

Afolabi, Joshua Adeyemi; Raifu, Isiaka Akande

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Toward economic resilience in Sub-Saharan Africa: The role of institutional quality and human capital development

Joshua Adeyemi Afolabi^{1,2}  | Isiaka Akande Raifu³ 

¹Institute of Economics, Technische Universität Ilmenau, Ilmenau, Germany

²Innovation and Technology Policy Department, Nigerian Institute of Social and Economic Research (NISER), Ibadan, Nigeria

³Centre for the Studies of the Economies of Africa (CSEA), Abuja, Nigeria

Correspondence

Joshua Adeyemi Afolabi, Institute of Economics, Technische Universität Ilmenau, Ilmenau, Germany.

Email: joshuaafolabi@gmail.com; joshua-adeyemi.afolabi@tu-ilmenau.de

Abstract

A viable economy's hallmark is its ability to generate positive growth rates and its capacity to sustain such growth, especially during a crisis. Economic crises have the potential to induce uncertainty, reverse pre-crisis economic gains and force preexisting challenges to reemerge, necessitating actions on building economic resilience. Given the fragility of most countries in Sub-Saharan Africa (SSA), the current paper evaluates the role of institutional quality (INSQ) and human capital development in boosting economic resilience in SSA. The sampled countries were classified into fragile and resilient countries. Annual data spanning 2000–2021 was obtained and analyzed using the Bias-Corrected Method of Moments (BCMM) estimation method, which can adequately account for cross-sectional dependence, endogeneity, and heterogeneity in the sample. The results revealed that human capital development improves the resilience of fragile and non-fragile economies, and INSQ has a higher positive impact in fragile countries than in non-fragile countries. The results of the bundled INSQ support the positive effect of economic governance, institutional governance, and political governance on the resilience of fragile and non-fragile countries. Therefore, group-specific economic resilient policies need to be designed to strengthen economic resilience in the SSA region, and buffers that will ensure a healthy response to economic crises need to be strengthened. In addition, sound institutions and massive investment in human capital development should be pursued to boost economic resilience in the SSA region.

KEYWORDS

BCMM, economic resilience, human capital, institutional quality, Sub-Saharan Africa

1 | INTRODUCTION

Resilience is a multidisciplinary concept that describes the capacity of an entity to withstand and recover from a disruption. It has been extensively applied in various disciplines after its initial introduction to ecological sciences by Holling (1973). In economics, resilience is conceived as the ability of an economy to absorb shocks (mostly external shocks), recover from such shocks, and return to its real convergence

path (Jolles et al., 2018). Resilience is viewed more from an evolutionary perspective, whereby it does not only refer to an economy “bouncing back” or returning to its initial equilibrium but “bouncing forward,” reaching higher levels than the pre-shock era (Pascariu et al., 2021; Reggiani et al., 2002). Building a shock-proof economy has been at the forefront of major policy debates globally as economic resilience is critical for promoting inclusive and sustainable development. It allows countries to become “tough-skinned” toward external

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shocks and prevents them from temporary distortions that could have long-term ripple effects. External shocks are somewhat inevitable due to global interconnection, interdependence, and integration (Afolabi et al., 2022; Bolaji et al., 2021). However, individual countries can build a bulwark against external shocks that will make them remain calm in the face of global uncertainties and revert to their steady states, irrespective of the nature and persistence of the shocks.

The advocacy for national, regional, and global economic resilience became more intense following the two most recent global crises of the last two decades—the global financial crisis and the recent COVID-19 pandemic. These crises have highly heterogeneous impacts across countries and unveiled the actual level of resilience of each country and region, serving as practical tests to prove the real status of economic resilience of individual countries and regions (Wang & Li, 2022). For example, Sub-Saharan African (SSA) countries have faced numerous resilience challenges arising from endogenous and exogenous shocks. Endogenously, political instability and economic mismanagement led to inflation crises and stagnation, particularly in countries like Zimbabwe, which experienced hyperinflation in the late 2000s due to poor monetary policies. The global financial crisis of 2008 instigated a global recession and led to multiple job losses across the globe (Chen et al., 2019). Just when many economies were stabilizing after the global financial crisis, the US fiscal cliff and Europe's sovereign debt crisis surfaced. The COVID-19 pandemic also struck and crippled economic activities across the globe. This compelled the governments and other stakeholders to strive to salvage their economies from impending doom. In 2020, the pandemic lowered global gross domestic product by 4.2% (OECD, 2020); wasted working hours equivalent to 495 million full-time jobs (ILO, 2020); and plunged about 115 million people into extreme poverty (World Bank, 2020). In response, SSA countries implemented various counteracting policies, such as fiscal stimulus packages to boost demand, monetary easing to stabilize inflation, and structural reforms to enhance economic resilience. However, while some measures provided short-term relief, others failed to address the underlying vulnerabilities and exposed the economies to future shocks. This proves the need to build resilience long before a crisis occurs (McDonnell & Carey, 2020). The recent COVID-19 pandemic proved that the benefits of building resilience far outweigh the cost of fixing the adverse ripple effects of economic crises. As such, it becomes imperative to chart paths through which developing countries, especially those in the SSA region, can break free from the shackles of fragility and benefit from the gains associated with building economic resilience.

Despite the SSA region's high susceptibility to economic shocks, the attention it has attracted in the literature remains minimal, making the efforts to tackle the economic crisis in the region suboptimal. SSA countries have experienced different economic boom and bust episodes since their political independence. These are not unconnected from the growing structural deficiencies that pervade the SSA region including the weak economic structures, rising climate change, and geopolitical risks (Christensen & Upper, 2017). The weak productive bases of SSA countries and their over-reliance on importation constrain their quest for fostering economic competitiveness and

resilience (Ogunjimi & Amune, 2019; Raifu & Afolabi, 2023). Moreover, the large deposits of natural resources in SSA have been of great blessings and misfortune (Afolabi, 2023). From the blessing perspective, SSA countries earn huge natural resource rents (NRR) and foreign exchange that aid domestic resource mobilization and the provision of public goods and services (Afolabi, 2024). Natural resource exploitation offers immense opportunities and unbridled optimism for sustainable growth in many developing countries, including SSA countries (Kansheba & Marobhe, 2022). From the misfortune perspective, natural resource endowment has instigated civil wars, insurgency, and vandalism, among other social vices, in SSA. This eroded the huge benefits of natural resource endowment and instigated the resource curse syndrome as poverty worsened, income gaps widened and unemployment aggravated in the region (World Bank, 2021a). In addition, while climate change adversely affected the global economy, its effects on food security, sustainable agriculture, and the general welfare of SSA residents were particularly corrosive (Connolly-Boutin & Smit, 2016). This speaks volumes about SSA countries' fragility and inability to rebound promptly after a temporary shock. It poses a severe threat to achieving Sustainable Development Goals (SDGs) and other developmental goals and could cause many SSA countries to be left behind in achieving the global development agenda. Hence, it becomes important to explore pragmatic ways of bolstering economic resilience in the SSA region with particular emphasis on human capital development and institutional quality (INSQ). Contemporary realities reveal the need to prioritize resilience-related policies as building economic resilience has never been more imperative, especially in SSA.

The key drivers of economic resilience have been broadly categorized into two—soft drivers (such as social capital, institutions, and economic structure) and hard drivers (such as infrastructures and human capital) (Wang & Li, 2022; Wang & Wei, 2021). Human capital development accelerates economic progress, creates decent jobs, and improves living standards (Bazie et al., 2023; Wirajing et al., 2023), and strong institutions are required to effectively position and harness human capital for better sustained economic development (Afolabi, 2024; Babatunde & Afolabi, 2023). Ignoring these drivers in the quest to build resilient economies could result in suboptimal outcomes. This motivates the current paper to account for the role of these drivers in building economic resilience within the framework of the human capital-induced endogenous growth theory advanced by Lucas (1988), Romer (1989), and Barro (2001), which posits that human capital, through improved investment in health and education, is vital for building a sustained and resilient economic growth. The SSA region has long been plagued by corruption, weak rule of law, and political instability, among other institutional challenges. These problems not only hinder economic growth but also severely limit the ability of SSA countries to respond effectively to both endogenous and exogenous shocks (Avom et al., 2021; Ngouhouo & Nchofoung, 2022). Poor governance results in inefficient public services, undermines investor confidence, and hampers economic stability, especially during crises (Babatunde & Afolabi, 2024). Many countries in the region suffer from low levels of human capital development and a workforce that lacks the necessary skills for a

modern, diversified economy. This limited human capital lowers productivity, stifles innovation, and reduces economic adaptability, all of which are essential for building resilience in the face of global and local shocks (Nchofoung & Ngouhouo, 2024). Addressing these institutional and human capital deficits could enhance economic resilience by enabling more effective policy implementation and producing a skilled and healthy workforce capable of driving economic resilience.

This paper makes significant contributions to the resilience literature in three key ways. First, it assesses the impact of INSQ and human capital development on the economic resilience of SSA economies. In addition to providing aggregate estimates for all sampled countries, this paper categorizes SSA countries into two groups (fragile [FC] and non-fragile [NFC]) based on their economic resilience. This is to reveal the varying effects of INSQ and human capital development across these groups to offer valuable insights for policymakers in crafting group-specific, resilience-based policy strategies. Moreover, this paper disaggregates INSQ into three main categories to provide a nuanced analysis of their effects on economic resilience. This approach makes the current paper different from Nchofoung and Ngouhouo (2024), who treated SSA countries as a single group and used INSQ as a single variable in their analysis of demography, exchange rates, and INSQ. Second, the paper utilizes a panel dataset of 27 International Development Association (IDA) SSA countries, covering the period from 2000 to 2021, and applies the Bias-Corrected Method of Moments (BCMM) estimator. The BCMM approach addresses common issues in panel data analysis, such as autocorrelation, heteroscedasticity, endogeneity, and cross-sectional dependence (CD) (Breitung et al., 2022), adding robust dimensions to the study of economic resilience. Third, unlike previous studies that used a single measure of INSQ, this paper categorizes the six components of INSQ (rule of law, voice of accountability, regulatory quality, government effectiveness, political stability, and control of corruption) from the World Governance Indicator (WGI) into three key indicators (economic, political, and social institutions) using Principal Component Analysis (PCA). This categorization highlights differences in the magnitude of each institution type's impact on economic resilience and provides critical insights for more informed policy decisions. In sum, this paper offers evidence on how SSA countries can leverage human capital development and INSQ to enhance their progress toward the SDGs, particularly SDG 8, which focuses on decent work and sustained economic growth.

The structure of the remaining part of this paper is as follows. The Section 2 presents a review of the literature on the nexus between economic resilience and INSQ as well as economic resilience and human capital development. The Section 3 describes the data and methodological approach adopted in this paper. The Section 4 presents and discusses the empirical findings while the last section concludes with policy recommendations and suggestions for future research.

2 | BRIEF REVIEW OF RELATED STUDIES

The resilience literature has been growing rapidly since the pioneering work of Holling in 1973. Resilience has moved from being a buzzword

to a notable register in different disciplines. As such, there is an increasing volume of empirical studies that use interdisciplinary approaches to explain the concept of resilience and its nexus with other variables. In the economic resilience literature, the link between economic resilience and specific macroeconomic variables have been explored. However, this section specifically reviews past studies on the link between economic resilience, INSQ, and human capital development.

2.1 | Economic resilience and institutional quality

The variance in the growth trajectory of developed and developing economies is often influenced by their level of economic resilience. While the growth path of developed economies usually appears smooth, the path to economic growth of developing countries is often characterized by peaks and troughs as expansions and downturns stretch over time. The quality of institutions plays a crucial role in this regard (Pascariu et al., 2021). The literature linking INSQ to economic resilience is budding and continues to receive increasing attention. The role of sound institutions in lowering economic vulnerabilities and fostering economic resilience is well documented in the literature. For example, Pereira and Steenge (2022) assessed the role of trade and financial integration, together with institutions, on the economic vulnerabilities and resilience of seventeen Caribbean Island countries. The authors found that smaller countries have higher economic vulnerabilities than their larger counterparts due to their high reliance on foreign trade. However, upgrading their current quality of institutions will prove helpful in building economic resilience even though some countries are more resilient than others.

Sondermann (2017), which focused on the importance of well-functioning goods and labor markets as well as sound political institutions for economic resilience, lends support to this stance. The author found that having sound goods and labor market as well as a strong political institution play important roles in increasing a country's buffer against adverse shocks. The study also showed that countries with weak economic structures lose twice as much output as countries with sound institutions. It was also found that having flexible and adaptable institutions reduces the tendency to experience severe economic crises. However, Nchofoung (2022) also showed that terms of trade shocks enhance labor market resilience in SSA. Pascariu et al. (2021) evaluated the effect of INSQ on the economic resilience of selected countries in the Central and Eastern Europe region using panel data spanning 1996–2019. The panel regression result indicated that even though institutional factors significantly influence economic resilience, their impact varies across socioeconomic and political contexts. Therefore, the recovery and resilience process of each economy will be determined by the prevailing situation in such country. Ezcurra and Rios (2018) found that better labor market outcomes were associated with a higher quality of governance across the sampled region, with significant spatial spillover effects on neighboring regions. The findings underscored the relative importance of quality governance in fostering regional resilience, suggesting the need to promote good governance at the regional level.

In a panel study comprising 80 resource-rich countries, Kansheba and Marobhe (2022) showed significant variance in the quality of institutions, resource governance, and resource-based economic sustainability across the countries. The empirical result further revealed that INSQ has a positive impact on resource-based economic sustainability although the effects become more pronounced when mediated with resource governance. Overall, the findings stressed the importance of INSQ for improving resource governance and resource-based economic sustainability, which will ultimately improve economic resilience. ECB (2016) analyzed the role of institutions and economic structures in improving the resilience and long-term growth of economies in the euro area and the Economic and Monetary Union (EMU). The study showed that institutional performance and the labor and good markets functioning in the euro area and EMU countries are distinctly below those of global best performers. Reducing this observed gap is critical for improved productivity, long-term growth, and economic resilience.

Other papers have focused on the role of INSQ in mitigating external shocks and promoting macro-financial resilience. Particularly, Abere and Akinbobola (2020) employed the structural vector autoregressive (SVAR) model to evaluate how INSQ and external shocks drive macroeconomic performance in Nigeria. The study showed that while INSQ has a positive effect on macroeconomic performance, external shocks disrupt it. Beirne and Panthi (2022) argued that countries with strong institutions are more resilient in terms of real GDP per capita and net inflows of foreign direct investment during periods of high financial stress and also more resilient with regard to net debt and equity inflows during periods of financial crisis. However, in countries with low INSQ, portfolio debt stabilization is possible during periods of financial crisis, albeit at a marginal level. The results from the duration model of Ahmed and Trabelsi (2022) revealed that democracy supports growth spells during negative external shocks, making it a significant driver of economic resilience. Even though shocks were found to have disruptive effects on growth, democratic institutions, egalitarian inclusion, and political participation can foster sustainable economic growth and resilience.

2.2 | Economic resilience and human capital development

In addition to the empirical literature on the role of INSQ on economic resilience, human capital has been identified as another notable determinant of economic resilience and a key component of the wealth of nations (Hamilton et al., 2018). There exists ample empirical evidence connecting human capital development with economic resilience. For example, Simões et al. (2022) evaluated the regional effects of human capital on labor market resilience in seven Portuguese regions using data covering 1995–2018. The result revealed the resilience of the labor market to the different episodes of business cycles across the sampled regions, particularly in terms of employment and total hours worked. Nevertheless, regions with higher human capital are found to be more resilient than those with low human capital. The result

appeared mixed when the level of education of employees is put into consideration as regions with more educated employees have better labor market resilience than those with employees having a lower level of education. Similarly, Ailsa and Gillian (2019) examined the role of investment in human capital in reducing disaster risks and building resilience in African economies. The findings are in the affirmative although they suggested that higher educational institutions in disaster-prone countries have important roles to play in fast-tracking skilled human capital for advancing risk management through well-designed academic curricula. The study concluded that investment in human capital offers protective benefits and the potential for progressively transformative change.

Moreover, Nchofoung and Ngouhouo (2024) identified sectoral diversity, industrialization, trade openness, human capital, and population growth rate as key factors influencing economic resilience in SSA. Yiwei and He (2020) investigated whether human capital influences urban economic resilience in 264 Chinese cities. Findings revealed a positive relationship between the two variables and that human capital is a major determinant of urban economic resilience. Specifically, it was found that human capital improves urban economic resilience better and faster than industrial agglomeration. Similarly, Qaisrani (2015) showed that climate change adversely affects human capital development while human capital development is crucial for adapting to climate change, which will engender climate change resilience and sustainable development. Algan et al. (2021) provided evidence of how investing in education can boost social and economic resilience in Europe. The authors broadly classified the effects of investing in education into economic and non-economic effects at the individual and country levels. The economic effects for individuals include modern skillsets, increased human capital, higher chances of getting employed, improved productivity, and better earnings than the aggregate economy. The study showed that countries with better education, in terms of quality and quantity, tend to be more resilient to shocks and have higher GDP growth than countries with low-quality education. The non-economic effects at the country level include improved health outcomes, reduced crime rates, better political engagements, and improved civility and tolerance. For individuals, it includes being more technology compliant and adaptable than uneducated fellows.

In a cross-sectional study, Okuwa et al. (2016) found that investment in human capital through regular training programs substantially improves organizational, agility, adaptive capacity, and resilience. Similarly, Pereira et al. (2020) explored whether human capital influences organizational resilience and firm performance across business clusters. The result emphasized the important role of human capital in improving organizational resilience, especially during a crisis. It reported that regional employment, revenue growth, and resilience are more prominent in business clusters with a higher level of human capital. Given the important role of human capital development in fostering economic resilience, the World Bank (2021b) advocated for improved public expenditure toward raising the current level of human capital for a speedy recovery from crisis and laying a solid foundation for resilient, inclusive, and sustainable development. Wirajing et al. (2023) found that human capital development is an important growth enhancer in Africa and it interacts with internet

penetration to generate a positive net effect on the growth of the continent's economy. Bazie et al. (2023) lend credence to this finding as they showed that human capital development is pivotal for growth but the pervasive corruption in many SSA countries undermines the positive growth effect that could have been harnessed from governments' expenditure on health and education. These studies show convincing evidence that prioritizing human capital development is critical for building economic growth and resilience in Africa.

Some papers focused on determining the drivers of economic resilience, albeit with mixed outcomes in different countries and regions. In a panel study comprising 284 Chinese cities, Wang and Li (2022) found heterogeneity in the impact of economic crisis across the sampled regions and provinces. It also revealed that the determinants of regional economic resilience include human capital, financial development, government intervention, innovation, and income inequality, although this varies depending on the size of the economy, natural, and human resources as well as regional trajectories. Wang and Wei (2021) also investigated the determinants of economic resilience to the 2008 global financial crisis in selected Chinese regions. The authors revealed that financial liberalization, trade openness, human capital development, and industrial diversity significantly impact economic resilience across the region. However, Jolles et al. (2018) identified congenial business environments, price control policies, economic factors, and sectoral competition as the determinants of economic resilience in the euro area. Overall, there is a dearth of studies examining the role of INSQ and human capital development in fostering economic resilience. This paper fills this knowledge gap by underscoring how INSQ and human capital development influence the economic resilience of selected SSA countries. This is important to provide important policy options that will foster economic resilience in SSA, the region with the highest number of fragile economies.

3 | METHODOLOGY

3.1 | Model construction and estimation method

To examine the role of INSQ and human capital in ensuring economic resilience in Africa, we rely on the model considering human capital as a driver of growth proposed by Lucas (1988), Romer (1989), and Barro (2001), and employed by Wirajing et al. (2023):

$$Y_{it} = A(K_{it})^\alpha (H_{it})^{1-\alpha}. \quad (1)$$

The model indicates that improving technology (A), physical capital (K), and human capital stock (H) will improve the productivity (Y) of a country, which is important for fostering economic resilience. Linearizing Equation (1) gives:

$$\log Y_{it} = \log A + \alpha \log K_{it} + (1 - \alpha) \log H_{it}. \quad (2)$$

Differentiating the elements of Equation (2) with respect to time gives the growth rate as follows:

$$\frac{\dot{Y}_{it}}{Y_{it}} = \frac{\dot{A}_{it}}{A_{it}} + \alpha \frac{\dot{K}_{it}}{K_{it}} + 1 - \alpha \frac{\dot{H}_{it}}{H_{it}}. \quad (3)$$

Equation (3) depicts that productivity growth rate (which determines the level of economic resilience) is influenced by growth in technology, human capital and physical capital. We slightly modify this model to accommodate INSQ and some control variables natural resource rent (NRR) and global uncertainty index (GUI). The dynamic panel model is as follows:

$$ER_{it} = \beta_0 + \beta_1 ER_{it-1} + \beta_2 HCAP_{it} + \beta_3 NRR_{it} + \beta_4 GUI_{it} + \varepsilon_{it}, \quad (4)$$

$$ER_{it} = \beta_0 + \beta_1 ER_{it-1} + \beta_2 INSQ_{it} + \beta_3 NRR_{it} + \beta_4 GUI_{it} + \varepsilon_{it}, \quad (5)$$

where ER_{it} is economic resilience and $HCAP$ is human capital. In this paper, economic resilience is measured using the index developed by Ngouhou and Nchofong (2022) and Nchofong and Ngouhou (2024), which is based on three key dimensions of the macroeconomic trend: macroeconomic stability, adjusted market efficiency, and governance indexes. However, only the first dimension is used because our main explanatory variables are embedded in the other dimensions. For example, INSQ is a critical component of the governance index and human capital is a part of the measures of the adjustment market efficiency index. Including these dimensions in the resilience index could obscure the distinct contribution of our explanatory variables. The macroeconomic stability index is computed using inflation, public debt, current account balance, and unemployment. $INSQ_{it}$, which denotes INSQ, and $HCAP_{it}$, which denotes human capital are the main independent variables. The INSQ variable is computed from six governance indicators, which include control of corruption, government effectiveness, political stability, and absence of violence, regulatory quality, rule of law, and voice and accountability. It ranges between -2.5 (very weak institution) and 2.5 (very strong institution). To have a comprehensive knowledge of INSQ or governance, the argument of bundling and unbundling institutions as advanced in the institutional literature are followed (Acemoglu and Johnson, 2005; Raifu et al., 2021a). Thus, INSQ or governance is reclassified into economic governance, political governance, and institutional governance. Economic governance is defined as the formulation and implementation of policies that deliver public services or goods; it is represented by institutional variables such as regulatory quality and government effectiveness. Political governance captures the election and replacement of political leaders; it is represented by voice and accountability and political stability and the absence of violence. Institutional governance captures the interactions between the government and the citizens and their respect for one another; it is measured by the rule of law and control of corruption. These governance indexes are computed using the PCA method (Raifu, Nnadozie, & Adeniyi, 2021). We also control for other variables, which can serve as determinants of economic resilience. First, we control for NRR because many African countries rely on the proceeds from the extraction and exports of their natural resources. NRR is a major source of revenue and the resource curse phenomenon in SSA because it impedes economic

diversification and its reliance lowers the prospect for economic resilience (Afolabi, 2023). Second, we control for global economic uncertainty, which is used to capture the uncertainties that characterize the global economy. The higher the frequency and duration of uncertainty, the more difficult it is for countries to withstand and recover from shocks (Christensen & Upper, 2017).

A priori, we expect strong institutions or better governance to make countries more resilient to external shocks. Beirne and Panthi (2022) submit that strong institutions enable the economies in Asian countries to be resilient in the period of economic crisis. We expect the same to happen in SSA. Hence, INSQ should have a positive effect on economic resilience. Similarly, in the endogenous growth theories advanced by Lucas (1988), Romer (1989), and Barro (2001), we expect human capital to lead to more economic resilience. Human capital, developed through better education, is expected to drive innovative ideas that would lead to economic growth and employment. Hence, human capital is expected to have a positive effect on economic resilience. However, trade openness can either make the economy resilient or vulnerable. If trade openness brings about the sharing of knowledge of production and technology transfer, it can boost growth and generate employment to the extent that the economy would become resilient to shocks (Afolabi, 2022). However, trade openness can make the economy vulnerable. This is because if trade openness makes a country a dumping ground for foreign-produced products, it could strangle domestic firms or industries out of existence (Hye & Lau, 2015; Malefane & Odhiambo, 2021). With regards to global economic uncertainty, the higher the level of global uncertainty the more the economy becomes vulnerable. Hence, we expect global economic uncertainty to stifle economic resilience (Christensen & Upper, 2017).

Having stated the a priori expectations, the specified equations are estimated using the BCMM estimator, as introduced by Breitung et al. (2022). The Pooled Ordinary Least Squares (POLS) method would have been used to estimate the equations but for its tendencies to violate the classical regression model assumptions including serial correlation and heteroscedasticity. Because the error term of panel regression is usually characterized by problems like heteroscedasticity, CD, and serial correlation, using POLS for estimation may result in estimation bias (Hansen, 2007). Thus, we employ the BCMM estimation method, which directly considers the issues of endogeneity, heteroscedasticity, CD, and serial correlations in the course of estimation. It presents a significant advancement in addressing the biases inherent in traditional estimators by adjusting the moment conditions to improve the accuracy of the estimation. It also can generate robust standard errors that account for CD and outperforms the generalized method of moments (GMM) estimator by assuming strict exogeneity of the regressors (Breitung et al., 2022). The latter feature is particularly important in this paper due to the possibility of endogeneity between INSQ, human capital, and economic resilience. It helps ensure that the estimated relationships reflect causal effects rather than spurious correlations.

3.2 | Data issues

The dataset on relevant variables of 27 Sub-Saharan African countries that receive financial credits from the World Bank's International Development Association (IDA) was collected. It covers the period from 2000 to 2021. The choice of these sampled countries is based on their proven vulnerability to external shocks that could undermine economic resilience while the time frame selection is based on data availability on the main variables. The 27 countries are grouped into fragile and non-fragile countries by the IDA based on their level of resilience. Thirteen of these SSA countries are fragile while 14 are non-fragile as shown in the last two rows of Table 1. The data of variables of interest were obtained from the databases of the World Development Indicator (WDI) (<https://databank.worldbank.org/source/world-development-indicators>), the World Governance Indicator (WGI) (<https://databank.worldbank.org/source/worldwide-governance-indicators>), Ahir et al. (2022) (<https://worlduncertaintyindex.com/data/>), and the Penn World Table 10.1 (<https://www.rug.nl/ggdc/productivity/pwt/?lang=en>). Data on the six INSQ indicators (rule of law, regulatory quality, control of corruption, voice and accountability, government effectiveness, and political stability) are used to compute a composite INSQ index using the PCA approach. The PCA was also used to bundle the INSQ indicators into economic governance (comprising regulatory quality and government effectiveness), institutional governance (comprising rule of law and control of corruption), and political governance (comprising political stability, and voice and accountability). The same process was used to compute the economic resilience index.

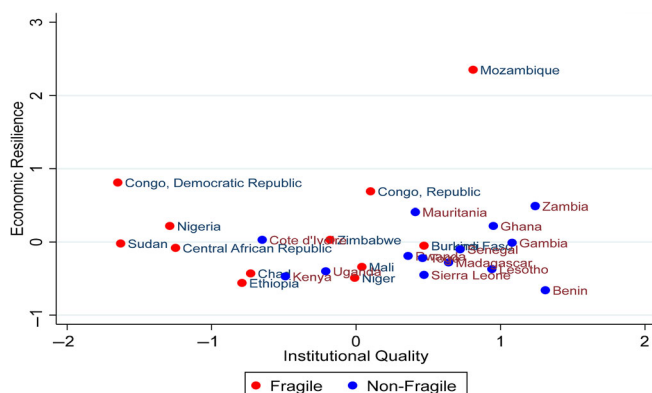
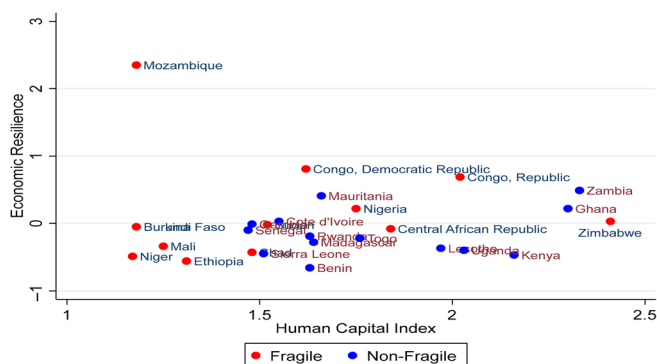
The description, sources, sampled countries, and descriptive statistics of the data are presented in Table 1. The Table shows that economic resilience averaged 0.12% during the period under consideration while trade openness averaged 61.5%, signaling that SSA countries have a relatively high trade interaction with other countries. The human capital and GUIs averaged 1.7 and 0.2, respectively. On the other hand, INSQ ranged between -2.3 and 2.0 , revealing that while some countries have weak institutions, others have a fairly strong institutional, quality. In the same vein, the minimum and maximum values of economic, institutional, and political governance suggest a disparity in the level of governance quality in the SSA region.

3.3 | Stylized facts on key variables

Sub-Saharan African countries have different levels of economic resilience, INSQ, and human capital development. Figure 1 reveals that most non-fragile countries have better INSQ than fragile countries with only a few outliers. These outliers are Burkina Faso and Mozambique (in the case of fragile countries), and Cote d'Ivoire, Kenya, and Uganda (in the case of non-fragile countries). In addition, fragile countries appear to have a higher average economic resilience index than non-fragile countries. Even though Mozambique, the Democratic Republic of Congo, and the Republic of Congo top the

TABLE 1 Data sources, description, sampled countries and descriptive statistics.

| Variables | Observations | Mean | Standard deviation | Minimum | Maximum | Description | Source |
|-----------------------|--|--------|--------------------|---------|---------|----------------------------------|--------------------|
| ER | 594 | 0.118 | 0.994 | −0.928 | 7.355 | Economic resilience index | Author |
| INSQ | 594 | 0.000 | 1.000 | −2.282 | 2.009 | Institutional quality | WGI |
| EGOV | 594 | 0.000 | 1.000 | −2.301 | 2.486 | Economic governance | WGI |
| PGOV | 594 | 0.000 | 1.000 | −2.282 | 2.009 | Political governance | WGI |
| IGOV | 594 | 0.000 | 1.000 | −2.408 | 1.928 | Institutional governance | WGI |
| HCAP | 594 | 1.673 | 0.373 | 1.069 | 2.713 | Human capital index | PWT 10.1 |
| NRR | 594 | 11.306 | 9.324 | 1.227 | 59.684 | Natural resource rent (% of GDP) | WDI |
| GUI | 594 | 0.194 | 0.161 | 0.000 | 0.953 | Global uncertainty index | Ahir et al. (2022) |
| Fragile countries | Burkina Faso, Burundi, Central African Republic, Chad, Congo Democratic Republic, Congo Republic, Ethiopia, Mali, Mozambique, Niger, Nigeria, Sudan and Zimbabwe | | | | | | |
| Non-fragile countries | Benin, Côte d'Ivoire, Gambia, Ghana, Kenya, Lesotho, Madagascar, Mauritania, Rwanda, Senegal, Sierra Leone, Togo, Uganda and Zambia | | | | | | |

**FIGURE 1** Average Economic Resilience and Institutional Quality (2000–2021). Source: Authors.**FIGURE 2** Average Economic Resilience and Human Capital Index (2000–2021). Source: Authors.

economic resilience chart among the sampled countries, their INSQ is quite weak. The narrative seems to change slightly in the link between the average economic resilience and the human capital index (see Figure 2). There appears to be a cluster of countries between the 1.5

and 2 bound of the human capital index. Even though human capital is relatively low in the SSA region, there seems to be no apparent difference in the economic resilience and human capital of both fragile and non-fragile countries. It is quite surprising that Zimbabwe, the country with a relatively low economic resilience index, has the highest level of human capital among the sampled countries. Human capital development continues to constitute a major challenge in SSA as the average level of human capital in the region is far below the world average and its average school enrolment rate is the lowest in the world (Bazie et al., 2023). Overall, the relatively low level of human capital in SSA could be attributed to the noncompliance of national governments to the recommendation of the United Nations Educational, Scientific and Cultural Organization (UNESCO) that countries devote about 15%–20% of their budget to the educational sector (Ogunjimi & Oladipupo, 2019; Olanrewaju & Afolabi, 2022).

4 | RESULTS AND DISCUSSION

The empirical analysis is done in two phases. First, preliminary tests (such as correlation, unit root, and CD tests) were carried out to determine the direction of the relationship, order of integration, and CD of key variables, respectively. Second, the main estimation exercise was carried out using the BCMM estimation method. The BCMM results are discussed and compared with existing studies.

4.1 | Preliminary test

4.1.1 | Correlation test

A correlation test is important for demystifying the strength and direction of the relationship between two variables. Information on the strength of the variables' relationship is useful in determining

TABLE 2 Pairwise correlations.

| Variables | ER | INSQ | EGOV | PGOV | IGOV | HCAP | NRR | GUI |
|-----------|----------|---------|---------|---------|---------|--------|------|-----|
| ER | 1 | | | | | | | |
| INSQ | 0.050** | 1 | | | | | | |
| EGOV | 0.070** | 0.607* | 1 | | | | | |
| PGOV | 0.050** | 1.000* | 0.607* | 1 | | | | |
| IGOV | 0.142* | 0.717* | 0.864* | 0.717* | 1 | | | |
| HCAP | −0.052** | 0.110* | 0.074** | 0.110* | 0.05 | 1 | | |
| NRR | 0.222* | −0.287* | −0.413* | −0.287* | −0.413* | 0.019 | 1 | |
| GUI | −0.019 | −0.160* | −0.039 | −0.160* | −0.032 | 0.263* | 0.02 | 1 |

Note: ER, INSQ, EGOV, PGOV, IGOV, HCAP, TOPN, and GUI denote economic resilience, institutional quality (quality of governance), economic governance, political governance, institutional governance, human capital, natural resource rent, and global uncertainty index, respectively.

* $p < .01$. ** $p < .05$.

TABLE 3 Pesaran's cross-sectional independence test.

| Models | Pesaran CD test results |
|--------------------------|-------------------------|
| Economic resilience | 34.31* (0.000) |
| Institutional quality | −1.78*** (0.074) |
| Economic governance | 0.96 (0.335) |
| Political governance | −1.78*** (0.074) |
| Institutional governance | 1.93*** (0.000) |
| Human capital | 74.10* (0.000) |
| Natural resource rent | 14.41 (0.000) |
| Global uncertainty index | 23.4 (0.000) |

Note: The numbers in parentheses are probability values.

Abbreviation: CD, cross-sectional dependence.

* $p < .01$. *** $p < .01$.

the choice of variables in the same model to avert multicollinearity problems. The pairwise correlation results are presented in Table 2. The results reveal a fairly weak relationship among the variables, indicating that multicollinearity problems are unlikely to arise. Nevertheless, the governance variables are not incorporated into the same empirical model because of the relatively strong relationship among them. Concerning the direction of the relationships, INSQ, as well as economic, institutional, and political governance, have a significant positive relationship with economic resilience, implying that when institutional variables improve, economic resilience gets better. On the other hand, human capital, NRR, and the GUI have an inverse relationship with economic resilience.

4.1.2 | Cross-sectional dependence

With increasing global integration, the ripple effects of an economic crisis extend beyond the originating country to other nations, especially those with close diplomatic and economic ties to the crisis-affected country. This signals CD and necessitates conducting CD tests in panel studies. Accordingly, the CD test approach proposed by Pesaran (2004) is employed and the result is presented in Table 3. The

statistical significance of the test statistics of the five models indicates that Sub-Saharan African countries have CD such that a shock to an economy in the region could spread to others. Based on this result, it is important to account for CD in subsequent analysis.

4.1.3 | Unit root test

Unit root tests reveal the order of integration of variables and guard against spurious results. For panel analysis, there are two generations of unit root test approaches. One of the major differences between the first and second-generation approaches is that the former does not account for CD while the latter does. The first and second-generation approaches introduced by Maddala and Wu (1999) and Pesaran (2007), respectively, are adopted in this paper. Their results, presented in Table 4, show that all the variables are stationary, suggesting that they have constant mean, variance, and covariance. This also implies that the variables have a long-run relationship; they converge to a long-run equilibrium. Thus, conducting cointegration tests is unnecessary in the context of this paper.

4.2 | Human capital, institutional quality, and economic resilience in SSA countries

The roles of human capital, INSQ, and other control variables on the economic resilience of selected SSA countries are explored in this section. The empirical analysis was done stepwise with the individual effects of human capital and INSQ (bundled and unbundled) captured first before accounting for the role of control variables. This is to underscore the effects of the key variables before and after introducing control variables. INSQ is unbundled into economic governance, institutional governance, and political governance. The effects of the bundled and unbundled INSQ indicators, and human capital, are generated. The empirical results from the BCM estimator are presented in Table 5. The results show that the effect of human capital development on economic resilience is positive and significant in fragile and

TABLE 4 First- and second-generation unit root test.

| Variable | Maddala and Wu (1999) | | Pesaran (2007) | |
|--------------------------|-----------------------|------------------|-----------------|-----------------|
| | Without trend | With trend | Without trend | With trend |
| | Level | | | |
| | chi_sq | chi_sq | Zt-bar | Zt-bar |
| Economic resilience | 123.214* (0.000) | 145.252* (0.000) | −6.341* (0.000) | −3.447* (0.000) |
| Institutional quality | 207.026* (0.000) | 201.751* (0.002) | −5.145* (0.000) | −3.005* (0.001) |
| Economic governance | 151.815* (0.000) | 104.712* (0.000) | −6.168* (0.000) | −4.355* (0.000) |
| Political governance | 207.026* (0.000) | 201.751* (0.000) | −5.145* (0.000) | −3.005* (0.001) |
| Institutional governance | 121.274* (0.000) | 79.360* (0.001) | −4.585* (0.000) | −2.777* (0.003) |
| Human capital | 112.422* (0.000) | 68.166** (0.011) | −4.639* (0.000) | −5.467* (0.000) |
| Natural resource rent | 135.756* (0.000) | 84.773* (0.000) | −6.136* (0.000) | −3.586* (0.000) |
| Global uncertainty index | 272.715* (0.000) | 207.920* (0.000) | −7.472* (0.000) | −6.014* (0.000) |

Note: The numbers in parentheses are probability values.

* $p < .01$. ** $p < .05$.

non-fragile countries. Nevertheless, the impact is notably stronger in fragile countries, suggesting fragile countries benefit even more from human capital development compared to non-fragile countries. This could be because fragile countries often start from a lower base in terms of human capital, so improvements can lead to more significant gains. The result also suggests that human capital development is a viable pathway to foster economic resilience and it is not only a necessary condition for reinforcing economic resilience but also a sufficient condition. This confirms the findings of Hamilton et al. (2018) and Nchofoung and Ngouhouo (2024) that human capital is a critical component of the wealth of nations and economic resilience.

The estimates of INSQ indicate that sound institutions are important for building and fostering economic resilience in SSA countries. Precisely, the result provides overwhelming evidence of the positive effect of INSQ on economic resilience both in fragile and non-fragile SSA countries. The magnitude of impact in the two groups of countries suggests that INSQ has a higher positive effect on economic resilience in fragile countries than in non-fragile economies. This indicates that given the same circumstances, fragile countries are likely to benefit more from building sound institutions than non-fragile countries. Nevertheless, what is of utmost importance is that economic resilience can be bolstered by building sound institutions in both fragile and non-fragile SSA countries. This result corroborates the findings of Pascariu et al. (2021), Ngouhouo and Nchofoung (2022), and Nchofoung and Ngouhouo (2024), which showed that sound institutions are critical for a country's economic recovery and resilience process based on the prevailing socioeconomic and political contexts. It also aligns with the views of Beirne and Panthi (2022) that INSQ builds economic resilience through its portfolio rebalancing effects.

The narrative is similar to the bundled INSQ indicators—economic, institutional, and political governance. These three measures have positive impacts on economic resilience in fragile and non-fragile countries, albeit at varying degrees. Political governance has the highest magnitude of positive impact on economic resilience in fragile

countries while economic governance has the strongest in non-fragile countries. Thus, prioritizing political and economic governance in fragile and non-fragile countries, without jettisoning other forms of governance in designing economically resilient policies, will yield better outcomes. More so, while institutional governance does not significantly affect economic resilience in fragile countries, political governance is also weak in influencing economic resilience in non-fragile countries. Concerning the group-specific effects, the coefficients of each bundled INSQ indicator are positive but only statistically significant in fragile countries. This gives credence to the earlier assertion that INSQ has a positive economic resilient effect in fragile and non-fragile countries. It also aligns with the findings of Sondermann (2017), which identified sound political institutions as a key driver of economic resilience, and Ezcurra and Rios (2018) and Nchofoung (2022), which confirmed the importance of quality governance in fostering regional resilience.

The analysis of the role of control variables (NRR and global uncertainties) in determining economic resilience in SSA countries shows mixed results. For example, the effect of NRR on economic resilience is consistently negative across the country groups. This reveals that the reliance on NRRs tends to weaken economic resilience in SSA. This is because prices of natural resources are often volatile and economies reliant on natural resources are likely to suffer from unpredictable revenue, economic instability and resource curse (Afolabi, 2023). It is important to state that the negative effect of NRR is only statistically significant in fragile countries, implying that the effect of the changes in NRR on economic resilience would be felt more by fragile countries. Similarly, global uncertainties have significantly disrupted not just the pace of economic growth but also the level of economic resilience in fragile and non-fragile SSA countries although the effect is more pronounced in fragile countries. The reason for this is not far-fetched. Many SSA countries are highly import-dependent and have a weak productive base, among other structural deficiencies, such that a shock to countries with which they have

TABLE 5 Institutional quality, human capital, and economic resilience in SSA.

| | Human capital | | Institutional quality | | Institutional governance | | Economic governance | | Political governance | |
|-----------------------|--------------------------------|---------------------------------|--------------------------------|----------------------------------|--------------------------------|----------------------------------|--------------------------------|----------------------------------|--------------------------------|----------------------------------|
| Full sample | | | | | | | | | | |
| ER (−1) | 1.037 [*] (0.217) | 1.032 [*] (0.082) | 1.033 [*] (0.086) | 1.030 [*] (0.079) | 1.034 [*] (0.088) | 1.031 [*] (0.079) | 1.035 [*] (0.085) | 1.030 [*] (0.079) | 1.033 [*] (0.086) | 1.030 [*] (0.079) |
| HCAP | 0.075 ^{**} (0.032) | 0.167 [*] (0.019) | | | | | | | | |
| INSQ | | | 0.042 ^{**} (0.021) | 0.041 ^{**} (0.020) | | | | | | |
| IGOV | | | | | 0.028 ^{**} (0.012) | 0.025 ^{***} (0.013) | | | | |
| EGOV | | | | | | | 0.027 [*] (0.009) | 0.041 ^{***} (0.021) | | |
| PGOV | | | | | | | | | 0.042 ^{**} (0.021) | 0.041 ^{**} (0.020) |
| NRR | | −0.004 [*] (0.001) | | −0.003 [*] (0.001) | | −0.003 [*] (0.001) | | −0.003 (0.004) | | −0.003 (0.004) |
| GUI | | −0.232 ^{**} (0.100) | | −0.214 ^{***} (0.110) | | −0.227 ^{**} (0.104) | | −0.214 ^{***} (0.110) | | −0.214 ^{***} (0.110) |
| Constant | 0.285 ^{**} (0.125) | 0.084 ^{**} (0.037) | 0.039 [*] (0.009) | 0.074 [*] (0.033) | 0.038 ^{**} (0.016) | 0.076 [*] (0.015) | 0.038 [*] (0.010) | 0.074 ^{**} (0.030) | 0.039 [*] (0.009) | 0.074 ^{**} (0.033) |
| No. of obs. | 567 | 567 | 567 | 567 | 567 | 567 | 567 | 567 | 567 | 567 |
| No. of groups | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 27 |
| Fragile countries | | | | | | | | | | |
| ER (−1) | 1.045 [*] (0.160) | 1.035 [*] (0.337) | 1.038 [*] (0.146) | 1.033 [*] (0.130) | 1.041 [*] (0.169) | 1.034 [*] (0.131) | 1.044 [*] (0.151) | 1.036 [*] (0.133) | 1.038 [*] (0.146) | 1.033 [*] (0.130) |
| HCAP | 0.680 [*] (0.170) | 0.722 [*] (0.152) | | | | | | | | |
| INSQ | | | 0.050 ^{**} (0.025) | 0.055 ^{**} (0.026) | | | | | | |
| IGOV | | | | | 0.060 (0.074) | 0.066 (0.046) | | | | |
| EGOV | | | | | | | 0.119 ^{**} (0.058) | 0.115 [*] (0.057) | | |
| PGOV | | | | | | | | | 0.050 ^{**} (0.025) | 0.055 ^{**} (0.026) |
| NRR | | −0.002 ^{**} (0.001) | | −0.003 [*] (0.001) | | −0.003 [*] (0.001) | | −0.005 ^{**} (0.002) | | −0.003 [*] (0.001) |
| GUI | | 0.347 (0.320) | | −0.315 ^{**} (0.155) | | −0.318 ^{***} (0.189) | | −0.361 ^{***} (0.205) | | −0.315 ^{**} (0.155) |
| Constant | 1.008 ^{**} (0.452) | 1.073 (0.635) | 0.030 (0.085) | 0.177 [*] (0.049) | 0.088 [*] (0.020) | 0.117 [*] (0.016) | 0.084 [*] (0.016) | 0.169 [*] (0.023) | 0.085 [*] (0.030) | 0.177 [*] (0.049) |
| No. of observations | 273 | 273 | 273 | 273 | 273 | 273 | 273 | 273 | 273 | 273 |
| No. of groups | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 |
| Non-fragile countries | | | | | | | | | | |
| ER (−1) | 0.922 [*] (0.035) | 0.925 [*] (0.035) | 0.919 [*] (0.034) | 0.922 [*] (0.034) | 0.921 [*] (0.032) | 0.924 [*] (0.033) | 0.921 [*] (0.033) | 0.923 [*] (0.034) | 0.919 [*] (0.034) | 0.922 [*] (0.034) |

(Continues)

TABLE 5 (Continued)

| | Human capital | | Institutional quality | | Institutional governance | | Economic governance | | Political governance | |
|---------------------|---------------------|----------------------|-----------------------|-------------------|--------------------------|--------------------|---------------------|----------------------|----------------------|-------------------|
| HCAP | 0.194*** (0.100) | 0.184*** (0.096) | | | | | | | | |
| INSQ | | | 0.023 (0.027) | 0.020 (0.027) | | | | | | |
| IGOV | | | | | 0.008** (0.004) | 0.024** (0.009) | | | | |
| EGOV | | | | | | | 0.017* (0.004) | 0.010* (0.003) | | |
| PGOV | | | | | | | | | 0.023 (0.027) | 0.020 (0.027) |
| NRR | | −0.001 (0.010) | | −0.002 (0.006) | | −0.001 (0.006) | | −0.002 (0.006) | | −0.002 (0.006) |
| GUI | | −0.158*** (0.082) | | −0.154 (0.094) | | −0.164 (0.099) | | −0.162*** (0.084) | | −0.154 (0.094) |
| Constant | 0.333* (0.132) | 0.326*** (0.190) | 0.043* (0.003) | 0.047* (0.009) | 0.040** (0.019) | 0.056** (0.027) | 0.050* (0.017) | 0.047** (0.022) | 0.04* (0.003) | 0.047* (0.009) |
| No. of observations | 294 | 294 | 294 | 294 | 294 | 294 | 294 | 294 | 294 | 294 |
| No. of groups | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |

Note: standard errors are in parentheses. ER, INST, EGOV, PGOV, IGOV, HCAP, TOPN, and GUI denote economic resilience, institutional quality (quality of governance), economic governance, political governance, institutional governance, human capital, natural resource rent, and global uncertainty index, respectively.

* $p < .01$. ** $p < .05$. *** $p < .1$.

bilateral or multilateral relations adversely affects the domestic economy (Adeniyi et al., 2022). It shows the high susceptibility of SSA countries to external shocks and the low capacity of these countries to absorb the shocks. Succinctly, the domino effects of these global uncertainties could be terrible for SSA countries as their level of economic resilience will be further undermined (Christensen & Upper, 2017). Lastly, the first-period lag of economic resilience is positive and significant, indicating that pursuing economic resilience can create a positive feedback loop and enhance sustained resilience. Thus, fragile countries must build resilience as a buffer against ongoing fragility, while non-fragile countries should maintain and strengthen their economic resilience to reduce susceptibility to shocks.

5 | CONCLUSION

This paper underscored the role of INSQ and human capital in building economic resilience in SSA countries. The BCMM estimation approach was employed to analyze annual data on relevant variables spanning 2000–2021. The result confirmed the relatively low capacity of SSA countries to withstand and recover from external shocks. It also showed that human capital development has a positive economic resilience effect in fragile and non-fragile countries, while INSQ and its three bundled indicators play mixed roles in strengthening economic resilience in both fragile and non-fragile countries. These findings have important implications for policy decisions in both fragile

and non-fragile SSA countries. For fragile SSA countries, targeted policy interventions should focus on strengthening institutional frameworks to enhance resilience. This could include stepping up efforts to enhance the rule of law, reduce corruption, and improve government effectiveness. These reforms can be operationalized by implementing anti-corruption agencies with real autonomy, establishing independent judicial bodies, and promoting transparency in government operations through digital governance tools. Fragile SSA countries should also create specialized resilience funds that are managed transparently and independently to ensure that resources are available to respond quickly to economic shocks.

Non-fragile SSA countries need to prioritize scaling up human capital development by investing massively in developing and upgrading their current level of human capital to improve their resilience capacity. It will increase the prospects of creating decent jobs and fostering sustained economic growth (SDG 8). This can be done by simply complying with designating 15%–20% of the annual national budget to education, as recommended by UNESCO. Beyond this, their educational systems should be upgraded to meet the requirements of a modern economy, for example, by introducing and expanding vocational training programs aimed at equipping the workforce with practical skills needed in fast-growing industries. However, efficient monitoring and evaluation activities should be regularly carried out to ensure the funds are judiciously used for their intended purposes. Lastly, both fragile and non-fragile SSA countries should intensify synergistic efforts among key stakeholders to enhance INSQ and achieve SDG 17 (partnership for development). A unique development model

that fosters collaboration among the government, private sector (firms), civil society organizations, and international partners should be adopted to strengthen governance structures for improved management of resources, including both human and natural resources. More importantly, a phased approach to institutional reforms could be adopted in fragile countries, starting with exploring low-hanging fruits such as enhancing transparency and accountability in public resource management, before moving on to more complex governance reforms.

This paper provides empirical insights into how human capital development and INSQ can be leveraged to build and foster economic resilience in selected SSA countries. However, it has some limitations. It employed only one dimension of the measures of economic resilience and focused on only IDA-supported SSA countries. While these do not affect the conclusions of the paper, it might be misleading to make generalizations for all countries in SSA. Future studies could explore expanding the scope of the research to focus on regions with economic fragility to aid informed comparison across regions. More so, future research should consider economic resilience using testable measures from the labor market, good market, financial market, and external market. This will provide useful insights into how economic resilience can be ensured across the key markets in the domestic economy. Exploring this using a general equilibrium framework would also be helpful.

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ORCID

Joshua Adeyemi Afolabi  <https://orcid.org/0000-0003-2024-3942>

Isiaka Akande Raifu  <https://orcid.org/0000-0001-9677-8906>

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