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Globalization, Gender Inclusive Education and Structural Transformation in Africa

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Abstract

Purpose – The current study aims to evaluate the ways in which globalization's impact on structural change in Africa is mitigated by gender inclusive education.

Design/methodology/approach – With an emphasis on 41 nations between 2004 and 2021, the empirical data is supported by the interactive Generalized Method of Moments (GMM).

Findings – The results listed below are proven. First, some positive net effects are established, which implies that gender inclusive education broadly moderates globalization as well as corresponding channels to produce a generally favorable impact on structural transformation in the sampled countries. These positive effects primarily manifest through specific globalization channels (e.g., interpersonal globalization, cultural globalization, and financial globalization) and at higher education levels (tertiary education). However, thresholds for complementary policies are supplied given the relevant negative conditional or interaction impacts. These thresholds for complementary policies are maximum levels of gender inclusive education that when attained, complementing measures are needed in order to preserve the beneficial role of gender inclusive education in moderating globalization for a generally favorable impact on structural transformation. Policy implications are discussed.

Originality/value – The study complements the extant literature by assessing the role of gender inclusive education in the impact of globalization on structural change in Africa.

Keywords: globalization; gender; inclusive education; structural transformation; Africa
JEL Classification : E60 ; F40 ; F59 ; D60 ; O55

1.Introduction

The present study's emphasis on the role that gender inclusive education plays in reducing the impact of globalization on structural change in Africa is reinforced by four main driving forces, which include: (i) the fact that the participation of women in the formal economic sector is significantly lower than that of men in the attendant sector (Tandon & Wegerif, 2013; Ellis *et al.*, 2007; Ramani *et al.*, 2013; Asongu & Odhiambo, 2023; Osinubi & Asongu, 2021); (ii) the necessity of giving a human face to globalization, particularly in relation to the inclusion of more women in the formal economy (Jorgenson & Clark, 2010; Nchofoung & Asongu, 2022a); (iii) the policy necessity of gender economic inclusion in order to achieve some of the Sustainable Development Goals (SDGs) of the United Nations (UN) (Oostendorp, 2009; Ngono, 2021; Osabuohien *et al.*, 2019) and (iv) holes in the relevant literature that still need to be filled (Tifuh, 2022; Asongu et al., 2020a). The next paragraphs elaborate on these four pillars.

First, According to Asongu et al. (2020a), Africa is the continent with the lowest percentage of women in formal political and economic circles, which is consistent with Osinubi and Asongu (2021). The narrative holds that the majority of women in SSA work in subsistence-oriented and informal occupations such as small trade and agriculture (Food and Agricultural Organization-FAO, 2011; Ramani *et al.*, 2013; Ellis *et al.*, 2007; Tandon & Wegerif, 2013; Uduji & Okolo-Obasi, 2019, 2020; Asongu & Odhiambo, 2018, 2019). Additionally, an increasing amount of research backs up the claim that increasing the number of women in political and economic roles will optimize the use of funds meant for economic growth. (Vancil-Leap, 2017; Rice & Barth, 2017; Moras, 2017; Marquez, 2017; Uduji & Okolo-Obasi, 2018; Luo *et al.*, 2017; Uduji *et al.*, 2019). According to the World Bank (2018), the world loses over US$160 trillion in lost revenue when women are excluded from the official economy. This is essentially because women are 27% less likely than males to be employed in the formal job market (Tifuh, 2022; International Labor Organization, 2018).

Second, the premise that openness dynamics and, by extension, globalization, need to be given a human face is supported by an increasing amount of literature. Globalization is associated with increased exclusive economic growth or development that does not benefit the poor, which makes this significant (Jorgenson & Clark, 2010; Nchofoung & Asongu, 2022). In support of inclusive and sustainable development goals such as economic empowerment for women and gender equality, it is therefore crucial to evaluate how globalization affects gender economic inclusion. This stance is in line with the significance of reaching the fifth sustainable development target (often known as SDG5), which is focused on advancing gender equality.

Third, given the foregoing, the possibility of gender economic inclusion among SDGs is evident because, among other things, exclusive development is becoming more visible in both developing and developed countries as a result of rising levels of globalization, among other factors (Asongu *et al.*, 2020a; United Nations-UN, 2013). To further elucidate this perspective, it has been demonstrated that female economic progress is particularly important in the globalization era (Oostendorp, 2009), particularly in light of the growing prejudice against women in emerging countries, which is partly caused by the consequences of globalization (Ngono, 2021; Osabuohien *et al.*, 2019).

Fourth, the need to address a void in the body of research on how globalization affects macroeconomic outcomes like inclusive development is what drives this study's positioning. Tifuh (2022) and Asongu *et al.* (2020a) are the two studies that most closely resemble the current inquiry in the literature. While the latter does not use transmission channels, the former does not take sector analysis into account. By looking at the ways that gender inclusive education mitigates the impact of globalization on Africa's structural development, the current study complements both studies. Therefore, the study's primary purpose is to investigate how the impact of globalization dynamics on structural transformation in SSA is mitigated by gender inclusive education. Moreover, the empirical analysis is tailored such that thresholds for complementary policies or policy thresholds of the moderating gender inclusion variables are provided in order to equip policy makers with the relevant actionable thresholds that are essential in the policy orientation of how globalization affects structural transformation in the sub-region.

Furthermore, another study that is close to the present study in the extant literature is Asongu et al. (2024) which has examined the role of globalisation in lifelong gender inclusion education for structural transformation. The two main hypotheses are not validated, especially as it pertains to: (i) globalisation and gender inclusive lifelong learning distinctly influencing structural transformation and (ii) globalisation moderating lifelong gender inclusive education to boost structural transformation. The similarity between the underlying paper and the present is that the same data and methodology are employed, though upon close scrutiny, education variables as well as elements in the conditioning information set are different. Moreover, the present study distinct from Asongu et al. (2024) in terms of objectives (e.g., net effect of lifelong gender inclusive education on structural transformation versus net effect of globalisation on structural transformation), theoretical underpinnings, testable hypotheses, findings and policy implications. These distinctive features are self-apparent not least, because the distinct objectives which are based on different theoretical underpinnings and testable hypotheses, engender different findings and different policy implications. For instance, while the tested hypotheses in Asongu et al. (2024), In this study, the tested hypotheses on how gender inclusive education moderates the incidence of globalization on structural transformation are validated through the computation of net effects and corresponding gender inclusive education thresholds. Globalization's role in moderating lifelong gender inclusive education for structural transformation has not been validated.

The remaining portions of the study are structured as follows. The discussion of theoretical foundations follows this introduction. While Section 3 presents the data and corresponding methodology, Section 4 discusses the empirical findings. Implications and suggestions for future research are presented in Section 5.

2.Contextualization, Theoretical Underpinnings and Conceptual Framework

2.1 Contextualization
In terms of contextualization, it is important to remember that, in line with the existing literature (Deudibe *et al.*, 2020), economic development is typically associated with substantial variations of labor from agriculture to employment of non-farm nature; a tendency that is for the most part, understood within the remit of structural transformation. In essence, according to the narrative employment of non-farm nature is riskier and more linked to less underemployment and better production prospects compared to the agricultural sector. In essence, Deudibe *et al.* (2020) maintained that compared to the rest of the world, SSA is substantially lagging in terms of structural transformation. This position has been recently confirmed by Saba *et al.* (2024).

To put the above in more perspective, it is maintained by Malah Kuete and Asongu (2023) that compared to the other regions of the world, structural transformation in Africa is one of the least. This is essentially because according to the narrative, Africa's proportion in global manufacturing in 2000 was 1.2% compared to 1.1% in 2008; compared to the corresponding proportion in Asia that increased from 13% to 25% during the same period. The underlying position is consistent with Mijiyawa (2017) within the remit of structural change and Asongu *et al.* (2023) in relation to the total value of all economic sectors. It follows from the underlying that structural transformation represents a substantial policy concern, especially as it pertains to achieving corresponding externalities in structural transformation such as, inter alia, poverty reduction and employment. The contextualization informs the need for more scholarly and policy research on outcomes of structural transformation in SSA. Therefore, it is important to evaluate how gender inclusive education mitigates the impact of globalization on structural transformation in Africa, as suggested in the study's introduction.

2.2 Theoretical Underpinnings
The link that exists between globalization and economic prosperity within the remit of infrastructural development can be clarified using two major philosophical schools, specifically: the neoliberal and hegemonic schools. This aligns with the literature on the impact of globalization on the results of economic progress (Asongu, 2013; Asongu & Odhiambo, 2023).

First, according to the neoliberal school, there are apparent positive externalities from globalization in the forms of production efficiency, investment opportunities, increased trade, and technological advancements in addition to its negative externalities because it can be compared to a process of "creative destruction" (Tsai, 2006; Osinubi & Asongu, 2021). Essentially, the literature holds that with the onset of globalization, people are forced to upgrade their abilities as well as adjust to evolving work environments because of a number of causes, including lower earnings and the potential for old occupations to be replaced with new ones. In light of these implications, women might receive training on how to increase their work prospects from the relevant industries. Therefore, as mentioned in the current research, inclusive gender education can influence the manner in which globalization affects some macroeconomic outcomes in the recipient economies such as structural transformation. According to Grennes (2003), who argued that the labor market benefits from globalization as well, especially when it comes to differences in labor and supply brought about by the process, the positive externality from training women to be more adapted to the needs and challenges of globalization, can ultimately affect how globalization affects structural transformation in the country.

To put the foregoing into better context, domestic policy may be designed so that women are given priority education in order to adapt to opportunities, challenges, and restrictions arising from globalization with the ultimate aim of improving structural transformation in the country. The idea that globalization will increase structural transformation, which are crucial for enhancing economic development outcomes like manufacturing value added, is supported by Rodrik *et al.* (2004) and Firebaugh (2004), who proposed that industrialization can be consolidated in developing nations via globalization dynamics, when inclusive development policies (i.e., gender economic inclusion) accompany such globalization dynamics.

Second, in relation to the competing thought process, the hegemonic viewpoint is predicated on the idea that the phenomenon of globalization is a covert plan to increase the wealth of the wealthy while lowering the prospects for similar wealth for the poor (Osinubi & Asongu, 2021). Regarding this second school of thought, Petras and Veltmeyer (2001) asserted that the goal of globalization is to increase capital accumulation and competitiveness in open markets, both of which are beneficial when supported by technologically sophisticated countries and international development agencies. According to the extant literature, globalization could lead to crises in living standards worldwide, not least, because it has had negative effects on the working class and the labor market (Petras & Veltmeyer, 2001). According to Asongu (2013), globalization has had a significant impact on social democracy, particularly in the area of labor laws, which have undergone a social revolution and turned market capitalism into a social capitalism framework in response to concerns about the need to give globalization a human face. The following are further reasons in the literature supporting this second strand: (i) Tsai (2006) and Smart (2003), who have shown how globalization affects the "market ethos" that totally ignores the welfare of citizens; (ii) Scholte (2000) who have discussed how the benefits of globalization are geared toward benefiting the wealthy segment of society and (iii) Sirgy *et al.* (2004) who have discussed the negative externalities of globalization.

2.3 Conceptual Framework

While the previous section has substantiated the theoretical nexus between globalization and structural transformation, understanding the value of education that is gender inclusive in the underlying nexus is the focus of the present section. Hence, the arguments underpinning this conceptual framework are tailored to posit for the relevance of gender inclusive education in the relationship between globalization and structural transformation. Consistent with the extant literature, how human capital influences structural changes and manufacturing in an economy is contingent on *inter alia*, the degree of openness and globalization prospects in a nation (Saba *et al.*, 2024; Asongu *et al.*, 2024). According to the narrative, how globalization affects manufacturing value added in a nation obviously depends on the nature of human capital and the quality of the labor, which embody the dimension of gender inclusive education, not least, because the involvement of more or less women in the education sector depends on the externalities from the quality of the labor force and human capital. Hence, the improvement in skills associated with the globalization process depends on how such skills are distributed between men and women in an economy. For instance, some narratives maintained that the exclusion of females in education and the labor force in the era of globalization has led to a substantial loss in manufacturing value added and by extension, gross domestic product (GDP) (Girón & Kazemikhasragh, 2022).

In the light of the above, in the era of globalization, improvement in skills and policies of lifelong learning in view of improving favorable externalities from structural transformation considerably depend on how the potential labor force is inclusive in many walks of life, including how female are more involved in education prospects (Saba *et al.*, 2024; Asongu *et al.*, 2024). Accordingly, both inclusive development policies and globalization affect structural transformation and/or structural change in economies and thus, the intuitive complementarity of inclusive education and globalization for structural transformation.

In keeping with the purpose of the research, in order to enhance readability and flow, as well as improve insights into the empirical section that follows this section, it is worthwhile to summarize the problem statement in terms of a conceptual framework. In Figure 1 below, globalization is the channel through which gender inclusion education (i.e., primary, secondary and tertiary) affect structural transformation. Hence, considering that gender inclusive education is used as a moderating variable, the conceptual framework inside the scope of interactive regressions exclusively entails the unconditional and conditional or interactive effect of globalization on structural transformation. Moreover, sub-channels of globalization (i.e., political, economic and social) are provided distinctly in Figure 1 because in the corresponding empirical analysis underpinning the figure, beyond the assessment of the net effect of globalization on structural transformation, the net effects of various globalization components on structural transformation are also assessed.
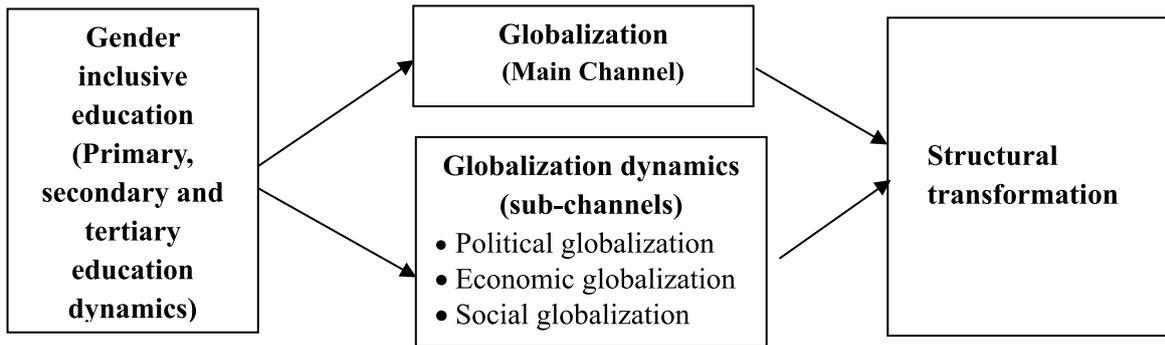
Figure 1. Gender inclusive education moderating the effect of globalization on structural transformation

3. Data and Methodology

3.1 Data
Our study centres on 41 African nations over the years 2004 to 2021. The corresponding information are gathered from three main sources. The KOF Swiss Economic Institute, the International Labour Organization (ILO), and the World Development Indicators (WDI) of the World Bank, are the three primary sources of the data, as indicated in Appendix 2. Accordingly, Appendix 2 of the study contains the complete definitions of the variables together with a disclosure of the sources that correspond to them. According to the body of existing literature on industrialization, the primary outcome variable is manufacturing value added (Asongu & Odhiambo, 2022; Asongu et al., 2023). It is important to remember that, in line with Appendix 2, manufacturing value added (as a percentage of GDP) is a sector's net output after deducting all of its outputs from the equivalent intermediate inputs. In essence, it is measured without subtracting depreciations linked to assets that are fabricated or natural resource degradation and depletion. Moreover, the political, economic, and social dimensions of the globalization variables are also in line with the extant globalisation literature (Dreher et al., 2008; Asongu et al., 2020a). As a result, a composite measure of globalization is employed and that includes social factors (i.e., information flow, interpersonal relationships, and cultural proximity), political features (such as the number of foreign embassies, participation in international organizations, and the number of international agreements signed by the nation), and economic factors (i.e., investment and trade flows, entailing restrictions on attendant flows).

It is important to highlight that the KOF index of globalization takes into account a wide range of variables, including capital flows and trade openness, while discussing the transmission channels. These also, cover cross-border contacts between citizens and interactions between governments (Tifuh, 2022). The index is important because it allows for various compounding of different globalization elements and dimensions, showing for the respective nations, the annual level of globalization, according to the associated narrative. It is important to keep in mind that total globalization dynamics in its entirety and its corresponding dimension have sub-components that are used in this study as potential transmission pathways (Osinubi & Asongu, 2021). Economic globalization is comprised of financial and trade globalization, whereas social globalization is composed of cultural, informational, and interpersonal globalization dynamics. The sub-dimensions of political globalization are not yet available, though, because of restrictions on data availability at the time of this study. In order to evaluate the transmission channels, the current study utilizes the composite globalization index, which includes the three primary characteristics of globalization including sub-dimensions of social globalisation and economic globalisation.

In keeping with the purpose of the research, three main moderators or gender inclusion education are used, notably: primary inclusive education, secondary inclusive education and tertiary inclusive education. The selection of three levels of inclusive education is built on the narrative that various levels of education are important in driving industrialisation in a country (Asiedu, 2014). Consistent with Appendix 2, it is important to clarify that: (i) The ratio of girls to boys enrolled at the elementary and secondary levels in public and private schools is known as the gender parity index (GPI), and it measures the gross enrollment ratio in primary and secondary education. (ii) Secondary (gross) school enrollment GPI, which displays the GPI for secondary education's gross enrollment ratio, is the proportion of secondary-aged girls to boys enrolled in public and private schools. (ii) School enrollment, tertiary (gross), GPI, which stands for gross enrollment ratio in tertiary education, shows the proportion of women to men enrolled in public and private postsecondary education. To account for variable omission bias, two primary control variables are employed, in keeping with current inclusive development research. These are: GDP per capita and population growth (Efobi et al., 2019; Asongu et al., 2020b; Asongu & Odhiambo, 2023). The use of limited control variables is worthwhile in GMM-oriented regressions in order to avoid concerns related to instrument proliferation, in accordance with extant literature (Osabuohien & Efobi, 2013). The paragraphs that follow go into further depth about these chosen control variables.

First of all, population growth is predicted to have a negative impact because as a country's population grows, the number of people employed in a given economic sector is

predicted to decrease (Osinubi & Asongu, 2021). This is especially true if job creation is not correlated with the growth of the population on a proportional basis.

Second, it is impossible to determine the impact of GDP per capita, since the latter depends on how different economic sectors contribute to the corresponding GDP per capita and how the benefits of economic prosperity are spread among them. For instance, certain findings in recent literature (Asongu *et al.*, 2020a) do not support the idea that a growth in GDP might create greater chances for women to participate in the official economy, especially by means of inclusive gender education. According to research (Tchamyou, 2020; Tchamyou *et al.*, 2019; Bicaba *et al.*, 2017; Asongu *et al.*, 2020a, 2020c), since the economic growth recovery over the last decade in SSA has not been tapped into to promote equitable development outcomes, it is expected that economic growth is adversely correlated with the outcome variable taken into consideration in this study.

The list of countries included in the study are disclosed in Appendix 1. The variables are defined in this section of Appendix 2, while Appendix 3 contains the summary statistics. Appendix 4 has the related correlation matrix.

3.2 Methodology

3.2.1 Specification

The present study uses the Generalized Method of Moments (GMM) empirical strategy as an estimating technique, which is consistent with the motivational aspects described in the introduction, particularly as it relates departing from the study by Tifuh (2022) which has focused on fixed effects regressions. Additionally, elements such as the underlying methodology's compatibility with the data structure as well as certain robustness components of the methods that are also apparent, are covered in the paragraphs that follow. The emphasis of the study is on 41 nations during the time frame 2004 to 2021. It follows that the number of countries is more than the number of years in each period. This is a primary condition for the employment of the GMM empirical technique. Second, the outcome variable seems to be persistent, especially considering that the correlation between the outcome variable's first lag and level series is greater than 0.800, which is the standard recommendation made by the literature on the application of GMM as an estimating technique (Tchamyou, 2019; Efobi *et al.*, 2019). Third, the estimation technique takes into account some aspects of endogeneity, comprising (i) time or year effects, which take into account unobserved variability and cross-sectional dependency, and (ii) an instrumentation process, which takes into consideration the simultaneity or reverse causality dimension of endogeneity. It is crucial to consider these endogeneity components in order to provide reliable results. The estimation approach for the relevance of gender inclusive education in globalisation dynamics to influence structural transformation is summarized in the following equations at levels (1) and first difference (2).

$$MVA_{it} = \emptyset_0 + \emptyset_1 MVA_{it-\tau} + \emptyset_2 Edu_{it} + \emptyset_3 Glob_{it} + \emptyset_4 Inter_{it} + \sum_{k=1}^{2} \delta_k W_{hit-\tau} + \varphi_i + \omega_t + \varepsilon_{it}$$

(1)

$$MVA_{it} - MVA_{it-\tau}$$
$$= \emptyset_1(MVA_{it-\tau} - MVA_{it-2\tau}) + \emptyset_2(Edu_{it} - Edu_{it-\tau}) + \emptyset_3(Glob_{it} - Glob_{it-\tau}) + \emptyset_4(Inter_{it}$$
$$- Inter_{it-\tau}) + \sum_{k=1}^{2} \delta_k(W_{hit-\tau} - W_{hit-2\tau}) + (\omega_t - \omega_{t-\tau}) + (\varepsilon_{it} - \varepsilon_{it-\tau})$$

(2)

where MVA denotes manufacturing value added; $\emptyset_0$ is the constant; Edu represents gender inclusive education; $Gblo$ stands for a globalization dynamic (i.e., total globalization, social globalization, political globalization, trade globalization, cultural globalization, interpersonal globalization, cultural globalization and informational globalization); $Inter$ denotes the interaction between inclusive education and a globalization dynamic; W represents the vector of control variables (Population and GDP per capita) ; τ is the unit coefficient of

autoregression given that a lagged year is sufficient to capture past information; ω_t is our time-specific constant; φ_i denotes the country-specific effect and ε_{it} represents the error term. According to Roodman (2009), the GMM analytical technique used in the current study is based on forward orthogonal deviations. As a result, it is an enhanced version of the Arellano and Bover (1995) method that has been developed to produce findings with more reliable estimated coefficients when compared to more conventional difference and system GMM approaches (Boateng *et al.*, 2018; Efobi *et al.*, 2019; Tchamyou *et al.*, 2019).

3.2.2 Identification, Simultaneity and Exclusion Restrictions
Insights into features related to identification, simultaneity, and exclusion restrictions that are particularly relevant in a worthwhile specification, are relevant in a robust GMM method. The keywords underpinning this section are elaborated in turn in what follows (i.e., concepts of identification, simultaneity and exclusion restriction). The framework for identification, which is the first step, clarifies the three key ideas that form the basis of the specification framework: the dependent variable, the endogenous explanatory or predefined variable, and the strictly exogenous variable. The outcome variable for this study is manufacturing value added which is a proxy for structural transformation, according to the study's motivation as well as disclosed aspects in the data section. The predefined or endogenous explanatory factors are all independent variables of interest, which is consistent with the existent GMM-centric research (Tchamyou & Asongu, 2017). According to the extant GMM-centric literature, these endogenous explanatory variables constitute population and GDP per capita which are both considered control variables as well as inclusive education and globalisation dynamics, which are the independent variables of interest (Meniago & Asongu, 2018). Years are regarded as strictly exogenous variables in the study since, in accordance with Roodman (2009), they are unlikely to become endogenous after a first difference. It follows that years which are also used to compensate for cross sectional dependency and the unobserved heterogeneity are acknowledged as exhibiting strict exogeneity.

Second, focusing on the simultaneity aspect of this section, it is important to highlight how instrumental variables employing forward differences are employed to deal with the problem of reverse causation (i.e., both the independent variable of interest and the outcome variable affecting one another). In order to remove fixed effects that may potentially skew estimated coefficients due to the connection between fixed effects and the lagged dependent variable, Helmert transformations are used. Considering the fundamental transformation that permits forwarding differenced and lag observations to have parallel or orthogonal conditions (Love & Zicchino, 2006; Arellano & Bover, 1995; Roodman, 2009), such a procedure for reducing fixed effects is compatible with the associated research on the topic (Tchamyou & Asongu, 2017).

Third, keeping with the topics covered in the first strand of this section and focusing on the exclusion restriction hypothesis, the Difference in Hansen Test (DHT) is used to evaluate the supposition that the identified strictly exogenous variables influence the outcome variable only through the exogenous dimension of the endogenous explaining. The null hypotheses of Hansen/Sargan tests should not be rejected so that the instruments that are identified explain the manufacturing value added or infrastructural development, exclusively via the globalisation mechanisms that are identified, according to the information criteria for the validity of instruments, which are consistent with more conventional GMM-centric approaches (Amavilah *et al.*, 2017).

According to Asongu *et al.* (2019), there are four basic sources of endogeneity: (i) heterogeneity that is unobserved; (ii) bias resulting from variable omission; (iii) errors in the measurement of variables and (iv) simultaneity or reverse causality. The proposed empirical technique and analytical approach are designed to correct the first and fourth endogeneity problems because it is challenging for a single estimating approach to address all endogeneity concerns. The fixed effects come first. As a result of taking into account country-fixed effects, by definition, the latter considers the unobserved heterogeneity. Moreover, the instrumentation process is tailored to address the concerns of simultaneity or reverse causality during the estimation process using internal tools.

4.Empirical Results

Tables 1–7 in this section present the empirical findings. The main findings and corresponding linkages pertaining to gender inclusive primary education are disclosed in Tables 1-2 in Section 4.1 while the corresponding findings related to gender inclusive secondary education are provided in Tables 3-4. The attendant results focusing on nexuses between globalization, tertiary inclusive education and structural transformation as well as corresponding channels are provided in Tables 5-7.

4.1. Globalization, Inclusive Primary and Secondary Education (PSE) and Structural Transformation

This section focuses on how gender inclusive primary education moderates the incidence of globalization (i.e., overall, social, economic, political) on structural transformation in Table 1 while the corresponding social globalization (i.e., interpersonal, informational and cultural) channel is considered in Table 2. It is important to remember that the other globalization channels are not considered apart from the social globalization channel owing data availability constraints and/or models that did not past post-estimation diagnostic tests[1]. Hence, owing the space constraints, for the most part, only models from which relevant policy implications can emerge are disclosed in this section (and in subsequent sections). In other words, it is important to remember that although Table 1 presents the primary conclusions on the overall dynamics of globalization (i.e., total globalization, social globalization, economic globalization and political globalization), the corresponding channels of social globalization are engaged in Table 2 in the light of the significance of the social globalization channel in Table 1. It follows that the channels of other globalization dynamics (i.e., economic and political) are not reported owing to their non-significance and space constraint.

In order to assess the investigated hypotheses, two main information criteria are worthwhile: (i) the estimated GMM models should be valid on the one hand and (ii) on the other, the corresponding information criteria for calculating the net effects and/or thresholds must also be met. In essence, it is worthwhile to articulate that in order to avoid the downfalls of interactive regressions articulated in Brambor *et al.* (2006), total effects and/or thresholds are computed so that the corresponding interactive estimated coefficients are not interpreted as in linear additive models. To put this computation framework in more perspective, in the first specification or second column of Table 2, the net effect from the role of inclusive primary and secondary education in moderating interpersonal globalization to influence structural transformation is 0.401 ([-0.410 × 0.919] + [0.439]). In the corresponding specification, 0.919 is the mean value of primary and secondary inclusive education, 0.439 is the unconditional effect interpersonal globalization on manufacturing value added while -0.410 is the conditional or interactive impact of interpersonal globalization on manufacturing value added. Some net impacts are not calculated because at least one estimated coefficient required for the related computation is not significant, as explained in the accompanying table's footnote. It is worthwhile to note that the underlying computation is consistent with contemporary literature (Nchofoung & Asongu, 2022a, 2022b; Nchofoung *et al.*, 2021, 2022) on the interactive regressions, especially as it pertains to the importance of avoiding pitfalls of interactive regressions documented in Brambor *et al.* (2006).

Still in accordance with the corresponding literature on interactive regressions, while the net effect used in the underlying example in the previous paragraph is positive, the corresponding conditional or interactive incidence is negative. The implication here is that while primary and secondary inclusive education moderate interpersonal globalization in order to engender an overall positive effect on manufacturing value added, there are maximum levels of the primary and secondary gender inclusive education index that once attained, the total effect changes

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[1] Accordingly, political globalization channels are not available in the dataset while owing to wordcount constraints, the corresponding estimations that do not pass the post-estimation diagnostic tests are available upon request.

from positive to negative. Hence, at the corresponding thresholds, complementary policies are worthwhile in order to maintain the overall positive effect from the moderating role of primary and secondary inclusive education in the incidence of interpersonal globalization on manufacturing value added. To have a better understanding of the underlying story, based on the previous example, the primary and secondary inclusive education threshold for complementary policy is 1.070 (0.439/0.410).

In the light of the aforementioned, the following findings are clear in Tables 1-2, especially as it refers to the importance of primary and secondary inclusive education in influencing globalization for manufacturing added value. First, primary and secondary inclusive education does not significantly moderate overall globalization and corresponding social, economic and political globalization dynamics for a significant effect on manufacturing value added (i.e., in Table 1). Second, primary and secondary inclusive education moderate interpersonal globalization and cultural globalization channels for overall positive net effects on manufacturing value added with corresponding thresholds for complementary policies of respectively, 1.070 and 0.984. The corresponding thresholds have statistical validity, make economic sense and are valuable for policy since, according to the summary data, they fall between the attendant moderating variable's lowest and maximum values. Put otherwise, 1.070 and 0.984 are situated between 0.599 (i.e., minimum) and 1.176 (i.e., maximum) in the summary statistics in Appendix 2.

Table 1. Globalization, Inclusive Primary and Secondary Education (PSE) and Structural Transformation

	Dependent variable: Manufacturing Value Added (MVA)			
	Globaliz ation (kofgi)	Economic Globalization (kofecgi)	Social Globalization (kofsogi)	Political Globalization (kofpogi)
MVA (-1)	**0.937*****	**0.898*****	**0.905*****	**0.935*****
	(0.045)	**(0.024)**	**(0.039)**	**(0.049)**
PSE	1.767	-0.302	**8.245***	4.780
	(6.425)	(6.394)	**(4.091)**	(3.964)
Global	0.024			
	(0.158)			
Global x PSE	-0.034			
	(0.156)			
Econ Global		0.004		
		(0.155)		
Econ Global x PSE		-0.000		
		(0.155)		
Social Global			0.194	
			(0.139)	
Social Global x PSE			**-0.244***	
			(0.126)	
Polit Global				0.058
				(0.068)
Polit Global x PSE				-0.058
				(0.069)
Population growth	-0.251	-0.184	**-0.330***	-0.060
	(0.200)	(0.288)	**(0.174)**	(0.179)
Log (GDP per capita)	-0.051	0.006	0.518	0.043
	(0.241)	(0.213)	(0.521)	(0.222)
Time Effects	Yes	Yes	Yes	Yes
Constant	0.290	1.349	-8.072	-4.157
	(6.860)	(6.261)	(4.805)	(4.440)
Net Effects Thresholds	na	Na	na	Na

AR (1)	(0.011)	(0.013)	(0.010)	(0.010)
AR (2)	(0.690)	(0.779)	(0.806)	(0.561)
Sargan OIR	(0.795)	(0.367)	(0.440)	(0.716)
Hansen OIR	(0.711)	(0.321)	(0.654)	(0.197)
DHT for instruments				
a)Instruments in levels				
H excluding group	(0.398)	(0.311)	(0.155)	(0.094)
Dif(null, H=exogenous)	(0.773)	(0.357)	(0.919)	(0.433)
b)IV(years, eq(diff))				
H excluding group	(0.101)	(0.933)	(0.302)	(0.146)
Dif(null, H=exogenous)	(0.834)	(0.261)	(0.664)	(0.241)
Fisher	6193.84***	19276.66***	67911.89***	39207.58***
Instruments	38	38	38	38
Countries	40	40	40	40
Observations	367	367	367	367

"***, **, *: respectively denote the 1%, 5% and 10% levels of significance. DHT: shows the Difference in Hansen Test used to assess the Exogeneity of Instruments Subsets. OIR: Over-identifying Restrictions Test. Dif: Difference. Bold values have two principal significances. On the one hand, the significance of the Fisher statistics and estimated coefficients. On the other hand, the non-rejection of the null hypotheses of: (a) autocorrelation absence in the AR(1) & AR(2) tests and; (b) the instruments that are valid based on the Sargan and Hansen OIR tests. na: not applicable given that at least one estimated coefficient that is indispensable for the computation of net effects does not reflect significance". The mean of primary and secondary school enrollment is 0.919. The range of primary and secondary school enrollment is 0.599 to 1.176. For the estimated coefficients, values in parentheses reflect standard errors while for the information criteria (i.e., AR, Sargan, Hansen, DHT and IV tests), p-values are disclosed.

Table 2. Social Globalization, Inclusive Primary and Secondary Education (PSE) and Structural Transformation

	Dependent variable: Manufacturing Value Added (MVA)		
	Interpersonal Globalization (kofipgi)	Informational Globalization (kofingi)	Cultural Globalization (kofcugi)
MVA (-1)	0.848***	0.974***	0.856***
	(0.048)	(0.030)	(0.029)
PSE	10.775**	0.512	13.414***
	(4.568)	(1.789)	(3.278)
Interpers Global	0.439***		
	(0.127)		
Interpers Global x PSE	-0.410***		
	(0.128)		
Inform Global		-0.021	
		(0.046)	
Inform Global x PSE		0.013	
		(0.023)	
Cultural Global			0.702***
			(0.158)
Cultural Global x PSE			-0.713***
			(0.160)
Population growth	-0.345*	-0.192	-0.151

	(0.192)	(0.278)	(0.192)
Log (GDP per capita)	-0.432	0.126	0.097
	(0.525)	(0.372)	(0.333)
Time Effects	Yes	Yes	Yes
Constant	-6.982	-0.491	**-11.994***
	(5.717)	(2.462)	**(3.368)**
Net Effects	0.401	na	**0.046**
Thresholds	1.070	na	**0.984**
AR (1)	**(0.014)**	**(0.013)**	**(0.011)**
AR (2)	**(0.685)**	**(0.663)**	**(0.851)**
Sargan OIR	**(0.663)**	**(0.899)**	**(0.191)**
Hansen OIR	**(0.455)**	**(0.960)**	**(0.614)**
DHT for instruments			
a)Instruments in levels			
H excluding group	**(0.664)**	**(0.371)**	**(0.069)**
Dif(null, H=exogenous)	**(0.311)**	**(0.998)**	**(0.981)**
b)IV(years, eq(diff))			
H excluding group	**(0.869)**	**(0.399)**	**(0.059)**
Dif(null, H=exogenous)	**(0.386)**	**(0.961)**	**(0.806)**
Fisher	**10480.25***	**52188.17***	**3498.10***
Instruments	38	38	38
Countries	40	39	40
Observations	367	352	367

"***, ** , *: respectively denote the 1%, 5% and 10% levels of significance. DHT: shows the Difference in Hansen Test used to assess the Exogeneity of Instruments Subsets. OIR: Over-identifying Restrictions Test. Dif: Difference. Bold values have two principal significances. On the one hand, the significance of the Fisher statistics and estimated coefficients. On the other hand, the non-rejection of the null hypotheses of: (a) autocorrelation absence in the AR(1) & AR(2) tests and; (b) the instruments that are valid based on the Sargan and Hansen OIR tests. na: not applicable given that at least one estimated coefficient that is indispensable for the computation of net effects does not reflect significance". The mean of primary and secondary school enrollment is 0.919. The range of primary and secondary school enrollment is 0.599 to 1.176. For the estimated coefficients, values in parentheses reflect standard errors while for the information criteria (i.e., AR, Sargan, Hansen, DHT and IV tests), p-values are disclosed.

4.2. Globalization, Inclusive Secondary Education (SSE) and Structural Transformation

This section provides findings on linkages between globalization, inclusive secondary education and structural change in Tables 3–4. Table 3 focuses on how gender inclusive secondary education moderates the incidence of globalization (i.e., overall, social, economic, political) on structural transformation while the corresponding social globalization (i.e., interpersonal, informational and cultural) channel is considered in Table 4. Accordingly, Table 3 presents the primary results, although Table 4 discloses results related to corresponding channels. The information criteria used for the assessment of findings in the corresponding tables is similar to the information criteria used in the assessment of results provided in Tables 1-2. Based on the considered information criteria, results from Tables 3–4 support the following conclusion. First, secondary inclusive education does not significantly moderate overall globalization and corresponding social, economic and political globalization dynamics for a significant effect on manufacturing value added (i.e., in Table 3). Second, with respect to mechanisms from the social globalization channel, inclusive secondary school education moderate interpersonal globalization to engender an overall positive effect on manufacturing value added and the corresponding threshold for complementary policy is 1.284 (secondary school enrolment, gender parity index) which is higher than the maximum corresponding value of the moderator in the summary statistics.

Table 3. Globalization, Inclusive Secondary School Education (SSE) and Structural Transformation

	Dependent variable: Manufacturing Value Added (MVA)			
	Globalization (kofgi)	Economic Globalization (kofecgi)	Social Globalization (kofsogi)	Political Globalization (kofpogi)
MVA (-1)	**0.896*** (0.036)**	**0.866*** (0.025)**	**0.928*** (0.033)**	**0.934*** (0.042)**
SSE	2.206 (1.781)	3.163 (2.116)	1.729 (1.444)	0.567 (1.562)
Global	0.037 (0.055)			
Global x SSE	-0.026 (0.053)			
Econ Global		0.109 (0.070)		
Econ Global x SSE		-0.102 (0.068)		
Social Global			0.153 (0.119)	
Social Global x SSE			-0.089 (0.086)	
Polit Global				-0.026 (0.039)
Polit Global x SSE				0.029 (0.043)
Population growth	-0.013 (0.305)	0.123 (0.336)	-0.243 (0.247)	0.128 (0.219)
Log (GDP per capita)	0.188 (0.189)	**0.374** (0.165)**	-0.359 (0.524)	**0.284* (0.166)**
Time Effects	Yes	Yes	Yes	Yes
Constant	-2.960 (2.624)	**-5.254* (2.875)**	-0.621 (2.591)	-2.190 (2.125)
Net Effects	na	na	na	na
Thresholds				
AR (1)	**(0.010)**	**(0.013)**	**(0.009)**	**(0.009)**
AR (2)	**(0.628)**	**(0.724)**	**(0.594)**	**(0.608)**
Sargan OIR	**(0.733)**	**(0.503)**	**(0.582)**	**(0.409)**
Hansen OIR	**(0.326)**	**(0.268)**	**(0.336)**	**(0.220)**
DHT for instruments				
a)Instruments in levels				
H excluding group	**(0.233)**	**(0.193)**	**(0.153)**	**(0.078)**
Dif(null, H=exogenous)	**(0.433)**	**(0.393)**	**(0.554)**	**(0.521)**
b)IV(years, eq(diff))				
H excluding group	**(0.853)**	**(0.011)**	**(0.935)**	**(0.266)**
Dif(null, H=exogenous)	**(0.267)**	**(0.634)**	**(0.274)**	**(0.224)**
Fisher	**67867.28***	**16242.99***	**21787.82***	**17370.45***
Instruments	38	38	38	38
Countries	40	40	40	40
Observations	367	367	367	367

" ***, **, *: respectively denote the 1%, 5% and 10% levels of significance. DHT: shows the Difference in Hansen Test used to assess the Exogeneity of Instruments Subsets. OIR: Over-identifying Restrictions

Test. Dif: Difference. Bold values have two principal significances. On the one hand, the significance of the Fisher statistics and estimated coefficients. On the other hand, the non-rejection of the null hypotheses of: (a) autocorrelation absence in the AR(1) & AR(2) tests and; (b) the instruments that are valid based on the Sargan and Hansen OIR tests. na: not applicable given that at least one estimated coefficient that is indispensable for the computation of net effects does not reflect significance". The mean of secondary school enrollment is 0.872. The range of secondary school enrollment is 0.332 to 1.215. For the estimated coefficients, values in parentheses reflect standard errors while for the information criteria (i.e., AR, Sargan, Hansen, DHT and IV tests), p-values are disclosed.

Table 4. Social Globalization, Inclusive Secondary School Education (SSE) and Structural Transformation

	Dependent variable: Manufacturing Value Added (MVA)		
	Interpersonal Globalization (kofipgi)	Informational Globalization (kofingi)	Cultural Globalization (kofcugi)
MVA (-1)	**0.875*****	**0.933*****	**0.878*****
	(0.033)	**(0.032)**	**(0.027)**
SSE	**3.461****	0.757	1.762
	(1.402)	(1.221)	(1.331)
Interpers Global	**0.253*****		
	(0.050)		
Interpers Global x SSE	**-0.197*****		
	(0.043)		
Inform Global		-0.027	
		(0.049)	
Inform Global x SSE		0.020	
		(0.022)	
Cultural Global			**0.156***
			(0.090)
Cultural Global x SSE			-0.140
			(0.085)
Population growth	-0.198	-0.057	0.044
	(0.222)	(0.305)	(0.210)
Log (GDP per capita)	**-1.033*****	0.378	0.149
	(0.349)	(0.375)	(0.290)
Time Effects	Yes	Yes	Yes
Constant	3.073	-2.581	-2.164
	(2.507)	(2.370)	(1.950)
Net Effects	0.081	na	na
Thresholds	1.284		
AR (1)	**(0.012)**	**(0.010)**	**(0.008)**
AR (2)	**(0.615)**	**(0.739)**	**(0.676)**
Sargan OIR	**(0.586)**	**(0.759)**	**(0.105)**
Hansen OIR	**(0.830)**	**(0.881)**	**(0.158)**
DHT for instruments			
a)Instruments in levels			
H excluding group	**(0.630)**	**(0.205)**	**(0.038)**
Dif(null, H=exogenous)	**(0.782)**	**(0.996)**	**(0.549)**
b)IV(years, eq(diff))			
H excluding group	**(0.253)**	**(0.193)**	**(0.098)**
Dif(null, H=exogenous)	**(0.858)**	**(0.923)**	**(0.222)**
Fisher	**6260.13*****	**45850.42*****	**10672.50*****
Instruments	38	38	38
Countries	40	39	40
Observations	367	352	367

4.3 Globalization, Inclusive Tertiary School Education (TSE) and Structural Transformation

This section provides findings on linkages between globalization, inclusive tertiary education and manufacturing value added in Tables 5-7. Table 5 focuses on how gender inclusive tertiary education moderates the incidence of globalization (i.e., overall, social, economic, political) on structural transformation while the corresponding economic globalization (i.e., trade and financial), channel is assessed in Table 6. Moreover, the social globalization (i.e., interpersonal, informational and cultural) channel is examined in Table 7. The main findings are disclosed in Table 5, Table 6 reports findings related to the mechanism of economic globalization while Table 7 shows results pertaining the channels of social globalization. Consistent with the previous narrative, the information criteria used for the validation of the findings as well as assessing the underlying hypotheses being investigated are maintained. Tables 5-7 allow for the establishment of the following conclusions. First, inclusive tertiary moderate globalization includes social globalization, political globalization, and total globalization to create a favorable overall impact on manufacturing value added and the corresponding thresholds for complementary policies are 1.320, 1.117 and 0.821 (tertiary school enrolment, gender parity index), for the impact of globalization in its whole, social globalization, and political globalization, respectively. Because they fall inside the statistical range, the thresholds have policy relevance. Second, from the channels of economic globalization, inclusive tertiary education moderate financial globalization for a positive net effect on the outcome variable with a corresponding threshold for complementary policy of 0.734 (tertiary school enrolment, gender parity index) which is within statistical range.

Table 5. Globalization, Inclusive Tertiary School Education (TSE) and Structural Transformation

	Dependent variable: Manufacturing Value Added (MVA)			
	Globalization (kofgi)	Economic Globalization (kofecgi)	Social Globalization (kofsogi)	Political Globalization (kofpogi)
MVA (-1)	**0.994*****	**0.951*****	**1.045*****	**0.897*****
	(0.067)	**(0.059)**	**(0.088)**	**(0.088)**
TSE	0.016	-0.797	-0.375	-0.674
	(1.029)	(0.978)	(1.303)	(0.893)
Global	**0.140*****			
	(0.049)			
Global x TSE	**-0.106*****			
	(0.037)			
Econ Global		0.071		

	(0.061)		
Econ Global x TSE	-0.092		
	(0.061)		
Social Global		0.152**	
		(0.063)	
Social Global x TSE		-0.136**	
		(0.051)	
Polit Global			0.060*
			(0.035)
Polit Global x TSE			-0.073**
			(0.030)
Population growth	-1.199***	-0.807**	-0.874***	-0.790**
	(0.283)	(0.322)	(0.293)	(0.297)
Time Effects	Yes	Yes	Yes	Yes
Constant	1.119	3.696***	1.003	3.882**
	(1.751)	(1.160)	(1.216)	(1.636)
Net Effects	0.064	**Na**	0.055	0.008
Thresholds	1.320		1.117	0.821
AR (1)	(0.034)	(0.033)	(0.027)	(0.033)
AR (2)	(0.654)	(0.927)	(0.791)	(0.735)
Sargan OIR	(0.877)	(0.365)	(0.775)	(0.446)
Hansen OIR	(0.880)	(0.537)	(0.933)	(0.767)
DHT for instruments				
a)Instruments in levels				
H excluding group	(0.709)	(0.287)	(0.484)	(0.222)
Dif(null, H=exogenous)	(0.812)	(0.649)	(0.969)	(0.948)
b)IV(years, eq(diff))				
H excluding group				
Dif(null, H=exogenous)				
Fisher	136051.34***	31282.02***	16488.57***	45880.90***
Instruments	34	34	34	34
Countries	36	36	36	36
Observations	263	263	263	263

" ***, **, *: respectively denote the 1%, 5% and 10% levels of significance. DHT: shows the Difference in Hansen Test used to assess the Exogeneity of Instruments Subsets. OIR: Over-identifying Restrictions Test. Dif: Difference. Bold values have two principal significances. On the one hand, the significance of the Fisher statistics and estimated coefficients. On the other hand, the non-rejection of the null hypotheses of: (a) autocorrelation absence in the AR(1) & AR(2) tests and; (b) the instruments that are valid based on the Sargan and Hansen OIR tests. na: not applicable given that at least one estimated coefficient that is indispensable for the computation of net effects does not reflect significance". The mean of tertiary school enrollment is 0.712. The range of tertiary school enrollment is 0.064 to 1.494. For the estimated coefficients, values in parentheses reflect standard errors while for the information criteria (i.e., AR, Sargan, Hansen, DHT and IV tests), p-values are disclosed.

Table 6. Economic Globalization, Inclusive Tertiary School Education (TSE) and Structural Transformation

	Dependent variable: Manufacturing Value Added (MVA)	
	Trade Globalization (koftrgi)	Financial Globalization (koffigi)
MVA (-1)	0.862***	0.984***
	(0.062)	(0.078)
TSE	-1.243	0.038
	(0.790)	(0.884)
Trade Global	0.014	
	(0.059)	
Trade Global x TSE	-0.030	
	(0.050)	
Fin Global		0.083*
		(0.044)
Fin Global x TSE		-0.113**
		(0.049)
Population growth	-0.888**	-0.776***
	(0.339)	(0.256)
Time Effects	Yes	Yes
Constant	4.879***	3.042**
	(1.206)	(1.126)
Net Effects	Na	0.002
Thresholds		0.734
AR (1)	(0.035)	(0.031)
AR (2)	(0.831)	(0.964)
Sargan OIR	(0.159)	(0.526)
Hansen OIR	(0.688)	(0.716)
DHT for instruments		
a)Instruments in levels		
H excluding group	(0.277)	(0.339)
Dif(null, H=exogenous)	(0.838)	(0.817)
b)IV(years, eq(diff))		
H excluding group		
Dif(null, H=exogenous)		
Fisher	94119.52***	49048.62***
Instruments	34	34
Countries	36	36
Observations	263	263

" ***, **, *: respectively denote the 1%, 5% and 10% levels of significance. DHT: shows the Difference in Hansen Test used to assess the Exogeneity of Instruments Subsets. OIR: Over-identifying Restrictions Test. Dif: Difference. Bold values have two principal significances. On the one hand, the significance of the Fisher statistics and estimated coefficients. On the other hand, the non-rejection of the null hypotheses of: (a) autocorrelation absence in the AR(1) & AR(2) tests and; (b) the instruments that are valid based on the Sargan and Hansen OIR tests. na: not applicable given that at least one estimated coefficient that is indispensable for the computation of net effects does not reflect significance". The mean of tertiary school enrollment is 0.712. The range of tertiary school enrollment is 0.064 to 1.494. For the estimated coefficients, values in parentheses reflect standard errors while for the information criteria (i.e., AR, Sargan, Hansen, DHT and IV tests), p-values are disclosed.

Third, from the channels of social globalization, inclusive tertiary education moderates: (i) interpersonal globalization for a favorable net effect on the outcome variable with a corresponding threshold for complementary policy of 1.138 (tertiary school enrolment, gender parity index) and (ii) cultural globalization for a positive impact on the dependent variable, with a corresponding threshold for complementary policy of 0.981. The computed thresholds make economic senses because they are within statistical range.

Table 7. Social Globalization, Inclusive Tertiary School Education (TSE) and Structural Transformation

	Dependent variable: Manufacturing Value Added (MVA)		
	Interpersonal Globalization (kofipgi)	Informational Globalization (kofingi)	Cultural Globalization (kofcugi)
MVA (-1)	0.890***	1.047***	0.987***
	(0.080)	(0.086)	(0.037)
TSE	-0.904	-0.914	-1.103
	(0.855)	(1.314)	(1.110)
Interpers Global	0.115***		
	(0.038)		
Interpers Global x TSE	-0.101**		
	(0.037)		
Inform Global		-0.013	
		(0.061)	
Inform Global x TSE		-0.004	
		(0.025)	
Cultural Global			0.162*
			(0.096)
Culture Global x TSE			-0.165*
			(0.093)
Population growth	-0.646**	-0.754**	-0.746**
	(0.276)	(0.293)	(0.285)
Time Effects	Yes	Yes	Yes
Constant	2.385*	2.852**	2.607***
	(1.376)	(1.316)	(0.953)
Net Effects	0.043	na	0.044
Thresholds	1.138		0.981
AR (1)	(0.035)	(0.018)	(0.030)
AR (2)	(0.910)	(0.742)	(0.990)
Sargan OIR	(0.362)	(0.878)	(0.643)
Hansen OIR	(0.764)	(0.828)	(0.721)
DHT for instruments			
a)Instruments in levels			
H excluding group	(0.510)	(0.674)	(0.177)
Dif(null, H=exogenous)	(0.758)	(0.749)	(0.948)
b)IV(years, eq(diff))			
H excluding group			
Dif(null, H=exogenous)			
Fisher	257991.04***	136199.03***	68455.32***
Instruments	34	34	34
Countries	36	35	36
Observations	263	256	263

" ***, **, *: respectively denote the 1%, 5% and 10% levels of significance. DHT: shows the Difference in Hansen Test used to assess the Exogeneity of Instruments Subsets. OIR:

Over-identifying Restrictions Test. Dif: Difference. Bold values have two principal significances. On the one hand, the significance of the Fisher statistics and estimated coefficients. On the other hand, the non-rejection of the null hypotheses of: (a) autocorrelation absence in the AR(1) & AR(2) tests and; (b) the instruments that are valid based on the Sargan and Hansen OIR tests. na: not applicable given that at least one estimated coefficient that is indispensable for the computation of net effects does not reflect significance". The mean of tertiary school enrollment is 0.712. The range of tertiary school enrollment is 0.064 to 1.494. For the estimated coefficients, values in parentheses reflect standard errors while for the information criteria (i.e., AR, Sargan, Hansen, DHT and IV tests), p-values are disclosed.

Concerning the nexus of the results with the existing body of literature, it is worthwhile to note that the findings are broadly consistent with the strand of literature positing that globalization has had positive effects in terms of gender inclusion, which obviously leads to other favorable externalities in the economy (Islam & Muzi, 2022; Dinkelman & Ngai, 2022; Thaddeus *et al.*, 2022).

5.Concluding Implications and Future Research Directions

5.1Conclusion
The current study aims to evaluate the ways in which globalization's impact on structural change in Africa is mitigated by gender inclusive education. The empirical data is based on the interactive Generalized Method of Moments (GMM), and the focus is on 41 nations from 2004 to 2021. The following conclusions are proven. First, some positive net effects are established, which implies that gender inclusive education broadly moderates globalization as well as corresponding channels to engender an overall positive effect on structural transformation in the sampled countries. These positive effects primarily manifest through specific globalization channels (e.g., interpersonal globalization, cultural globalization, and financial globalization) and at higher education levels (tertiary education). However, given the appropriate negative conditional or interacting consequences, thresholds for complementing policies are suggested. These thresholds for complementary policies are maximum levels of gender inclusive education that when attained, complementing measures are needed in order to sustain the positive role of gender inclusive education in moderating globalization for a generally favorable impact on structural transformation. The following discusses the ramifications for policy.

5.2 Policy and Theoretical Implications
The first implication for policy is that inclusive globalization policies are likely to engender rewarding outcomes in terms of industrialization particularly in relation to enhancing manufacturing value added. This aligns with growing calls by scholars and policy makers for globalization to be given an African face (Seoane, 2022; Verkhovets & Karaoğuz, 2022), not least, because traditionally, most countries in Africa have been constrained to produce what they do not consume and consume what they do not produce (Chipato, 2023; Byiers & Woolfrey, 2023). It follows that the transformation of natural resources and agricultural produce into finished and semi-finished forms is particularly worthwhile if complemented with gender inclusive education policies. However, as shown from the findings, Gender inclusive education is a prerequisite, but not a sufficient one, for globalization dynamics to positively affect industrialization in the sampled countries.

Second, as shown in the findings, at certain thresholds of gender inclusive education, gender inclusive policies must be supplemented by further regulations so that the corresponding incidence on globalization to lead to an improvement in manufacturing value added. Accordingly, these thresholds for complementary policies are intuitive and make economic sense, not least, because most of the computed thresholds are approaching the maximum levels of the gender inclusive educational indexes apparent in the summary statistics. It follows that policy makers should work towards establishing the empirical relevance of complementary inclusive education with the relevant measures that can drive the positive incidence of globalization on manufacturing value added further. Such policies can entail, *inter alia*, targeted female financial literacy and entrepreneurship programs that enable the female gender to not only be educated, but equally be equipped with adequate financial and business tools needed to take advantage of industrial opportunities offered by globalization dynamics.

Third, the favorable influence on gender inclusive education on manufacturing added value via globalization is contingent on the aggregate globalization proxy (i.e., total, political, economic or social) as well as on the corresponding channels of the attendant aggregate globalization dynamics. It follows that the policy recommendations prescribed in the previous two paragraphs should not be blanket but contingent on the considered globalization channels. Hence, policy makers who simply acknowledge (i.e., form this study) that gender inclusive education moderate globalization for a positive effect on industrialization can be getting their dynamics badly wrong, not least, because as we have established, there are contingencies in the nexuses and thus, specific policy prescription and implementation should be substantiated with empirical validity.

In terms of theoretical implications, the present study has reconciled both the endogenous growth theory and the exogenous growth theory, not least, because according to the findings, economic development by means of structural transformation can be induced by globalization (i.e., an external force) and gender inclusive education (i.e., as a result of an internal process). Hence, the exogenous growth theory is confirmed by the relevance of globalization while the endogenous growth theory is confirmed by the importance of human capital in driving structural transformation.

5.3 Limitations and Future Research Directions

The study apparently also allows space for future research, especially in view of understanding how other inclusive development moderators can influence the incidence of globalization dynamics on structural transformation in the sampled region and by extension, on other developing countries. Moreover, this empirical analysis can be considered within the remit of other developing countries, not least, because the findings established within the sampled sub-region cannot be extended to other developing countries unless such extension is substantiated with empirical validity. Furthermore, future research should take into consideration country-specific studies with the relevant estimation techniques for more country-specific policy implications, considering the estimation technique's apparent flaw of not being designed to account for country-fixed effects in order to mitigate endogeneity concerns. In addressing these issues in future research, incorporating comparative frameworks across regions and countries can enhance understanding of the nexuses among globalization, gender-inclusive education, and structural transformation, especially when factors such as technological advancements and international aid are involved for a more holistic view of the subject. These underlying future research directions obviously build on limitations of the present study. Furthermore, the findings and corresponding policy implications are exclusively relevant to the context of Africa. Hence, generalization should be taken with caution. Accordingly, the study is based on 41 nations for which information was accessible at the time of the study. Therefore, extension of the findings to other regions of the world should be subject to empirical validity; this serves as a path for further investigation.

Appendices

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<u>**Appendix 1. List of countries (41) of the study**</u>

"Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Congo. Dem. Rep., Congo. Rep., Cote d'Ivoire, Djibouti, Egypt. Arab Rep., Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Kenya, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, South Africa, Sudan, Zambia and Zimbabwe"

Source. Authors' construction

Appendix 2. Definitions and sources variables

Variables	Signs	Definitions	Sources
Manufacturing value added	MVA	"Manufacturing, value added (% of GDP). Manufacturing refers to industries belonging to ISIC divisions 15-37. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The origin of value added is determined by the International Standard Industrial Classification (ISIC), revision 3. Note: For VAB countries, gross value added at factor cost is used as the denominator".	WDI (World Bank)
	PSE	"School enrollment, primary and secondary (gross), gender parity index (GPI). Gender parity index for gross enrollment ratio in primary and secondary education is the ratio of girls to boys enrolled at primary and secondary levels in public and private schools".	WDI (World Bank)
Inclusive education	SSE	"School enrollment, secondary (gross), gender parity index (GPI). Gender parity index for gross enrollment ratio in secondary education is the ratio of girls to boys enrolled at secondary level in public and private schools".	WDI (World Bank)
	TSE	"School enrolment, tertiary (gross), gender parity index (GPI). Gender parity index for gross enrollment ratio in tertiary education is the ratio of women to men enrolled at tertiary level in public and private schools".	WDI (World Bank)
	Educate x	"First Principal Component of School enrollment, primary and secondary (gross), secondary (gross), and tertiary (gross), gender parity index (GPI)".	PCA
Globalization	kofgi	"This is the aggregation of the three dimensions of globalization (KOF) as displayed in the KOF globalization index".	KOF Swiss Economic Institute

Economic globalization	kofecgi	"A measure of economic globalization, obtained by aggregation of variables such as trade and investment flows, as well as restrictions to these flows".	KOF Swiss Economic Institute
Social globalization	kofsogi	"A measure of social globalization, obtained by aggregation of variables such as personal contact, information flow and cultural proximity".	KOF Swiss Economic Institute
Political globalization	kofpogi	"A measure of political globalization, obtained by aggregation of variables such as number of foreign embassies, memberships in international organizations and of international treaties entered into by the country".	KOF Swiss Economic Institute
Trade globalization	koftrgi	"A sub-dimension of the measure of economic globalization, obtained by aggregation of variables on exports and imports of goods and services, trade regulation, trade taxes, tariff rates and free trade agreements".	KOF Swiss Economic Institute
Financial globalization	koffigi	"A sub-dimension of the measure of economic globalization, obtained by aggregation of variables on foreign direct investments, portfolio investments, international debt, international reserves (excluding gold), Exchange Arrangements, investment restrictions and Exchange Restrictions".	KOF Swiss Economic Institute
Interpersonal globalization	kofipgi	"A sub-dimension of the measure of social globalization, obtained by aggregation of variables on migration, tourism, foreign students and number of airports hosting international flights".	KOF Swiss Economic Institute
Informational globalization	kofingi	"A sub- dimension of the measure of social globalization, obtained by aggregation of variables on Internet bandwidth, international patents, high technology export, number of television sets per capita, internet access".	KOF Swiss Economic Institute
Cultural globalization	kofcugi	"A sub- dimension of the measure of social globalization, obtained by aggregation of variables on trade in cultural goods, trade in personal, cultural and recreational services, a subcomponent in the Balance of Payments, expression and belief, associational and organizational rights, rule of law and personal autonomy and individual rights".	KOF Swiss Economic Institute
Population growth	popgrowth	Population growth (annual %)	WDI (World Bank)
Log (GDP per capita)	lgdppc	Logarithme of Gross Domestic Product (GDP) per capita	WDI (World Bank)

Appendix 3. Summary Statistics

Variables	Obs	Mean	S.D	Min	Max
Manufacturing value added	671	10.1	5.733	0.233	35.215
School enrollment, primary and secondary	444	0.919	0.107	0.599	1.176
School enrollment secondary	452	0.872	0.179	0.332	1.215
School enrolment tertiary	406	0.712	0.31	0.064	1.494
Globalization	697	48.499	8.56	28.086	72.047
Economic globalization	697	43.902	10.403	23.415	84.887
Social globalization	697	41.724	12.088	15.317	78.315
Political globalization	697	59.722	14.819	21.45	91.388
Trade globalization	697	41.011	11.536	19.704	83.502
Financial globalization	697	46.822	11.915	20.863	86.575
Interpersonal globalization	697	42.017	14.518	10.921	81.152
Informational globalization	697	51.746	12.381	22.384	84.085
Cultural globalization	697	31.136	13.56	8.9	72.725
Population growth	738	2.419	0.944	-5.28	5.627
Log (GDP per capita)	719	7.19	0.949	5.565	9.527

S.D: Standard Deviation.

Appendix 4. Correlation matrix

Variables	Dependent variable	Inclusive education dynamics			Globalization dynamics									Control variables	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) mva	1.000														
(2) pse	0.092	1.000													
(3) sse	0.072	0.916	1.000												
(4) tse	0.179	0.623	0.791	1.000											
(5) kofgi	0.280	0.566	0.554	0.582	1.000										
(6) kofecgi	0.180	0.582	0.623	0.694	0.737	1.000									
(7) kofsogi	0.229	0.685	0.712	0.733	0.814	0.760	1.000								
(8) kofpogi	0.167	-0.000	-0.073	-0.101	0.535	-0.087	0.026	1.000							
(9) koftrgi	0.157	0.535	0.526	0.574	0.705	0.929	0.701	-0.043	1.000						
(10) koffigi	0.170	0.539	0.627	0.718	0.657	0.922	0.700	-0.117	0.714	1.000					
(11) kofipgi	0.259	0.587	0.637	0.681	0.645	0.702	0.934	-0.180	0.622	0.674	1.000				
(12) kofingi	0.153	0.603	0.639	0.620	0.812	0.620	0.892	0.223	0.550	0.593	0.753	1.000			
(13) kofcugi	0.245	0.703	0.683	0.697	0.808	0.758	0.920	0.086	0.742	0.653	0.797	0.727	1.000		
(14) popgrowth	-0.353	-0.508	-0.606	-0.729	-0.575	-0.696	-0.782	0.167	-0.622	-0.665	-0.818	-0.569	-0.734	1.000	
(15) lgdppc	0.231	0.430	0.542	0.702	0.721	0.668	0.840	0.062	0.566	0.677	0.837	0.709	0.755	-0.764	1.000

References

Amavilah, A., Asongu, S. A., & Andrés, A. R., (2017). Effects of globalization on peace and stability: Implications for governance and the knowledge economy of African countries. *Technological Forecasting and Social Change*, 122(C), pp. 91-103.

Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error components model. *Journal of Econometrics, 68*(1), pp. 29–52.

Asiedu, E. (2014). Does Foreign Aid in Education Promote Economic Growth? Evidence From Sub-Saharan Africa. *Journal of African Development*, 16(1), pp. 37-59.

Asongu, S. A., (2013). Globalization and Africa: implications for human development. *International Journal of Development Issues*, 12(3), 213-238.

Asongu, S. A., Adegboye, A., & Nnanna, J., (2021b). Promoting female economic inclusion for tax performance in Sub-Saharan Africa. *Economic Analysis and Policy*, 69 (March), 159-170.

Asongu, S. A., Biekpe, N., & Cassimon, D., (2020c). Understanding the greater diffusion of mobile money innovations in Africa. *Telecommunications Policy*, 44 (8), September 2020, 102000.

Asongu, S. A., Biekpe, N., & Cassimon, D., (2021). On the diffusion of mobile phone innovations for financial inclusion. *Technology in Society*, 65 (May), 101542.

Asongu, S. A., Efobi, U. R., Tanankem, B. V., & Osabuohien, E. S.(2020a). Globalization and female economic participation in Sub-Saharan Africa. *Gender Issues*, 37(1), 61–89.

Asongu, S. A., Bouanza, J. R. F. K. & Agyemang-Mintah, P. (2024). Globalization in Lifelong Gender Inclusive Education for Structural Transformation in Sub-Saharan Africa. *Economic Systems*, 101218.

Asongu, S. A., & le Roux, S., (2019). Understanding Sub-Saharan Africa's Extreme Poverty Tragedy. *International Journal of Public Administration*, 42 (6), 457- 467.

Asongu, S., Meniago, C. &Salahodjaev, R. (2023). The role of value added across economic sectors in modulating the effects of FDI on TFP and economic growth dynamics. *International Journal of Emerging Markets, 18*(11), 5087-5108.

Asongu, S. A., Nnanna, J., & Acha-Anyi, P. N., (2020b). Inequality and gender economic inclusion: The moderating role of financial access in Sub-Saharan Africa. *Economic Analysis and Policy*, 65 (March), 173-185.

Asongu, S. A., & Odhiambo, N. M., (2018). ICT, Financial Access and Gender Inclusion in the Formal Economic Sector: Evidence from Africa. *African Finance Journal*, 20(2), 46-66.

Asongu, S. A., & Odhiambo, N. M., (2019). Challenges of Doing Business in Africa: A Systematic Review. *Journal of African Business*, 20(2), 259-268.

Asongu, S. A., & Odhiambo, N. M. (2022). Remittances and value added across economic sub-sectors in Sub-Saharan Africa. *Quality & Quantity*, 56, 23–41.

Asongu, S. A., & Odhiambo, N. M. (2023, May). Economic sectors and globalization channels to gender economic inclusion in Sub-Saharan Africa. In *Women's Studies International Forum* (Vol. 98, p. 102729). Pergamon.

Bataka, H. (2020). Globalization and Gender Inequalities in Sub-Saharan Africa. *The International Trade Journal*, 34(6), 516-534.

Bicaba, Z., Brixiova, Z., &Ncube, M., (2017). Can Extreme Poverty in Sub-Saharan Africa be Eliminated by 2030? *Journal of African Development*, 19(2), 93-110.

Boateng, A., Asongu, S. A., Akamavi, R., & Tchamyou, V. S., (2018). "Information Asymmetry and Market Power in the African Banking Industry", *Journal of Multinational Financial Management,* 44(March), pp. 69-83.

Brambor, T., Clark, W. M., & Golder, M. (2006). Understanding Interaction Models: Improving Empirical Analyses, Political Analysis, 14 (1), 63-82.

Byiers, B. I., & Woolfrey, S. (2023). Nigeria and the AfCFTA as a two-level game. *The World Economy*, 46(2), pp. 312-327.

Chen, Z., Ge, Y., Lai, H., & Wan, C. (2013). Globalization and gender wage inequality in China. *World Development*, 44 (April), 256-266.

Chipato, F. (2023). The Global Politicss of African Identity: Pan-Africanism and the Challenge of Afropolitanism. *Global Studies Quarterly*, 3(3), ksad046.

Deudibe, G., Merfeld, J., Ndoutamou, J., & Newhouse, D. (2020). Structural Transformation in Sub-Saharan Africa. World Bank Poverty & Equity Notes, February No. 19, Washington D.C.

Dinkelman, T. & Ngai, R.L. (2022). Time Use and Gender in Africa in Times of Structural Transformation. *Journal of Economic Perspectives*, 36(1),57-80.

Dreher, A., Gaston, N., & Martens, W. J. M. (2008). Measuring Globalization: Gauging Its Consequences. Springer Verlag. https://doi.org/10.1007/978-0-387-74069-0

Efobi, R., Asongu, S., Okafor, C., Tchamyou, S., &Tanankem, B., (2019). Remittances, finance and industrialisation in Africa. *Journal of Multinational Financial Management*, 49 (March), pp. 54-66.

Ellis, A., Blackden, M., Cutura, J., MacCulloch, F., &Seebens, H., (2007). Gender and Economic Growth in Tanzania: Creating Opportunities for Women. Washington: The World Bank.

Firebaugh, G., (2004). Accounting for the recent decline in global income inequality. *American Journal of Sociology, 110*(2), 283-312.

Food and Agricultural Organization – FAO (2011). Women in Agriculture: Closing the Gender Gap for Development, Rome: FAO.

Girón, A., & Kazemikhasragh, A. (2022). Gender equality and economic growth in Asia and Africa: Empirical analysis of developing and least developed countries. *Journal of the Knowledge Economy*, 13(2), 1433-1443.

Grennes, T., (2003). Creative destruction and globalization. *Cato Journal*, 22(2), pp. 543-558.

International Labour Office (ILO) (2018). World Employment and Social Outlook: Trends, Geneva.
Retrieved from https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_615594.pdf (Accessed: 22/03/2023).

Islam, A. M., & Muzi, S. (2022). Does mobile money enable women-owned businesses to invest? Firm-level evidence from Sub-Saharan Africa. *Small Business Economics, 59*(3), 1245–1271.

Jorgenson, A. & Clark, B. (2010). Assessing the temporal stability of the population/environment relationship in comparative perspective: a cross-national panel study of carbon dioxide emissions, 1960-2005. *Population and Environment, 32*(1), 27-41.

Kennedy, P. (2008). *A Guide to Econometrics*. Oxford: Blackwell Publishing.

Love, I., & Zicchino, L. (2006). Financial development and dynamic investment behaviour: Evidence from Panel VA. *The Quarterly Review of Economics and Finance, 46*(2), pp. 190–210.

Luo, C., Yang, X., Li, S., & Feldman, M. W., (2017). Love or bread? What determines subjective wellbeing among left-behind women in rural China? *Gender Issues, 34*(1), 23–43.

Malah Kuete, Y. F., & Asongu, S. A. (2023). Infrastructure development as a prerequisite for structural change in Africa. *Journal of the Knowledge Economy, 14*(2), 1386-1412.

Marquez, B. A., (2017). The effects of hacienda culture on the gendered division of labor within the Charro community. *Gender Issues, 34*(1), 3–22.

Meniago, C., & Asongu, S. A., (2018). Revisiting the finance-Inequality nexus in a panel of African countries. *Research in International Business and Finance, 46*, pp. 399-419.

Mijiyawa, A. G. (2017). Drivers of structural transformation: The case of the manufacturing sector in Africa. *World Development, 99*, 141-159

Moras, A., (2017). This should be my responsibility: Gender, guilt, privilege and paid domestic work. *Gender Issues, 34*(1), 44–66.

Nchofoung, T. N., & Asongu, S. A. (2022a). ICT for sustainable development: Global comparative evidence of globalisation thresholds. *Telecommunications Policy, 46*(5), 102296

Nchofoung, T. N., & Asongu, S. A. (2022b). Effects of infrastructures on environmental quality contingent on trade openness and governance dynamics in Africa. *Renewable Energy, 189*, 152-163.

Nchofoung, T. N., Achuo, E. D. & Asongu, S. A. (2021). Resource rents and inclusive human development in developing countries. *Resources Policy, 74*(4), 102382.

Nchofoung, T. N., Asongu, S. A., & Kengdo, A. A. N. (2022). Linear and non-linear effects of infrastructures on inclusive human development in Africa. *African Development Review, 34*(1), pp. 81-96.

Ngono, J. F. L., (2021). Financing women's entrepreneurship in Sub-Saharan Africa: bank, microfinance and mobile money. *Labor History, 62*(1), 59-73.

O'brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & quantity, 41*(5), 673-690.

Oostendorp, R. (2009). Globalization and the Gender Wage Gap. *The World Bank Economic Review, 23*(1), 141–161.

Osabuohien, E. S., & Efobi, U. R., (2013). "Africa's money in Africa", *South African Journal of Economics, 81*(2), pp. 292-306.

Osabuohien, E., Efobi U.R., Herrmann R. & Gitau, C.M. (2019). Female Labor Outcomes and Large-scale Agricultural Land Investments: Macro-Micro Evidence from Tanzania. *Land Use Policy*, *82, 716-728.*

Osinubi, T., & Asongu, S. A., (2021). Globalization and female economic participation in MINT and BRICS countries. *Journal of Economic Studies, 48*(6), 1177-1193.

Petras, J., & Veltmeyer, H., (2001). Globalization unmasked: imperialism in the 21st Century. Zed(edt), London.

Ramani, S.V., Thurupalli, A., Medovarszki, T., Chattopadhyay, S., & Ravichandran, V., (2013). Women in the Informal Economy: Experiments in Governance from Emerging Countries. United Nations United Nations University *Policy Brief* Nos. 5, 2013, Tokyo.

Rice, L., & Barth, J. M., (2017). A Tale of Two Gender Roles: The Effects of Implicit and Explicit Gender Role Traditionalism and Occupational Stereotype on Hiring Decisions. *Gender Issues, 34*(1), 86-102.

Rodrik, D., Subramanian, A., &Trebbi, F., (2004). Institution Rule: the primacy of institutions over geography and integration in economic development. *Journal of Economic Growth, 9*(2), 131-165.

Roodman, D. (2009). "How to Do Xtabond2: An Introduction to Difference and System GMM in Stata". *Stata Journal, 9*(1), pp. 86–136.

Saba, C. S., Asongu, S. A., Ngepah, N., & Ngoungou, Y. E. (2024). Governance in the exploration of global and regional determinants of ICT development. *International Journal of Innovation Studies, 8*(2), 132-153.

Scholte, J. A. (2000). Globalization: A Critical Introduction, St. Martin's Press Inc, New York, NY.

Seoane, M. F. V. (2022). Alibaba's discourse for the digital Silk Road: the electronic World Trade Platform and 'inclusive globalization'. In China's Globalizing Internet, *Routledge,* (pp. 67-82).

Shepherd, B., Stone, S., (2017). Trade and Women. *ADBI Working Paper* 648, Tokyo.

Sirgy, M.J., Lee, D.J., Miller, C., & Littlefield, J. E., (2004). The impact of globalization on a country's quality of life: toward an integrated model. *Social Indictors Research, 68*(3), 251-298.

Smart, B. (2003). Economy, Culture and Society: A Sociological Critique of Neo-liberalism, Open University Press, Buckingham.

Tandon, N., &Wegerif, M., (2013). Promises, Power and Poverty: Corporate Land Deals and Rural Women in Africa. *OXFAM Policy Brief, 170*(9), pp. 1-26.

Tchamyou, V. S., (2017). The role of knowledge economy in African business. *Journal of the Knowledge Economy*, 8(4), 1189–1228.

Tchamyou, V. S. (2020). Education, Lifelong learning, Inequality and Financial access: Evidence from African countries. *Contemporary Social Science*, 15(1), 7-25.

Tchamyou, V. S., (2019). The Role of Information Sharing in Modulating the Effect of Financial Access on Inequality. *Journal of African Business, 23*(3), 317-338.

Tchamyou, V. S., & Asongu, S. A., (2017). Information Sharing and Financial Sector Development in Africa. *Journal of African Business, 18*(7), pp. 24-49.

Tchamyou, V. S., Erreygers, G., & Cassimon, D., (2019). Inequality, ICT and Financial Access in Africa. *Technological Forecasting and Social Change*,139 169-184.

Thaddeus, K. J., Bih, D., Nebong, N. M., Ngong, C.A., Mongo, E.A., Akume, A.D., & Onwumere, J.U.J. (2022). Female labour force participation rate and economic growth in sub-Saharan Africa: a liability or an asset. *Journal of Business and Socio-economic Development*, *2*(1), 34-48.

Tifuh, R. C. (2022). Globalization and Female Labor Force Participation in Sub-Saharan Africa. Linnaeus University, Unpublished Master Thesis. https://www.diva-portal.org/smash/get/diva2:1666202/FULLTEXT01.pdf

Tsai, M., (2006). Does Globalization Affect Human Well-being? Department of Sociology, National Taipei University, Taiwan.

Uduji, J.I. & Okolo-Obasi, E. N., (2018). Young rural women's participation in the e-wallet programme and usage intensity of modern agricultural inputs in Nigeria. *Gender, Technology and Development*, *22*(1), 59-81.

Uduji J. I, & Okolo-Obasi E. N. (2019). Corporate social responsibility initiatives in Nigeria and rural women livestock keepers in oil host communities. *Social Responsibility Journal*, *15*(8), 1008-1032.

Uduji J. I, & Okolo-Obasi E. N., (2020). Does corporate social responsibility (CSR) impact on development of women in small-scale fisheries of sub-Saharan Africa? Evidence from coastal communities of Niger Delta in Nigeria. *Marine Policy*. 118, August 2020.

Uduji J. I, Okolo-Obasi E. N., &Asongu, S. A., (2019). Corporate Social Responsibility and the role of Rural Women in Sustainable Agricultural Development in sub-Saharan Africa: Evidence from the Niger Delta in Nigeria. *Sustainable Development*, *27*(4), 692-703.

UNDP. (2013). *Human Development Reports*. Retrieved January 26, 2014, from United Nations Development Programme: http://www.undp.org/content/dam/undp/library/corporate/HDR/2013GlobalHDR/English/HDR2013%20Report%20English.pdf

Vancil-Leap, A. (2017). Resistance and Adherence to the Gendered Representations of School Lunch Ladies. *Gender Issues, 34*(1), 67-85.

Verkhovets, S., & Karaoğuz, H. E. (2022). Inclusive globalization or old wine in a new bottle? China-led globalization in sub-Saharan Africa. *Globalizations, 19*(8), pp. 1195-1210.

Wichers, C. R. (1975). The detection of multicollinearity: A comment. *The Review of Economics and Statistics, 57*(3), 366-368.

World Economic Forum (2022). "Global Gender Gap report 2022", World Economic Forum, https://www3.weforum.org/docs/WEF_GGGR_2022.pdf (Accessed: 19/12/2022).

World Bank (2018). "Globally, Countries Lose $160 Trillion in Wealth Due to Earnings Gaps Between Women and Men", *The World Bank*. https://www.worldbank.org/en/news/press-release/2018/05/30/globally-countries-lose-160-trillion-in-wealth-due-to-earnings-gaps-between-women-and-men(Accessed: 03/01/2018).

World Bank (2022). "Women, Business, and the Law 2022 report", The World Bank https://openknowledge.worldbank.org/bitstream/handle/10986/36945/9781464818172.pdf (Accessed: 19/12/2022).