$ are parameters to be estimated, (GPGDP) Growth of real per capita GDP (PGDP), Real Per Capita Gross Domestic Products, (SFI)State Fragility Index, (TGDP), Trade of GDP, (INF), Inflation Rate,(FDI), Foreign Direct Investment, (UR), Unemployment Rate,(GPR), Gender Parity Index (Gross Secondary and Primary School enrolment rate, μ_t= stochastic error term

3.3 Data Requirement and Sources

The data for this study are obtained from the World Development Indicator (World Bank, 2018) and the Center for Systemic Peace, Failed State Index table (2018).

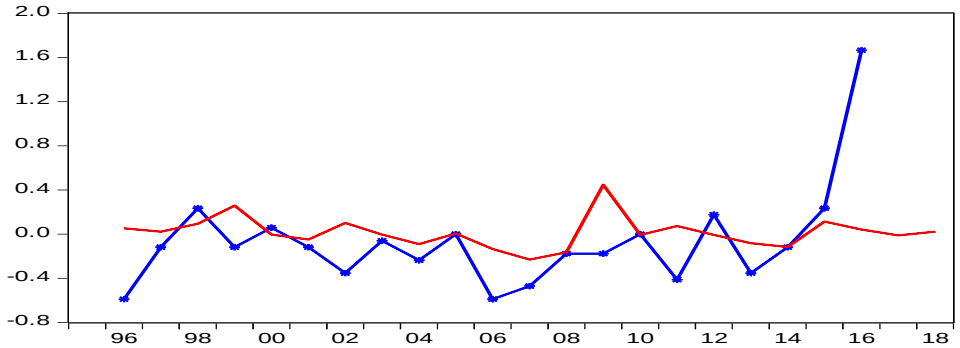
4. Trend Analysis



Source: Author's computation using data from World Development Indicator of the IMF (2018) and the Center for Systemic Peace (2018).

Figure 1. Trend Analysis of Fragility and Per capita GDP (SFI, PGDP)

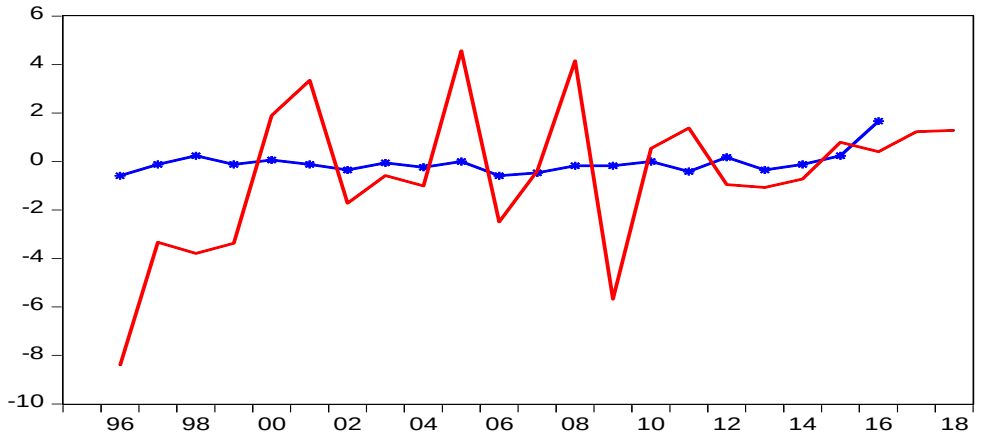
The diagram above shows the relationship between the state fragility index and per capita GDP. The diagram shows that lower fragility is associated with higher per capita GDP. This is realistic in crisis-free state GDP per head is higher, all things being equal.



Source: Author's computation using data from World Development Indicator of the IMF (2018) and the Center for Systemic Peace (2018)

Figure 2. Trend Analysis of Fragility and Unemployment (SFI, UR)

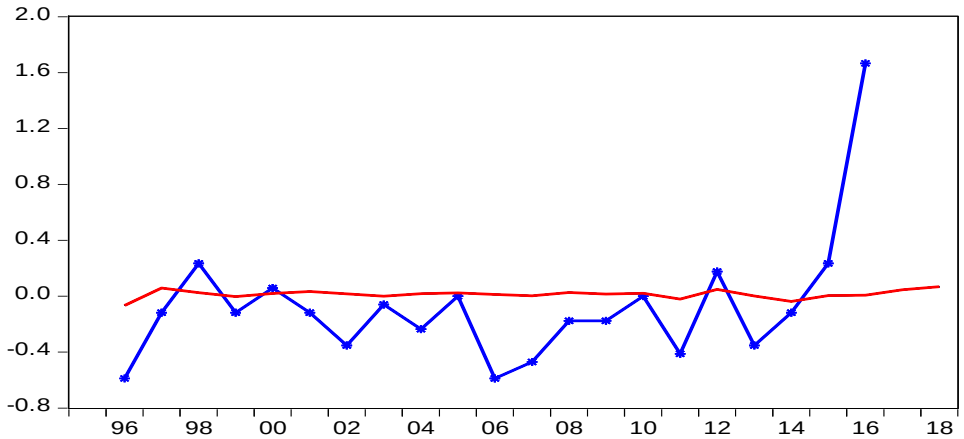
Figure 2 above shows the behaviour of fragility and unemployment In West Africa. This shows that lower fragility is not unrelated to higher unemployment. This may seem unapt, but a closer look at fragility in West Africa makes it logical. Fragility creates more jobs for arms dealers and social urchins.



Source: Author's computation using data from World Development Indicator of the IMF (2018) and the Center for Systemic Peace (2018)

Figure 3. Trend Analysis of Fragility and Inflation (SFI, INF)

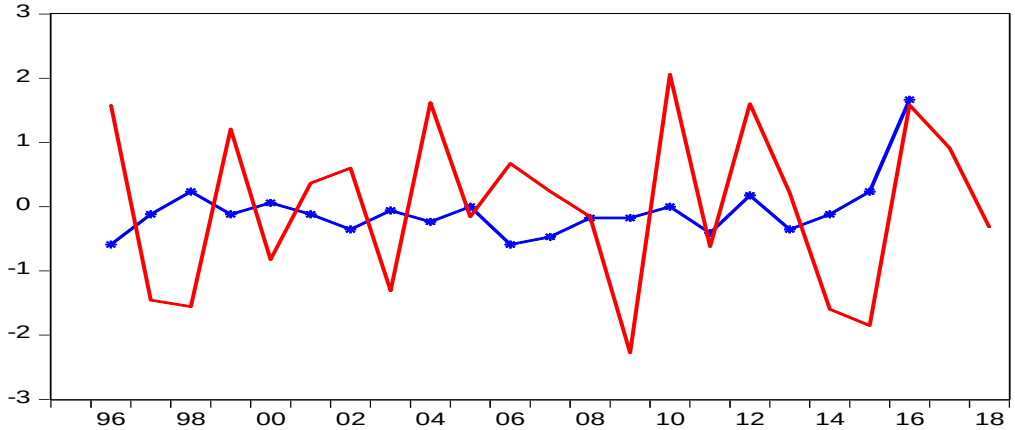
Figure 3 above shows a relatively stable fragility level against a fluctuating inflation rate. While fragility remains high, inflation moves below it and vice-versa.



Source: Author's computation using data from World Development Indicator of the IMF (2018) and the Center for Systemic Peace (2018)

Figure 4. Trend Analysis of Fragility and Gender Parity Rate (Gross Enrollment Rate) (SFI, GPR)

The above diagram depicts that fragility does not influence GPR. This is subjected to further empirical justification. As it implies, GPR is relatively stable despite changing the level of fragility.



Source: Author's computation using data from World Development Indicator of the IMF (2018) and the Center for Systemic Peace (2018)

Figure 5. Trend Analysis of Fragility and Growth of Per Capita GDP) (SFI, GPGDP)

In the figure above, the movement between fragility and growth of per capita GDP is established. Rising fragility goes with falling growth in per capita GDP. However, in 2016, fragility and growth in per capita GDP rose together before GPGDP falls.

4.2 Descriptive Statistics

The table below gives the descriptive statistics for each of the individual variables in the model as presented. The statistics presented include the mean, median, standard deviation, skewness, and Jarque-Bera statistic. The data were pooled for the countries in West Africa between 1995 and 2018.

Table 1 Descriptive Statistics

	FDI	GPGDP	GPR	INF	PGDP	SFI	TGDP	UR
Mean	4.89	1.6720	0.8410	6.4227	953.208	15.0464	64.9533	5.4088
Median	4.27	1.6704	0.8578	5.2320	934.538	15.3628	66.8034	5.4506
Maximum	1.22	3.4480	0.9596	20.9377	1152.61	16.7647	77.2108	5.6208
Minimum	97059942	0.0014	0.6582	2.0201	776.484	13.3529	53.0555	5.0059
Std.Dev	3.57	0.9872	0.0867	3.9604	119.436	1.0880	8.4895	0.1660
Skewness	0.4408	-0.0322	-0.3963	2.3108	0.2317	-0.1590	-0.0495	-0.8108
Kurtosis	1.8317	2.2224	1.9913	8.66651	1.6455	1.5253	1.4026	2.6681
Jarque-Bera	33.3849	9.4867	25.6455	833.215	31.935	35.4650	39.9175	42.6902
Prob.	0	0.00871	3E-06	0	0	0	0	0
Observations	374	374	374	374	374	374	374	374

Source: Author's computation using data from World Development Indicator of the IMF (2018) and the Center for Systemic Peace (2018)

Table 1 above shows that there are 374 observations. The average value of fragility in West Africa is 15 %. This value is a strong indication that West African countries are experiencing fragility. The values also show, on average, the state of macroeconomic outcomes in West Africa. The unemployment rate is 5%, inflation is 6%, and the FDI is stable, given the countries' maximum and minimum values.

Table 2 Correlation Matrix

	FDI	GPGDP	GPR	INF	PGDP	SFI	TGDP	UR
FDI	1	0.3303	0.8766	-0.2968	0.8768	-0.8990	0.7157	-0.0127
GPGDP	0.3303	1	0.1813	0.1945	0.1976	-0.2707	0.4537	-0.3422
GPR	0.8766	0.1813	1	-0.4777	0.9360	-0.8927	0.7864	0.1820
INF	-0.2968	0.1945	-0.4777	1	-0.4674	0.4317	-0.2705	-0.5975
PGDP	0.8768	0.1976	0.9360	-0.4674	1	-0.9021	0.6992	0.05809
SFI	-0.8990	-0.2707	-0.8927	0.4317	-0.9021	1	-0.7494	0.02098
TGDP	0.7157	0.4537	0.7864	-0.2705	0.6992	-0.7494	1	0.0276
UR	-0.0127	-0.3422	0.1820	-0.5975	0.0581	0.0210	0.0276	1

Source: Author's computation using data from World Development Indicator of the IMF (2018) and the Center for Systemic Peace (2018).

The correlation matrix shown above has some implications for the association between the variable of interest and other variables in the model. There are mixed results on the association between fragility and other variables. Fragility has a strong negative association with Gender parity rate, foreign direct investment, Per capita GDP, and openness. Whereas unemployment and inflation rate are associated with fragility with a weak degree. The degree of association between Fragility and other variables in the model is weak, fair and mixed.

4.2.1 Panel Var Analysis

A necessary condition to avoid having spurious results in the investigation is the conduct of the stationarity test. Table 3 below is the result of the panel unit root test conducted.

Table 3 Panel stationary test.

Method	Statistic	Prob.	Remark
Levin, Lin & Chu t*	-4.71609	0	I(0)
Im, Pesaran and Shin W-stat	-16.7884	0	I(0)
ADF - Fisher Chi-square	368.741	0	I(0)
PP - Fisher Chi-square	309.66	0	I(0)

From table 3 above, the variables considered in this analysis are stationary at level. This submission is premised on the rejection of the null hypothesis that the variables are non-stationary. This conclusion is based on the significance at a 5% level of significance of the variables and all the methods used in the test. The probability statistics is less than 5%; hence we reject the null hypothesis that the variables have a unit root.

The table below shows the extracted estimate of the response of all the macroeconomic outcomes considered in this study to fragility.

Table 4

The response of SFI: Period	SFI	UR	TGDP	PGDP	INF	GPR	GPGDP	FDI
1	0.7464	0	0	0	0	0	0	0
2	0.5968	-0.2287	-0.3332	0.0984	-0.1224	0.0848	-0.1078	0.004
3	0.2457	-0.2631	-0.2995	-0.0677	0.0503	0.0144	0.0432	0.0154
4	0.2344	-0.2035	-0.3737	-0.2199	0.1464	0.0258	-0.1819	-0.0557
5	0.1298	-0.1212	-0.5474	-0.0381	0.0401	0.2676	-0.0781	-0.0081
6	0.0979	-0.2221	-0.5678	0.0014	-0.0569	0.0562	-0.1265	-0.1840
7	0.0829	-0.2180	-0.2554	-0.0774	-0.0117	0.1627	-0.0714	0.0316
8	0.0701	-0.2728	-0.1993	-0.1133	0.1297	0.1468	-0.0953	-0.2962
9	0.1271	-0.3241	-0.1449	-0.0269	0.1350	0.0981	-0.0217	-0.0174
10	0.2197	-0.2540	-0.0680	-0.0166	0.0223	0.2067	-0.1065	-0.2147

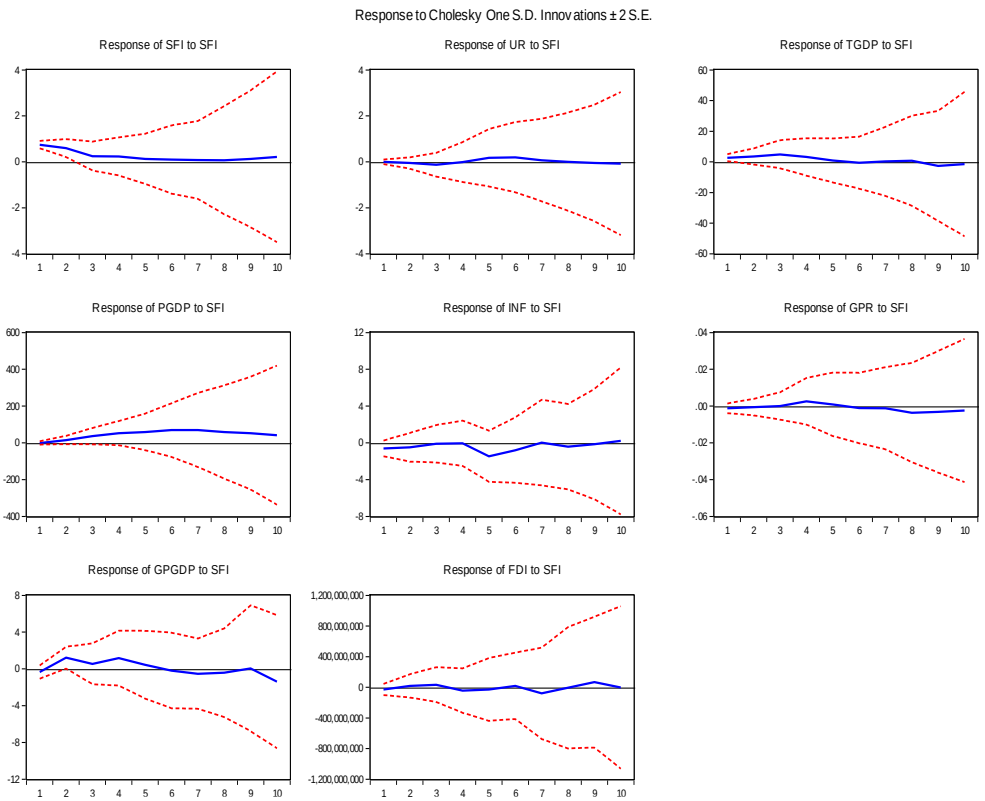


Figure 6. Impulse Response Function

Interpretation

Table 4 and figure 6 above show the interaction of macroeconomic outcomes with fragility in West Africa. State fragility is positive throughout the ten periods with effects highest in the first period, 74%, and falls gradually over the period. This situation supports the view that fragility is self-reinforcing, and once an economy becomes fragile, it takes time to come out. Interestingly, fragility falls and later rises. Fragility positively impacts on foreign direct investment in the first two periods. This situation is in line with the propositions of previous studies on this discuss. This situation is owing to the hitches connected with transferring their physical capital from the fragile state. In the following period, specifically by the third period, the response of FDI to fragility turns negative. This situation implies that the inflows of foreign-owned physical businesses will decline. Nevertheless, an overall withdrawal of Foreign Direct Investment is not indicated in the results above, implying that the stock of FDI falls but not by 100%. The growth rate of per capita GDP responded to fragility negatively throughout the period. However, the rates fluctuate between high and low values. Only in the second period was it positive at 4%. The response by GPGDP is in tandem with the earlier justification that a low rate of growth is a result and cause of fragility, Vaillings and Moreno (2005). The inflation rate also has mixed responses to fragility. Primarily, inflation responded negatively to fragility. This means that the inflationary situation is borne by fragility. Inflation could also be a cause of fragility. The real per capita GDP has mixed responses in its interaction with fragility. Both positive and negative responses can be seen from the results. Real per capita GDP will logically fall in a crisis-prone area. The gender parity rate experiences negative responses in the first four periods of fragility. A very low positive response of 0.16%, as available on the table. This rate falls and then rises later. In the form of social conflict, Fragility reduces human capital, as captured in this work by Gender Parity Rate. Barro (1991) argued that the ease with which countries would converge to the steady-state of growth would be determined by the nature of loss resulting from conflict or political instability, a longer time if human capital is destroyed. Trade as a percentage of GDP, openness shows negative and positive responses to fragility. Starting with a low 2% and falls lower to 0.09%. These results or responses are not without realistic justifications. On the one hand, fragility destroys trade openness. Coincidentally, trade openness facilitates fragility. Openness enhances globalization and liberalization with attendant negativity of smuggling of goods and ammunition, international sponsorship of terrorism and arms dealing etc.

The unemployment rate shows a positive response to fragility. This outcome is realistic. Fragility makes people stay at home due to the shutdown of businesses. Out of the macroeconomic outcomes considered, unemployment has the highest percentage of responses to fragility. The highest being 83%.

Table 5 Variance Decomposition of the interaction between State Fragility and Macroeconomic Outcomes

Period	S.E.	SFI	S.E.	UR	S.E.	FDI	S.E.	GPGDP
1	0.7464	100	0.3935	99.9936	2.87E+08	98.4146	2.4936	90.7750
2	1.0583	81.5358	0.8273	93.641	3.50E+08	75.1980	3.3764	51.7368
3	1.1614	72.1874	1.2297	87.9407	4.49E+08	54.416	4.3268	31.5328
4	1.3005	60.8117	1.4978	83.1808	5.21E+08	41.7673	4.6746	27.6450
5	1.4503	49.7017	1.6778	81.4903	5.96E+08	42.6470	4.9939	25.2361
6	1.5940	41.5214	1.8186	79.0216	6.46E+08	45.1568	5.2722	23.7864
7	1.6429	39.3407	1.9298	74.8473	7.33E+08	47.1575	5.7178	20.4468
8	1.7222	35.9638	1.9694	73.0562	7.46E+08	47.0935	6.2355	21.4792
9	1.771	34.5126	1.9915	71.4593	7.92E+08	49.0191	6.4151	20.6272
10	1.8320	33.7055	2.02964	68.8289	8.45E+08	52.9412	6.8930	17.8930
Period	**S.E.**	**TGDP**	**S.E.**	**INF**	**S.E.**	**GPR**	**S.E.**	**PGDP**
1	9.2695	88.9234	2.8109	75.8830	0.0088	73.6812	35.4688	23.5083
2	12.9403	71.0540	3.1386	60.9196	0.0136	50.4540	73.5480	30.3816
3	15.0785	64.0456	3.6073	48.1484	0.0175	39.7006	107.8929	19.16746
4	15.7387	59.9396	3.8227	42.8763	0.0195	41.4219	144.6553	12.9075
5	16.0836	57.4427	4.4786	32.1037	0.0211	39.4718	183.7739	10.7393
6	17.1023	53.0405	4.6003	30.5473	0.0225	38.7858	218.2622	10.1057
7	18.021	47.9708	4.6399	30.8854	0.0245	40.8269	243.9027	10.2005
8	18.8565	45.2146	4.8134	28.9446	0.0275	36.6043	262.943	10.1618
9	20.0964	39.8542	4.9998	26.8304	0.0288	34.2812	283.1517	10.0371
10	21.6748	40.5313	5.2330	24.6405	0.0297	34.9669	305.682	10.1982

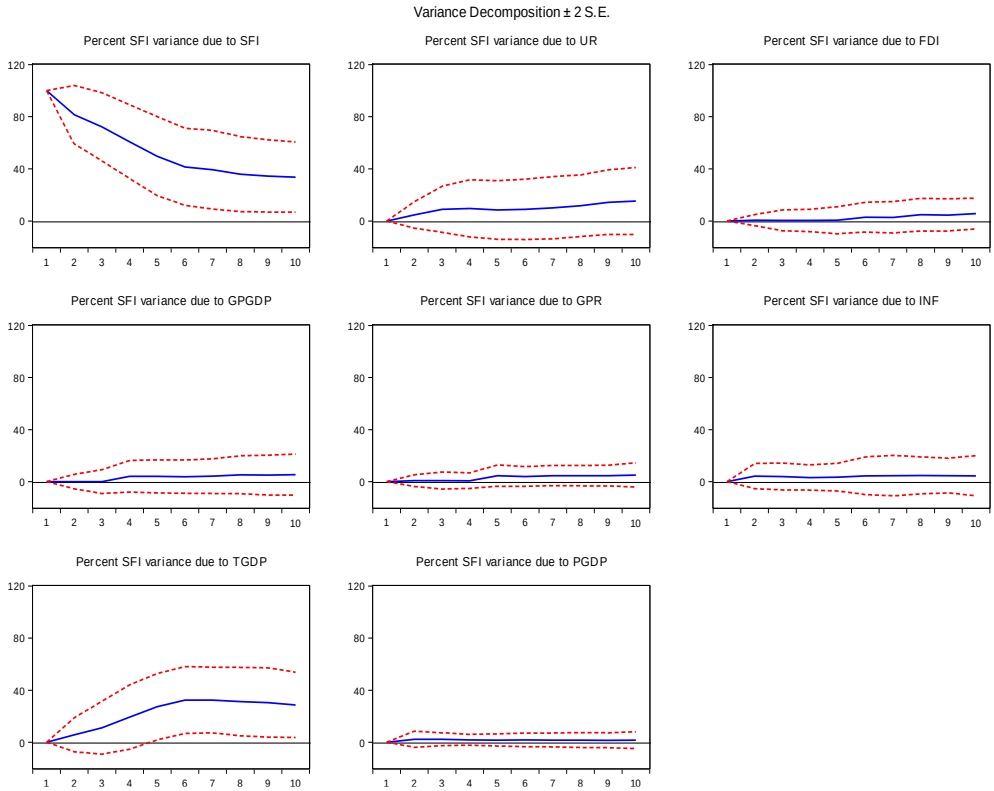


Figure 7. Variance Decomposition Graph

Interpretation

Table 5 and the accompanying graph, figure 7, above show fragility's share of any shock related to any of the macroeconomic outcomes under study. The share of fragility in shocks related to it is 100% in the initial level and falls continuously till the last period to 33%. Ninety-nine per cent (99%) of the shocks from unemployment is accounted for by fragility. This indicates that other macroeconomic variables share less than 1% of the shocks. This is a strong signal to West African countries as efforts to solve unemployment problems may be unresponsive due to fragility. Shocks from FDI are accounted for by fragility to the tune of 98%. Fragility is responsible for 98% of the shocks related to FDI. Less than 2% of the remainder is accounted for by other macroeconomic variables under study. The value falls through the period, even though not less than 50%. Shocks from GPGDP, TGDP INF and GPR, have also been accounted for by a higher percentage of fragility, not less than 70%. This situation is credence to the fact that expansionary macroeconomic policies may be unresponsive to the economy's fragility. The per capita GDP is the only variable having its shocks resulting from fragility at a lower percentage at 23%. That means 74 per cent of shocks related to PGDP are from other variables considered in the study.

5. Conclusion

The result from this study shows that fragility impacts on the West Africa's macro-economy. This impact is very high and destabilizing, especially on inflation, trade openness, foreign direct investment, gender parity rate, unemployment rate, and per capita GDP growth. This has substantial effects on the social, political and economic environment of the region. Fragility is self-reinforcing, from the estimate's details in the previous chapter, as it accounts for more than about 100% of itself. This explains the neighbourhood hypothesis or the spillover implications of the phenomenon to close related region, which sends a strong signal to sub-Saharan African economies and the world as a whole.

The declining influx of Foreign Direct Investment in the West Africa states has been empirically established to be partly the consequences of fragility. This declining inflow of FDI is meant to rise as the phenomenon of fragility persists. The empirical results show a constant fall or evacuation of foreign physical capital in foreign direct investment in West Africa state. The findings also show a steady deterioration will meet the growth rate of GDP and the per capita real GDP, should the phenomenon persist. This will cause a significant decline in the social welfare of the people. The declining nature of these variables is also shown by the need to spend more on curbing the phenomenon, thereby reducing government expenditure's social beneficial impacts. The West Africa policy of trade liberalization has shown its negative impact being a driver of fragility. However, this is at a low ebb. Trade openness continues to fall as fragility increases.

The result also shows that unemployment responded well to fragility. The problem of youth unemployment in the region could bear an explanation for this. The role of Youths in political thuggery is also a pointer to this. Persistent increase in general price level that is the rate of inflation was empirically shown to respond to fragility.

The channels through which the region can attain convergence have been empirically proven to be inflicted by fragility. This has a strong negative impact on the sustainability of development in the region. West African countries should look critically into the extent of fragility in the states. On average West African countries are close to being highly fragile. Therefore, the path to fragility should be blocked.

The trade liberalization policy of West Africa should be thoroughly reconsidered. Trade openness which should be a channel through which nations exchange growth-enhancing resources has turned out to be the source of fragility. West Africa states should define items to be traded among nations and ensure a formidable authority that would ensure strict compliance with the terms of the trade liberalization agreement.

From the empirical analysis results in the tables above, ninety-nine per cent (99%) of the shocks from unemployment is accounted for by fragility. This indicates that other macroeconomic variables share less than 1% of the shocks. Thus fragility kills employment, and unemployment spurs fragility. This situation should call the attention of West African countries, as efforts to solve unemployment problems may be unresponsive due to fragility. As a result, West Africa states should use a more dynamic approach to solving fragility-induced unemployment problems. This approach will include and not be limited to diversifying, enhancing and improving the means or instruments of human capital development. Diversification of human capital development will increase employment options, thus reducing the fragility that results from unemployment.

5.1 Limitation of the study

A major limitation posed by this work is the limited available data for a robust empirical analysis. Most West African countries do not have a good database. Those countries with data have it in incomplete form. Aside from this, there is a scarcity of literature and empirical works that would have been a fertile foundation to pitch this work.

5.2 Areas for further study

The topic, fragility, is a novel area that is still fertile for more empirical research. This work used Panel Vector Autoregressive Regression, which helps determine the direction of these variables' impact on fragility and fragility on the macroeconomic variables considered. This work looked at the macroeconomic variables together while considering West African countries only. There is still room to extend the investigation beyond West African countries, increase the data span, and dig deeper into country-specific fragility cases for cross-country comparison.

References

Acemoglu, D., Johnson, S., & Robinson, J. A. (2002). Reversal of fortune: Geography and institutions in the making of the modern world income distribution. The Quarterly journal of economics, 117(4), 1231-1294.

Acemoglu, D., Johnson, S., & Robinson, J. A. (2005). Institutions as a fundamental cause of long-run growth. In Aghion, P. & Durlauf, S. N., Handbook of economic growth, (pp.385-472). Cambridge, MA: National Bureau of Economic Research.

Aghion, P., & Howitt, P. (1992). A Model of Growth Through Creative Destruction. Econometrica, 60(2), 323. doi: 10.2307/2951599

Aikman, D., Lehnert, A., Liang, J., & Modugno, M. (2016). Financial Vulnerabilities, Macroeconomic Dynamics, and Monetary Policy. Macroeconomic Dynamics and Monetary Policy (2016-07-07). FEDS Working Paper, (2016-055).

Alesina, A. & Perotti, R. (1996). Income Distribution, Political Instability, and Investment. European Economic Review, 40(6), 1203-1228.

Ansar, A., Flyvbjerg, B., Budzier, A., & Lunn, D. (2016). Does infrastructure investment lead to economic growth or economic fragility? Evidence from China. Oxford Review of Economic Policy, 32(3), 360-390. doi: 10.1093/oxrep/grw022

Auty, R. M. (2001). Reforming Resource-Abundant Transition Economies: Kazakstan and Uzbekistan. Resource abundance and economic development, 260-276.

Azariadis, C., & Drazen, A. (1990). Threshold externalities in economic development. The Quarterly Journal of Economics, 105(2), 501-526.

Badeeb, R., Lean, H., & Clark, J. (2017). The evolution of the natural resource curse thesis: A critical literature survey. Resources Policy, 51, 123-134. doi: 10.1016/j.resourpol.2016.10.015

Barro, R. J. (1991). Economic growth in a cross-section of countries. The quarterly journal of economics, 106(2), 407-443.

Barro, R. J., & Lee, J. W. (1993). Losers and winners in economic growth. The World Bank Economic Review, 7(suppl_1), 267-298.

Barro, R., & Wolf, H. (1989). Data appendix for economic growth in a cross-section of countries. Unpublished November.

Barro, R. J., & Martin, S. I. X.(2004). Economic growth. Journal of Macroeconomics, 18, 552.

Bertocchi, G., & Canova, F. (2002). Did colonization matter for growth?: An empirical exploration into the historical causes of Africa's underdevelopment. European economic review, 46(10), 1851-1871.

Bertocchi, G., & Guerzoni, A. (2011). The Fragile Definition of State Fragility. Rivista italiana degli economisti, 16(2), 339-356.

Brinkerhoff, D. W. (2005). Organizational legitimacy, capacity and capacity development. European Centre for Development Policy Management, Maastricht.

Brinkerhoff, D. W. (2005). Rebuilding governance in failed states and post-conflict societies: core concepts and cross-cutting themes. Public Administration and Development. The International Journal of Management Research and Practice, 25(1), 3-14.

Cammack, D., McLeod, D., Menocal, A. R., & Christiansen, K. (2006). Donors and the 'fragile states' agenda: a survey of current thinking and practice. ODI Report submitted to the Japan International Co-operation Agency. London: ODI.

Campos, J. E., Lien, D., & Pradhan, S. (1999). The impact of corruption on investment: Predictability matters. World Development, 27(6), 1059-1067.

Carment, D., Prest, S., & Samy, Y. (2008). Determinants of state fragility and implications for aid allocation: An Assessment Based on the Country Indicators for Foreign Policy Project. Research Paper 2008/46. Helsinki: UNU-WIDER.

Chauvet, L., & Collier, P. (2008). What are the preconditions for turnarounds in failing states? Conflict Management and Peace Science, 25(4), 332-348.

Chauvet, L., Collier, P., & Hoeffler, A. (2011). The Cost of State Failure and the Limits to Sovereignty. Fragile States: Causes, Costs, and Responses, Oxford University Press, Oxford.

Chuku, C., & Onye, K. (2017). State fragility, macroeconomic policies and macroeconomic outcomes in sub-Saharan Africa. AERC/IDRC PROJECT

Chuku, C., & Onye, K. (2018). Macroeconomic consequences of state fragility in sub-Saharan Africa. Review Of Development Economics. doi: 10.1111/rode.12570

Collier, P. (1995). Civil war and the economics of the peace dividend. CSAE Working Paper Series 1995-08, Centre for the Study of African Economies, University of Oxford.

Collier, P. (1999). On the economic consequences of civil war. Oxford economic papers, 51(1), 168-183.

De Soysa, I. (2002). Paradise is a bazaar? Greed, creed, and governance in civil war, 1989-99. Journal of Peace Research, 39(4), 395-416.

Deléchat, C., Fuli, E., Mulaj, D., Ramirez, G., & Xu, R. (2018). Exiting from Fragility in Sub-Saharan Africa: The Role of Fiscal Policies and Fiscal Institutions. South African Journal Of Economics, 86(3), 271-307. doi: 10.1111/sage.12195

Easterly, W., & Levine, R. (1997). Africa's growth tragedy: policies and ethnic divisions. The quarterly journal of economics, 112(4), 1203-1250.

Easterly, W. (2005). National policies and economic growth: a reappraisal. Handbook of economic growth, 1, 1015-1059.

Easterly, W., & Rebelo, S. (1993). Fiscal policy and economic growth. Journal of monetary economics, 32(3), 417-458.

European Report on Development. (2009). Overcoming Fragility in Africa: Forging A New European Approach. Robert Schuman Centre for Advanced Studies, European University Institute, San Domenico di Fiesole.

Geda, A. (2019). Challenges of Macroeconomic Management in Fragile States of Africa. AERC Senior Policy Seminar Paper

Geda, A. (2017). Macroeconomic Management in Fragile States of Africa: Issues and Challenges. AERC Framework Paper, Nairobi, Kenya.
GIOVANNETTI, G. (2009). Overcoming Fragility in Africa: Forging a New European Approach. European Report on Development 2009, Robert Schuman Centre for Advanced Studies, European University Institute, Florence, 2009
Gylfason, T., (2011). Natural resource endowment: a mixed blessing? (No. 3353. CESifo working paper) Resour. Environ. Econ.
International Monetary Fund African Dept., & International Monetary Fund. (2013). Regional Economic Outlook: Sub-Saharan Africa: Building Momentum in a Multi-speed World. International Monetary Fund.
IMF. (2014). Regional Economic Outlook: Sub-Saharan Africa Staying the Course. Washington, D.C.: International Monetary Fund.
Iqbal, Z., & Starr, H. (2008). Bad neighbors: Failed states and their consequences. Conflict Management and Peace Science, 25(4), 315-331.
Jong-A-Pin, R. (2009). On the measurement of political instability and its impact on economic growth. European Journal of Political Economy, 25(1), 15-29.
Karl, T. L. (2005). Understanding the Resource Curse, Covering Oil: A Reporter's Guide to Energy and Development. Open Society Institute, 21.
Kirshner, J. (2016). The International Consequences of Financial Fragility. Current History, 115(777), 23.
Knack, S., & Keefer, P. (1995). Institutions and economic performance: cross-country tests using alternative institutional measures. Economics & Politics, 7(3), 207-227.
Kuruc, K. (2018). The IMF and Fragile States: Assessing Macroeconomic Outcomes. IEO Background Paper No. BP/18-01/05. Washington: Fonds monétaire international.
Lessnoff, M. (1990). Introduction: social contract. Social contract theory, 18.
Marshall, M. G., & Cole, B. R. (2009). Global report 2009: Conflict, governance, and state fragility. Center for Systemic Peace.
Menocal, A. R. (2010). State-building for Peace. A New Paradigm for International Engagement in Post-Conflict Fragile States? Third World Quarterly, 32, 1715-1736.
Murdoch, J. C., & Sandler, T. (2004). Civil wars and economic growth: Spatial dispersion. American Journal of Political Science, 48(1), 138-151.
Nikolaidi, M. (2016). Essays on financial fragility, instability and the macroeconomy.
Nkurunziza, J. D. (2019). Growth in fragile states in Africa: Conflict and post-conflict capital accumulation. Review of Development Economics, 23(3), 1201-1219.
Nkurunziza, J. (2017). Growth in Fragile States in Africa: Conflict and Post-conflict Capital Accumulation. Framework Paper, Project on Growth in Fragile States in Africa, African Economic Research Consortium, Nairobi
oecd. (2008). Growing unequal?: Income distribution and poverty in OECD countries.
Olowu D., Chanie P. (2016) Introduction: Renewed Interest in State Weakness and Fragility. In: Olowu D. & Chanie P. (eds). State Fragility and State Building in Africa. United Nations University Series on Regionalism, vol 10. Springer, Cham
Organski, A. F. K. & Jacek Kugler, 1977. The Costs of Major Wars: The Phoenix Factor. American Political Science Review, 71(4), 1347–1366
Persson, T., & Tabellini, G. (2006). Democracy and development: The devil in the details. American Economic Review, 96(2), 319-324.
Rocha Menocal, A., Fritz, V., & Rakner, L. (2008). Hybrid regimes and the challenges of deepening and sustaining democracy in developing countries. South African Journal of International Affairs, 15(1), 29-40.
Rodrik, D. (1999). Where did all the growth go? External shocks, social conflict, and growth collapse. Journal of economic growth, 4(4), 385-412.
Romer, P. M. (1986). Increasing returns and long-run growth. Journal of political economy, 94(5), 1002-1037.
Romer, P. (1990). Are nonconvexities important for understanding growth? (No. w3271). National Bureau of Economic Research.
Sachs, J. D., & Warner, A. M. (1995). Natural resource abundance and economic growth (No. w5398). National Bureau of Economic Research.
Sachs, J. D., & Warner, A. M. (1997). Sources of slow growth in African economies. Journal of African economies, 6(3), 335-376.
Sachs, J. D., & Warner, A. (1999). Natural resource intensity and economic growth. Development policies in natural resource economies, 13-38.
Solow, R. M. (1956). A contribution to the theory of economic growth. The quarterly journal of economics, 70(1), 65-94.
Stiglitz, J. E. (2005). More Instruments and Broader Goals: Moving toward the Post-Washington Consensus. In Wider Perspectives on Global Development. Studies in Development Economics and Policy. Palgrave Macmillan, London. https://doi.org/10.1057/9780230501850_2
Vallings, C., & Moreno-Torres, M. (2005). Drivers of fragility: What makes states fragile? (No. 668-2016-45529).
Williamson, J. (2000). What should the World Bank think about the Washington Consensus? The World Bank Research Observer, 15(2), 251-264.
Wolf, H. (2005). Volatility: definitions and consequences. In Aizenman, J. & Pinto, B. (eds.). Managing economic volatility and crises: A practitioner's guide, (pp.45-64). Cambridge University Press.