



Global exchange of culture and intellect: What African economic growth and trade liberalization indicates.

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ABSTRACT

Economic growth enhances connectivity and resource availability thereby facilitating greater cultural and intellectual interaction across nations. On the other hand trade liberalization reduces barriers to trade, fostering cross-cultural dialogue and the diffusion of diverse perspective. Together, those dynamics promote more global exchange of culture and intellect. This study unveil the impact of economic growth and trade liberalization on global exchange of culture and intellect. Data from 20 randomly selected Africa countries were collected from 2005 to 2023. The study employs the Non-Linear Autoregressive Distributed Lag (NARDL) model to analyse data collected. Data for the analysis are collected from both the World development indicator, KOF globalization database, as well as, the World trade Organization data bases. The findings indicate that there is an asymmetric relationship between 4positive and negative shocks in both GDPGR and TL on global exchange of culture and intellect. It is recommended that, in order to prevent western cultural and intellectual hegemony, policymakers in Africa should strengthen mechanisms for global risk assessment and coordinate responses during economic contractions given the fact that a negative shock has a more amplified effect on global cultural and intellectual exchange. Equally, African policymakers should prioritize policies that foster increased trade liberalization because positive shocks in trade liberalization have a more pronounced effect on global integration indicators.

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BACKGROUND OF THE STUDY

Advancements in social media and other digital platforms have enhanced and increased global communication and fostering social networks beyond borders. Similarly, global exposure influences societal norms, culture and intellects often leading to shifts in attitudes toward gender roles, human rights, and social justice. (Katz, & Aspden, 2022). Global exchange of culture and intellect refers to the process by which ideas, knowledge, values, traditions, and cultural practices are shared and transmitted across different nations and societies worldwide. (Kellner, 2021) The significance of the concept of global exchange of culture and intellect to societies is multifaceted, impacting cultural identity, social cohesion, communication, and social development. Recent studies emphasize that global exchange of culture and intellect is a powerful force in shaping societal norms, identities, and interactions. (Held & McGrew, 2007). Its benefits include increased cultural understanding and connectivity, as well as contributing to social development although it also exacerbates inequalities if benefits are unevenly distributed. The challenges to this global concept are that while it promotes exclusivity, it can also generate social tensions, identity crises, or resistance to change within societies. In whatever perception this concept is viewed, research continues to explore how societies can harness global social interaction for inclusive and sustainable development especially among African countries. (Obomeghie & Ugboemhe 2017)

An increasingly interconnected world has become a significant dimension of global integration. However, the driving forces behind global social interaction and their interplay with economic and other factors remain inadequately understood. Specifically, the roles of economic growth, trade openness, and other impacts are critical yet under-explored. While economic growth has the potential to facilitate greater social inter-connectedness by increasing resources for communication and cultural exchange (Tekbas, 2021), conversely, rapid economic expansion may also lead to cultural homogenization or social inequalities that could hinder social integration (Atif, et al. 2022). Trade liberalization, as a facilitator of cross-border interactions, can promote social globalization through the dissemination of ideas and cultural products (Chen & Lee, 2020). Nonetheless, increased trade may also exacerbate environmental degradation, including GHG emissions, which can have social repercussions such as health impacts and social dislocation (Erokhin, 2020).

Despite these inter-linkages, empirical analyses examining the relationship between economic growth, trade liberalization, and global exchange of culture and intellect are limited. This study aims to fill this gap by investigating the combined effects of economic growth, trade liberalization, on global exchange of culture and intellect using recent cross-country data. Understanding these relationships

is vital for policymakers aiming to promote sustainable and inclusive global integration.

The research questions proposed and which this study will provide answer to includes;

- To examine the relationship between economic growth and global exchange of culture and intellect across countries in Africa.
- To analyze the effect of trade liberalization on global exchange of culture and intellect among African countries.
- To identify policy implications for promoting sustainable global exchange of culture and intellect that balances economic development, and social cohesion.

Academic literature has not fully caught up to the reality of how digital platforms and social media have fundamentally transformed cultural exchange. A significant gap exists in understanding how social networks act as new agents of cultural diffusion, potentially bypassing traditional trade channels. Research is needed on how these platforms mediate the relationship between economic growth, trade, and the exchange of culture and intellect. (Jenkins, 2006).

While critics often speak of the potential of global social interaction leading to western cultural homogenization, there is a significant research gap in understanding and documenting global cultural hybridization. This is the process where global and local traditions blend to create a new, unique cultural and value orientation. More studies are needed to explore how developing countries or industries adapt and innovate by incorporating foreign ideas rather than simply losing their own. (Appadurai, 2020).

The question of how and if trade liberalization cause cultural exchange, or does pre-existing cultural similarity between two nations facilitate more trade has always been topical. While some studies show that shared cultural values can lead to increased trade, the reverse of how increased trade actively changes cultural values, is less understood. This chicken-and-egg problem requires more sophisticated longitudinal and time-series analysis to clarify the direction of influence. (Haskel, et al. 2014)

LITERATURE REVIEW

The global exchange of culture and intellect refers to the process through which different societies, communities, and individuals share, communicate, and influence one another's beliefs, traditions, knowledge, and cultural practices across national and geographical boundaries. This exchange promotes mutual understanding, cultural diversity, innovation, and the spread of new perspectives. (Held & McGrew, 2007). The global exchange of culture and intellect is a dynamic process that facilitates international dialogue, cultural blending, and the diffusion of knowledge,

shaping societies and fostering inter-connectedness globally.

Economic growth refers to the increase in a country's output of goods and services, typically measured by Gross Domestic Product (GDP). In Africa, economic growth has been variable, influenced by factors such as commodity prices, investment inflows, infrastructure development, and policy reforms. Africa's GDP growth rebounded post-pandemic, averaging around 3-4% in recent years (African Development Bank, 2023). Countries like Ethiopia, Rwanda, and Ghana have shown significant growth due to infrastructure investments and diversification efforts. However, growth remains uneven across the continent, with challenges including political instability, corruption, infrastructure deficits, and dependence on commodity exports.

The relationship between economic growth and global exchange of culture and intellect is a multifaceted subject that reflects how economic development influences cultural interactions, knowledge sharing, and intellectual collaborations across nations. For example, higher economic growth often results in improved infrastructure, technology, and income levels, facilitating greater international travel, migration, and digital connectivity. This enhances cultural exchange by enabling more people to experience and share diverse cultural practices. (Atukunda, 2025). Equally, wealthier nations can invest more in research and higher education, attracting international students and scholars, fostering intellectual exchange. For instance, China's economic boom has led to an increase in international collaborations in science and technology (Li, et, al. 2024). However, despite growth, disparities persist, and cultural homogenization concerns arise, where dominant cultures overshadow local traditions, potentially leading to cultural erosion (Atukunda, 2025).

Trade liberalization refers to the process of reducing barriers to international trade, such as tariffs quotas and other restrictions. The goal of trade liberalization is to make it easier and cheaper for countries to buy and sell goods and services across borders, thereby encouraging economic growth, increased competition, and access to a wider variety of products. (WTO, 2022)

The relationship between trade liberalization and the global exchange of culture and intellect is complex and multifaceted because trade liberalization historically facilitated increased cross-border interactions, leading to significant impacts on cultural and intellectual exchanges worldwide. It enables the spread of films, music, literature, fashion, and other cultural products across borders. This fosters cross-cultural understanding and the diffusion of cultural practices. Equally, reduced trade barriers facilitate the flow of knowledge, technology, and research collaborations. This exchange enhances intellectual development and drives innovation, as countries and institutions share scientific discoveries, educational resources, and technological advancements more freely. Recent developments on trade liberalization emphasizes digital trade, which accelerates cultural exchange through streaming platforms, social media,

and online education. For example, platforms like Netflix and YouTube are instrumental in spreading cultural content globally (UNCTAD, 2023). However, there is also concern that increased trade and media flows may lead to cultural homogenization, undermining local cultures and languages (Tomlinson, 1997).

Theories of the global exchange of culture, and ideas aim to explain how cultural elements, beliefs, and ideas spread across borders and transform societies. Several theories have been proposed by scholars in this field, each emphasizing different mechanisms and influences. Such theories includes:

Cultural imperialism theory: This theory suggests that dominant cultures (often Western) impose their values and ideas on other societies through media, technology, and economic influence, leading to cultural homogenization and the erosion of local cultures. Most scholars refer to cultural imperialism as the process by which Western cultural values and media dominate and influence other societies. (Obadele & Lwanga, 2022).

Cultural hybridization and glocalization: This perspective emphasizes the blending and mixing of cultures as they interact globally. Instead of dominance and homogenization, cultures adapt and integrate external influences, leading to hybrid cultural forms. Glocalization is often taken by some researchers to refers to the simultaneous occurrence of both universalizing and particularizing tendencies in cultural exchanges. (Robertson, 1995)

World-systems theory: Developed by Wallerstein reported in Atakunda (2025), this theory views the world as a single economic system with core, periphery, and semi-periphery regions. Cultural exchange is mediated through economic and political dominance, with core nations influencing global culture. The spread of ideas and cultural values is intertwined with economic and political power structures in the world system.

Diffusion of innovations theory: Proposed by Everett Rogers, this theory explains how new ideas, practices, and technologies spread through societies via communication channels over time, influencing cultural change. Cultural change occurs as innovations are communicated and adopted across social systems. (Evrett, et, al 2019)

Cultural globalization theory: This broad perspective considers the inter-connectedness of societies through media, trade, and migration, leading to shared cultural experiences globally, but also raising concerns about cultural homogenization. Globalization fosters both the spread of cultural elements and the resistance to cultural homogenization. (Tomlinson, 1997)

These theories offer different lenses to understand the complex processes through which ideas and culture, are exchanged and transformed in a global context. They highlight mechanisms like domination, hybridization, diffusion, and interconnected power structures.

Trade liberalization theories primarily focus on economic aspects, such as reducing barriers to international trade to promote efficiency and growth.

However, they also have significant implications for the global exchange of culture and intellect.

Liberalism and the internationalization of ideas and culture: Classical liberalism advocates for free markets and open borders, emphasizing that economic openness facilitates the free flow not only of goods but also of ideas, culture, and values. The argument is that, trade liberalization leads to increased contact among societies, fostering cross-cultural understanding and exchange. As countries liberalize trade, they become more interconnected, promoting the dissemination of cultural products (music, films, fashion) and ideas, which can lead to greater cultural diversity and mutual understanding. Trade liberalization enhances cross-cultural interactions, leading to a greater exchange of ideas and values. (Held, et al. 2000)

The theory of cultural imperialism and market expansion: While trade liberalization can promote cultural exchange, critics argue that it can also lead to cultural imperialism, where dominant economies (primarily Western nations) spread their values and culture through trade and media, often at the expense of local cultures. Trade policies that promote the export of cultural goods (films, music, fashion) can influence local cultures, sometimes leading to cultural homogenization. Trade liberalization can facilitate the spread of dominant cultural values, leading to cultural imperialism. (Schiller, 2021).

Globalization theory and the exchange of ideas: Globalization theories argue that trade liberalization accelerates the inter-connectedness of societies, leading to the global circulation of ideas, beliefs, and cultural practices. This inter-connectedness fosters cultural hybridization as different cultures interact and blend. In relation to ideas and values, trade liberalization acts as a conduit for the global exchange of not just goods but also ideologies, religious beliefs, and social norms, promoting diverse cultural exchanges. Trade liberalization underpins the flows of cultural products and ideas, leading to both homogenization and hybridization of cultures. (Tomlinson, 1997).

World-Systems theory and cultural exchange: Wallerstein's World-Systems theory emphasizes that economic and cultural exchanges are embedded in global power structures. Trade liberalization in core countries often results in the spread of their cultural values and ideas to periphery regions. With respect to cultural values, trade policies favoring liberalization can lead to the dominance of certain cultural paradigms, influencing local values and worldviews. Economic and trade liberalization reinforces cultural influence of dominant nations. (Wallerstein, 2011).

In summary, trade liberalization theories suggest that reducing trade barriers not only facilitates economic exchange but also promotes the global flow of ideas and culture. While it can foster cultural understanding and hybridization, it also raises concerns about cultural imperialism and homogenization.

Economic growth theories explore how economies expand over time, emphasizing factors such as capital accumulation, technological innovation, and human capital development. In the context of the

global exchange of culture and intellect, these theories highlight how economic development can stimulate cross-border flows of ideas, knowledge, and cultural products. Such theories include:

Human capital and innovation: Theories such as endogenous growth theory (Romer, 1990) posit that investments in human capital, knowledge, and innovation are critical drivers of sustained economic growth. The global exchange of ideas and educational resources enhances human capital, fostering innovation and productivity.

Knowledge spillovers: The new growth theories suggest that international cultural and intellectual exchange facilitates knowledge spillovers, a process where ideas and innovations generated in one country benefit others; this can be impacted heavily by increased economic output (Aghion & Howitt, 1998).

Cultural industries as economic drivers: The globalization of cultural industries (film, music, fashion) has become a significant sector contributing to economic growth, especially in developing countries leveraging cultural exports (UNCTAD, 2023).

Technology diffusion: Trade liberalization and cultural exchange accelerate the diffusion of technologies and best practices across borders, which is vital for productivity improvements and economic development (Guillermo & Alvaro, 2017).

Economic growth theories increasingly recognize the importance of the global exchange of culture and intellect as catalysts for innovation, human capital development, and technological diffusion. This exchange enhances productivity and sustainable growth, underscoring the inter-connectedness of cultural and economic development in a globalized world.

The empirical relationship between economic growth and the global exchange of culture and intellect is an emerging area of research that explores how increased cultural and intellectual interactions influence economic development. While direct causality can be complex to establish, several studies suggest that economic growth can impact cultural and intellectual exchanges positively through various channels, such as innovation, human capital development, and improved global cooperation.

Empirical studies indicate that exposure to diverse cultures and ideas fosters creativity and innovation, which are critical for economic growth (Sergio, et al. 2017). For example, countries with vibrant cultural industries and active international academic collaborations tend to experience higher productivity growth. Also, research by Borensztein, De Gregorio, & Lee (1998) highlights that openness to international trade and cultural exchange enhances knowledge spillovers, which in turn stimulate economic growth, especially in developing countries.

As well, Ibrahim (2023) noted that, the movement of students, researchers, and academic ideas across borders contributes to capacity building and technological advancement. Countries investing in educational exchanges often see improved innovation indices and economic performance. Other empirical evidence suggests that cultural industries, facilitated by global exchange, contribute significantly to GDP,

employment, and foreign direct investment (UNCTAD, 2020).

In summary, many empirical evidences suggests a positive relationship between the global exchange of culture and intellect and economic growth, primarily through mechanisms like innovation, knowledge spillovers, and human capital development. This relationship underscores the importance of fostering international cultural and educational collaborations as part of broader economic strategies.

The empirical relationship between trade liberalization and the global exchange of culture and intellect is an area of growing academic interest, reflecting how economic policies influence cultural diffusion and intellectual interactions. Recent studies suggest that trade liberalization acts as a catalyst for increased cultural and intellectual exchange, although the relationship is nuanced by factors such as digital connectivity and cultural preservation concerns. (Zhang & Kumar, 2022),

Studies have also shown that reductions in trade barriers correlate with increased consumption of foreign cultural goods such as movies, music, and fashion, which in turn promotes cultural exchange. For example, a study by Lee, et, al. (2020) found that countries with more liberalized trade policies experienced a significant rise in imported cultural products, facilitating cross-cultural understanding.

Other empirical work data indicates that trade openness also enhances international collaboration in research and development (R&D). According to Khan, et, al. (2023), countries with higher trade liberalization indices tend to participate more actively in global scientific networks, leading to increased intellectual exchange.

Recent research highlights the role of digital trade in accelerating cultural and intellectual exchange. A report by UNCTAD (2023) notes that digital trade liberalization has led to exponential growth in cultural content sharing and knowledge dissemination across borders. While increased trade liberalization promotes cultural exchange, empirical evidence also points to risks of cultural homogenization, with dominant cultures overshadowing local traditions. For instance, a study by Kuang (2024) observed that global media flows, facilitated by trade liberalization, often lead to the dominance of western cultural products.

In summary most empirical research indicates a positive correlation between trade liberalization and

increased cultural and intellectual exchanges globally. However, it also underscores the importance of managing risks related to cultural dominance and homogenization.

MATERIALS AND METHODS

To study the relationships between economic growth, trade liberalization, and global exchange of culture and intellect among Africa countries, a comprehensive and robust study design is essential.

The research design adopted in this study is the causal comparative design, this is because the researcher aims to give concise insights that aid in planning and operational decisions. As well, it enables researchers to investigate the effect of a variable after it has occurred.

Time series data is used for the study, the data were collected from the World Bank’s World Development Indicators database (2024), the KOF globalization index, as well as the Tania (2007), The data were from 2003 to 2023

The model

The general model for the Non Linear Autoregressive Distribution Lag (NARDL) is given as follows in line with Obomeghie & Umoru (2024).

$$\begin{aligned}
 GICV &= \beta_0 + \beta_1 GDPGR + \beta_2 TL + u_t \\
 TL_t^+ &= \sum_{j=1}^t \Delta TL_j^+ = \sum_{j=1}^t \max(\Delta TL_{j,o}) \\
 TL &= \sum_{j=1}^t \Delta TL_j^- = \sum_{j=1}^t \max(\Delta TL_{j,o}) \\
 GDPGR_t^+ &= \sum_{j=1}^t \Delta GDPGR_j^+ = \sum_{j=1}^t \max(\Delta GDPGR_{j,o}) \\
 GDPGR_t^- &= \sum_{j=1}^t \Delta GDPGR_j^- = \sum_{j=1}^t \max(\Delta GDPGR_{j,o})
 \end{aligned}$$

The general NARDL (p, q, r, s) model where p,q,r,s are lag orders can be written as;

$$\Delta GICV_t = \beta_0 + \sum_{t=1}^p \beta_1 \Delta GICV + (\sum_{t=1}^p \beta_2 \Delta TL_{t-1}^+ + \sum_{t=1}^p \beta_3 \Delta TL_{t-1}^-) + (\sum_{t=1}^p \beta_4 \Delta GDPGR_{t-1}^+ + \sum_{t=1}^p \beta_5 \Delta GDPGR_{t-1}^-)$$

Table 1. Hypothesized analytical framework

| Variable | Expected sign | Rational |
|----------|---------------|--|
| GDPGR | Positive (+) | As economies grow, investment in social infrastructure, education, and technology increases, fostering greater connectivity, integration, international mobility, migration, and the dissemination of cultural practices (Martin-Cervantes, et, al. 2020). |
| TL | Positive (+) | Trade liberalization facilitates and promotes cultural exchanges, fostering international networks, and enabling the flow of ideas, information, and social practices.(McNamara, 2015). |

Source; Authors compilation.

Definition of variables

Global exchange of culture and intellects (GIC): the process through which different societies and communities share and influence one another's ideas, and culture across borders. Data for social globalization is used as the proxy data for this analysis.

Economic growth rate (GDPGR): the percentage change in a country's Gross Domestic Product (GDP) from one period to another measured annually.

$$\text{GDPGR} = \frac{\text{GDP in the current period} - \text{GDP in the previous period}}{\text{GDP in the previous period}} \times \frac{100}{1}$$

Trade liberalization (TL): the process of reducing restrictions and barriers to international trade, such as tariffs, quotas, and regulations, to promote freer exchange of goods and services across borders.

RESULTS AND DISCUSSIONS

The descriptive statistics of our analysis is presented below in table 2.

Table 2. Descriptive statistics.

| | GIC | GDPGR | TL |
|--------------|----------|-----------|----------|
| Mean | 40.20000 | 4.080605 | 65.19022 |
| Median | 37.00000 | 4.310000 | 60.73073 |
| Maximum | 65.00000 | 19.05000 | 144.6682 |
| Minimum | 18.00000 | -9.110000 | 20.72000 |
| Std. Dev. | 11.38680 | 3.959057 | 24.81249 |
| Skewness | 0.654180 | -0.451351 | 0.665351 |
| Kurtosis | 2.445814 | 5.329572 | 2.876560 |
| Jarque-Bera | 31.96636 | 98.82814 | 28.27843 |
| Probability | 0.000000 | 0.000000 | 0.000001 |
| Sum | 15276.00 | 1550.630 | 24772.29 |
| Sum Sq. Dev. | 49140.80 | 5940.496 | 233335.0 |
| Observations | 380 | 380 | 380 |

Source: Author's computation from e-views output

From table 2 which represents the descriptive statistics, it can be seen that GIC has the highest mean with a value of 42.20000 while GDPGR has the lowest mean with a value of 4.080605. TL has the highest standard deviation with a value of 24.8414249 while GDPGR again with a value of 3.95905 has the lowest standard deviation.

Table 3. cointegration test

| Kao Residual Cointegration Test | | | | |
|--|-------------|-----------------------|-------------|----------|
| Series: GIC GDPGR TL | | | | |
| Newey-West automatic bandwidth selection and Bartlett kernel | | | | |
| | | | t-Statistic | Prob. |
| ADF | | | -2.439320 | 0.0074 |
| Residual variance | | | 2.391450 | |
| HAC variance | | | 3.419203 | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| RESID(-1) | -0.249849 | 0.036568 | -6.832445 | 0.0000 |
| D(RESID(-1)) | -0.144867 | 0.061987 | -2.337055 | 0.0200 |
| R-squared | 0.095319 | Mean dependent var | | 0.399490 |
| Adjusted R-squared | 0.092642 | S.D. dependent var | | 1.762418 |
| S.E. of regression | 1.678797 | Akaike info criterion | | 3.879897 |
| Sum squared resid | 952.6054 | Schwarz criterion | | 3.902420 |
| Log likelihood | -657.5825 | Hannan-Quinn criter. | | 3.888871 |
| Durbin-Watson stat | 1.649711 | | | |

Source: Author's computation from e-views output

From the Kao Residual Cointegration test, with t-statistic of -2.439320 and p-value of 0.007400 which is less than the common significance level of 0.05, we conclude that a long run relationship exist among the variables.

Table 4. Stationarity test.

| Variable | Order | ADF value | Prob | Conclusion |
|----------|-------|-----------|----------|------------|
| GIC | I (I) | 72.4371 | (0.0000) | Stationary |
| GDPGR | I (0) | 79.4989 | (0.0002) | Stationary |
| TL | I (I) | 261.096 | (0.0000) | Stationary |

Source: Author's computation from e-views output

From table 4 which depicts the stationarity test using the ADF test, it can be seen that GDPGR is stationary at levels while GIC and TL are stationary at first difference.

Table 5. The ARDL model output

| Dependent Variable: D(GIC) | | | | |
|--|-------------|-----------------------|-------------|----------|
| Dynamic regressors (2 lags, fixed): TL GDPGR | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.* |
| Long Run Equation | | | | |
| TL | 0.037191 | 0.012424 | 2.993428 | 0.0030 |
| GDPGR | 0.398109 | 0.053085 | 7.499498 | 0.0000 |
| Short Run Equation | | | | |
| COINTEQ01 | -0.456542 | 0.135267 | -3.375103 | 0.0009 |
| D(TL) | -0.003872 | 0.016268 | -0.238014 | 0.8121 |
| D(TL(-1)) | -0.012880 | 0.015697 | -0.820543 | 0.4127 |
| D(GDPGR) | -0.102601 | 0.047383 | -2.165386 | 0.0314 |
| D(GDPGR(-1)) | -0.027658 | 0.032488 | -0.851339 | 0.3954 |
| C | 14.91309 | 4.353451 | 3.425579 | 0.0007 |
| @TREND | 0.115070 | 0.080819 | 1.423810 | 0.1558 |
| Mean dependent var | 0.432353 | S.D. dependent var | | 1.506568 |
| S.E. of regression | 1.159706 | Akaike info criterion | | 2.671422 |
| Sum squared resid | 320.0908 | Schwarz criterion | | 4.143802 |
| Log likelihood | -365.5702 | Hannan-Quinn criter. | | 3.255669 |
| *Note: p-values and any subsequent tests do not account for model selection. | | | | |

Source: Author's computation from e-views output

Table 5, shows the ARDL results which leads to the NARDL. From the output in table 5, it can be seen that all the variables are statistically significant at less than 1% with the cointegration factor having the appropriate negative sign.

Table 6. The NARDL model output

| Dependent Variable: D(GIC) | | | | |
|--|-------------|-----------------------|-------------|----------|
| Dynamic regressors (2 lags, fixed): GDPGR_POS GDPGR_NEG | | | | |
| TL_POS TL_NEG | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.* |
| Long Run Equation | | | | |
| GDPGR_POS | 0.362016 | 0.038399 | 9.427686 | 0.0000 |
| GDPGR_NEG | 0.680750 | 0.032116 | 21.19686 | 0.0000 |
| OPEN_POS | 0.126257 | 0.018034 | 7.001041 | 0.0000 |
| OPEN_NEG | 0.121075 | 0.012113 | 9.995159 | 0.0000 |
| Short Run Equation | | | | |
| COINTEQ01 | -0.461025 | 0.136168 | -3.385703 | 0.0009 |
| D(GDPGR_POS) | -0.095730 | 0.082894 | -1.154857 | 0.2502 |
| D(GDPGR_POS(-1)) | -0.021371 | 0.068547 | -0.311779 | 0.7557 |
| D(GDPGR_NEG) | -0.204484 | 0.104409 | -1.958481 | 0.0522 |
| D(GDPGR_NEG(-1)) | -0.028671 | 0.085788 | -0.334213 | 0.7387 |
| D(OPEN_POS) | -0.047048 | 0.053891 | -0.873033 | 0.3842 |
| D(OPEN_POS(-1)) | 0.054065 | 0.057068 | 0.947375 | 0.3451 |
| D(OPEN_NEG) | 0.008153 | 0.043490 | 0.187470 | 0.8516 |
| D(OPEN_NEG(-1)) | -0.126753 | 0.062557 | -2.026208 | 0.0447 |
| C | 16.33071 | 4.865190 | 3.356645 | 0.0010 |
| @TREND | 0.283496 | 0.129207 | 2.194119 | 0.0299 |
| Mean dependent var | 0.396875 | S.D. dependent var | | 1.531894 |
| S.E. of regression | 1.152690 | Akaike info criterion | | 2.516040 |
| Sum squared resid | 180.7023 | Schwarz criterion | | 4.934060 |
| Log likelihood | -228.8872 | Hannan-Quinn criter. | | 3.477491 |
| *Note: p-values and any subsequent tests do not account for model selection. | | | | |

Source: Author's computation from e-views output

From table 6 above, one may note that the negative and significant coefficient of the cointegrating factor - 0.461025 with a p-value of 0.0009 for our model, represents the speed of adjustment to the long-run

equilibrium. The statistically significant p-value of 0.0009 confirms the presence of a long-run asymmetric cointegration relationship among the variables. It signifies that the variables are not just randomly

wandering but are bound together by a long-run relationship. In other words, there's a stable, long-term connection between the dependent variable and the independent variables, even though they may fluctuate in the short term. The magnitude of the coefficient 0.461025, means that about 46.1% of the disequilibrium from the previous period is corrected in the current period if there is a shock that caused the system to be out of balance, bringing the variables closer to their long-run equilibrium path.

With respect to economic growth rate, both coefficients of GDPGR_POS 0.362016, and GDPGR_NEG 0.680750, with p-values of 0.0000 respectively are highly significant, indicating strong evidence that positive and negative GDP growth shocks influence GIC. Specifically, a unit positive increase in GDP growth is associated with an approximate 0.36-unit increase in GIC, holding other factors constant. On the other hand, a unit decrease (negative change) in GDP growth is associated with an approximate 0.68 unit increase in GIC. Interestingly, both positive and negative GDP growth changes are associated with increases in GIC, but the effect of negative GDP growth is roughly twice as large as that of positive GDP growth. This suggests asymmetrical effects, where negative shocks in GDP have a more substantial impact on GIC than positive shocks. This is in line the findings of Kumar & Pradhan (2020)

With respect to trade liberalization, the TL_POS and TL_NEG that is, positive and negative shocks in the trade liberalization, allows the model to capture potential asymmetric effects on the dependent variable GIC. The positive shock in trade liberalization (TL_POS) with a coefficient of 0.126257, and a p-value of 0.0000, indicates an increase in GIC by approximately 0.1263 units for a unit increase in TL_POS. While a negative shock in trade liberalization (TL_NEG) with a coefficient of 0.121075, and p-value of 0.0000, indicates an increase in GIC by approximately 0.1211 units for a unit decrease in trade liberalization. Again both positive and negative changes in exhibits an asymmetric relationship in trade liberalization. This is in line with studies by Xiuping et, al. (2023).

CONCLUSION

Findings from our analysis indicates that negative GDP growth has a more substantial impact on global exchange of culture and intellect than the positive GDP growth. Specifically, the effect of negative growth is roughly twice as large as the positive shocks, in indicating an asymmetric relationship where downturns in the economy trigger stronger responses in global exchange of culture and intellect. This asymmetry implies that global exchange of culture and intellect are more sensitive to negative economic shocks than to positive ones. Such behavior could reflect increased geopolitical vulnerabilities during downturns (Kumar & Pradhan, 2020)

With respect to both positive and negative changes in trade liberalization, the result indicates that both improvements and declines in trade liberalization,

stimulates global interactions or spillovers. However, the slightly higher effect of positive trade liberalization implies that increases in openness have a marginally stronger influence on global exchange of culture and intellect compared to decreases. This asymmetry indicates that policy measures aimed at enhancing trade liberalization could be more effective in promoting global integration than measures that restrict trade liberalization.

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