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Social, Political and Economic Globalization in the East African Community (2006-2023): Trends, Convergence and the Complementary Lens of Neo-Functionalism and Transformationalism

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Abstract

This paper assesses the co-evolution, structure, and path of convergence of globalization in the East African Community (EAC) based on empirical data spanning 2006-2023. This timeline is significant because there is a paucity of empirical findings on how the economic, social, and political facets of globalization evolve in the EAC simultaneously. Included within this timeline are a robust, deepened EAC Customs Union, the global financial crisis of 2008-2009, the COVID-19 pandemic of 2020-2023, and current trends in geo-economic fragmentation on the continent. The paper relies on secondary panel data for Burundi, Kenya, Rwanda, Tanzania, and Uganda—a purposive subgroup of EAC member states selected for data availability and comparability from the Global Economy.com database and employs descriptive trend analysis, compound annual growth rate (CAGR), Pearson correlation, cross-country sigma and beta-convergence tests, and fixed-effects panel estimation. Overall, globalization evolved slowly (the five-country mean of the overall index rose from 43.5 in 2006 to 49.0 in 2023, with a pooled period mean of 49.0), albeit with a heterogeneous trajectory. While political globalization was dominant (mean, 67.8), social globalization was relatively weak (mean, 38.0). Rwanda grew fastest in globalization (CAGR, 1.76%), while Tanzania stagnated (CAGR, −0.04%). Still, cross-country sigma-convergence was high with a 40% decline in inter-country variation; beta-convergence was statistically significant ($\beta = -0.084$, $p = 0.045$),

although this estimate rests on only five country-level observations and is read as suggestive. A strong co-movement of the three facets (r = 0.76 - 0.89) emerged, and the three dimensions enter the composite with near-equal construction weights (33% - 34% each). Based on neo-functionalism and transformationalism as interpretive lenses, the paper concludes that the results for the five study countries are consistent with convergence toward a state of politically open, economically shallow, and socially underperforming integration and recommends economization of social integration.

Keywords

Globalization, East African Community, Convergence, Neo-Functionalism, Transformationalism, Panel Data

1. Introduction

The past 40 years have witnessed an era of globalization that transformed the state-society market nexus (Held et al., 1999). While its overall effects continue to be debated, there is agreement that there is no simple or singular globalization process, but rather a complex one that entails economic, political, and social dimensions (Dreher, 2006; Held et al., 1999). When it comes to developing countries, including Africa, the relevant question is no longer whether to globalize, but how to set the terms of participation in an international order that is largely governed externally (Zahonogo, 2018; Juma, 2016).

Regional Economic Communities (RECs), especially the EAC, have served as an institutional set-up through which regional economic relations and modes of integration have been negotiated. This study considers Burundi, Kenya, Rwanda, Tanzania, and Uganda, a purposive subgroup of the EAC membership selected because data are more available and comparable for these five countries over the study period. The EAC has broadened membership to include the Democratic Republic of the Congo (DRC), South Sudan, and Somalia, but the empirical analysis of the newer member states in this study is limited by data shortcomings.

As such, the relationship between emerging regionalism and globalization has strong implications for the region's citizens.

Notwithstanding the conceptual rigor of the literature on globalization, there are 3 gaps: first, a bulk of the empirical literature on the effect of globalization treats the latter as a homogeneous construct or focuses mainly on its economic dimension of trade openness and foreign direct investment (Gurgul & Lach, 2014; Baidoo, Tetteh, Boateng, & Ayibor, 2023) and often ignores the political and social dimensions. Second, research on the effects of African regionalism has relied on normative or lay institutional histories of regional organizations, rather than on empirical and systematic evaluations of the impact of regional integration over time (Ibietan, 2010; Dickson, 2021). Third, when evidence for sub-Saharan Africa is available, it is seldom in terms of the entire time period that would allow for the assessment of the

impact of global shocks like the 2008-2009 financial crisis, the COVID-19 pandemic, and the geopolitical trend of geo-economic fragmentation (International Monetary Fund, 2022; Gopinath et al., 2024), in the context of regional integration.

The study is guided by one overarching research question: how have the economic, political and social dimensions of globalization evolved, interacted and converged within the EAC between 2006 and 2023, and what do these dynamics reveal about the mechanisms driving regional integration?

To answer it, the study pursues four objectives: i) to characterize the level, trend and composition of globalization in each member state across its three dimensions; ii) to test for convergence in globalization outcomes within the community, thereby assessing whether integration produces cohesion or polarization; iii) to quantify the internal co-movement among the economic, political and social dimensions and their joint association with overall globalization; and iv) to interpret the empirical patterns through a complementary theoretical framework that pairs neo-functionalism integration as internally driven spillover (Haas, 1958; Schmitter, 1969) with transformationalism, the account of globalization as an external structural force that compels states to recalibrate, without abolishing, their sovereignty (Held et al., 1999; Scholte, 2005).

This paper makes a triple contribution. Empirically, it provides the first systematically comparable dimension-wise quantitative mapping of globalization in the EAC in the period 2006-2023. This is done by adopting The Global Economy.com composite indicators and utilizing formal convergence diagnostics, which are rare in the scholarship on African regionalism.

Methodologically, it demonstrates how descriptive, correlational, and panel-econometric approaches can be articulated in a transparent way within a small-N, large-T panel set-up.

Theoretically, it introduces an integrated conceptualization, with neo-functionalism serving as an internal driver and transformationalism providing the global frame. This study expects such an approach to allow for a better explanation of integration successes/failures, bridging regional debates with the wider literature on globalization. Section 2 reviews the literature and sets up the framework. Section 3 outlines data and methods, section 4 presents the results, section 5 discusses, and section 6 concludes.

2. Literature Review and Theoretical Framework

2.1. Economic Globalization and Growth

The earliest and largest strand in the literature examines the links between economic globalization and growth. Dreher (2006) introduced the first index of globalization (composed of three categories) and observed consistent positive growth outcomes for members. This evidence was corroborated by research on OECD panels (Chang & Lee, 2010), transition economies (Gurgul & Lach, 2014), and Sub-Saharan Africa (Zahonogo, 2018).

Subsequent granular study confirmed this effect in banking sectors (Ghosh, 2017),

the insurance industry (Lee, Lee, & Chiou, 2017), via financial and exchange-rate channels (Gaies, Goutte, & Guesmi, 2019; Gaies, Goutte, & Guesmi, 2020), in terms of the proliferation of entrepreneurship (Coulibaly, Erbao, & Metuge, 2018) and increasingly, via digital infrastructure and ICT-enabled FDI (Latif et al., 2018; Ze et al., 2023; Elfaki & Ahmed, 2024).

These impacts are not uniform: outcomes seem dependent upon the quality of institutional arrangements and baseline income levels (Muye & Muye, 2017; Sandanayaka et al., 2025). Furthermore, literature in the African context highlights that these benefits remain conditional on levels of democratic governance and stock of human capital (Glennie Fosah et al., 2023; Baidoo et al., 2023; Radulović & Kostić, 2024).

2.2. Political and Social Globalization

The second strand decomposes globalization, finding that political globalization, a composite of treaty membership, embassy proliferation, and participation in international peacekeeping and military activities, is often the largest sub-component but is the least adequately conceptualized in terms of causal growth mechanisms (Ehigiamusoe, 2021; Marques, Fuinhas, & Marques, 2017). Social globalization, tracking cross-border migration, tourism, information flows, and cultural convergence, has been shown to interact with labour markets and demographics (Gaddis & Klasen, 2014; Burhan et al., 2015). Research also suggests poverty-alleviating pathways from social globalization, primarily via migrant remittances, diaspora business ties, and broader financial inclusion (Omar & Inaba, 2020; Polloni-Silva et al., 2021; Neaime & Gaysset, 2018).

A novel group of academic papers relates globalization to problems of poverty and food security. Scholars argue that, in poorer nations with a larger volume of food imports than food exports, volatility of commodity prices generated by trade might be expected to lead to aggregate welfare losses for poor families (Ivanic & Martin, 2008; De Hoyos & Medvedev, 2011; Mary, 2019; Ng & Aksoy, 2008; Chikhuri, 2013; Subramaniam, Masron, & Loganathan, 2024).

However, evidence from research points out that export crop agriculture is potentially able to boost rural incomes (Sanjuán-López & Dawson, 2010; Huang et al., 2007; Sawadogo, 2024; Artuc, Porto, & Rijkers, 2021). The literature on labour markets shows significant adjustment costs that fall disproportionately on vulnerable workers (Porto, 2008; Ball, de Roux, & Hofstetter, 2013) and the literature on crisis episodes shows the vulnerability of impoverished households to contagion from global economic shocks (Nikoloski, 2011; Ivanic, Martin, & Zaman, 2012; Laborde, Martin, & Vos, 2021; Cuesta & Pico, 2020; Jara, Montesdeoca, & Tasseva, 2022).

2.3. Globalization in Africa: Context and Critique

Literature focusing on the African political economy takes a dimmer view of the globalization thesis. This neo-structuralist lens argues Africa remains positioned on the periphery in core-periphery dynamics, so that increased formal participa-

tion in global institutions often hides the thin nature of Africa's industrializing links (Langan, 2018; Bassey & Ayara, 2017; Ibietan, 2010; Dickson, 2021; Ugumanim, Jacob, & Abunimye, 2017). As Arop & Inyang (2017) and Juma (2016) suggest, regional blocs are a proposed remedy-an intermediate scale from which Africa can assertively negotiate with the global core.

Current global winds complicate this: talk of "de-globalization" in a pandemic-racked world (Altman & Bastian, 2024; Autio, Mudambi, & Yoo, 2021), the acceleration of remote-work-based offshoring (Choudhury, 2020; Sytsma, 2022), the rise of economic nationalism (Colantone & Stanig, 2019) and "great power" bifurcation of trade systems (Farrell & Newman, 2020; Aiyar et al., 2023; Gopinath et al., 2024) have massive and sudden implications for how a small open regional bloc can exist.

The gap in this literature is a long-run, comparative, cross-dimensional empirical evaluation of an African regional economic community through this series of acute, overlapping, global shock events.

2.4. Theoretical Framework: A Complementary Lens

The study doesn't utilize a singular framework but rather two lenses that provide distinct analytic capabilities for this phenomenon. Transformationalism frames the outside; Neo-functionalism provides the engine on the inside. Transformationalism, according to Held et al. (1999) and Scholte (2005), proposes that globalization is the restructuring of the sovereign state amid intense trans-border connectivity. States do not disappear (Hyperglobalists) nor do they endure as historical artifacts (Sceptics).

Instead, they are reimagined across tiers. This creates a baseline expectation for the EAC: integration is an existential necessity-as value chains (World Bank, 2019), global norms, technology, and systemic geopolitical risks emerge, and the small and individual state loses control over domestic destiny unless pooled bargaining is employed. Neo-functionalism defines the inside mechanism: Haas (1958) and Schmitter (1969) describe how initial integration creates "spillovers." Cooperation in sector A (the Customs Union signed in 2005) generates technical/functional hurdles that lead to integration in sector B (the Common Market and aspirational Monetary Union, then political federation), while loyalties from local interest groups/elites gradually migrate upwards.

Combined, this views the EAC as a transformationalist response to global pressure powered by a neo-functionalist engine. Transformationalism predicts the exogenous force/shock, and neo-functionalism describes the transmission path of response. The framework leads to hypothesis formulation: if a functional spillover takes place, then this research expects a strong correlation across all three dimensions and evidence of convergence where "laggard" members or sub-categories catch up with the pack. Conversely, if transformationalist pressures dominate, the evidence would show dramatic synchronous structural impact from exogenous global shocks, such as in 2008-2009 and 2020.

3. Data and Methodology

3.1. Research Design and Data

This paper adopts a quantitative, longitudinal, panel design, consistent with the purpose of tracking multidimensional globalization over a longitudinal period, as well as to identify evidence of convergence or divergence between the countries in focus. This study draws on a balanced panel for the five EAC countries (Burundi, Kenya, Rwanda, Tanzania and Uganda) during the years 2006 to 2023, providing a total of N = 90 observations (five countries × 18 years; n = 18 annual observations per country). These five countries constitute a purposive subgroup of the EAC membership, selected for data availability and cross-country comparability over the full study period; the Community also includes the Democratic Republic of the Congo, South Sudan and Somalia, which are not covered here. Although the subgroup is not a probability sample, this does not dispense with inferential caution: composite indices embody measurement and modelling choices, and coverage of the five countries eliminates neither measurement nor model uncertainty. All findings are accordingly interpreted as applying to the five study countries rather than to the EAC as a whole.

Data for four variables were extracted from The Global Economy.com, which republishes the revised KOF Globalisation Index produced by the KOF Swiss Economic Institute (0-100 scale): Globalization Index (GI) overall; Economic (EGI), Political (PGI) and Social (SGI) Globalizations.

The GI is higher when the country is more integrated (The Global Economy, 2023). This KOF-type composite instrument is considered standard and robust in such studies (see Dreher, 2006). The study period (2006-2023) is useful for theoretical leverage as it traverses milestones like the consolidation of the EAC Customs Union, EAC Common Market Protocol, the global financial crisis of 2008-2009, the COVID-19 pandemic and, recently, trends toward geo-economic fragmentation.

3.2. Measures and Quality

The research uses existing secondary measures based on observed flows and restrictions in the KOF style. EGI is based on data for trade, FDI and portfolio investment and (de jure) capital-account openness. PGI is an aggregation of the number of embassies in a country, the number of international organizations in which a country is a member, and the number of international treaties signed; SGI aggregates flows of personal contacts (migration, tourism, international telephone traffic), information flows, and cultural proximity.

As the instrument has a large body of peer-reviewed applications (see references in Dreher, 2006 and the references reviewed in Section 2 above), the measures have satisfactory construct validity for the study purpose.

The reliability of the indices is based on the robust nature of their properties and the documented and accessible guide to construct them such that any re-

searcher can precisely replicate (Gygli, Haelg, Potrafke, & Sturm, 2019). Reproducibility statement. The four series analysed are the overall KOF Globalisation Index and its economic, political and social sub-indices in their revised form (Gygli et al., 2019), obtained from TheGlobalEconomy.com, which republishes the index produced by the KOF Swiss Economic Institute. Under the revised KOF methodology, the economic, social, and political dimensions are aggregated into the overall index with equal weights of one-third (Gygli et al., 2019); this weighting scheme is corroborated internally by the decomposition coefficients of approximately 0.33 reported in Section 4.2, which recover the construction weights of the composite. The raw series are publicly and persistently available from the KOF Swiss Economic Institute (https://kof.ethz.ch/en/forecasts-and-indicators/indicators/kof-globalisation-index.html) and from TheGlobalEconomy.com (https://www.theglobaleconomy.com/); the extracted spreadsheet and the Python analysis code used to produce all statistics and figures are available from the corresponding author upon reasonable request, allowing full replication of the analyses.

3.3. Analytical Strategy

The study results are divided into four main parts corresponding to these four objectives. Regarding (i) description of dynamics, calculating the arithmetic mean, standard deviation, and compound annual growth rate (CAGR) by country and by dimension is adopted in this section:

$$\mathrm{CAGR} = (X_{2023}/X_{2006})\,\hat{}\,(1/17) - 1 \tag{1}$$

For Objective (ii), convergence, sigma-convergence is assessed from the cross-sectional standard deviation in each year:

$$\sigma_t = \left[(1/N)\Sigma_i \left(X_{it} - \bar{X}_t\right)^2\right]\,\hat{}\,1/2 \tag{2}$$

and beta-convergence regresses average annual log growth on the initial level:

$$g_i = \alpha + \beta \cdot X_{i,2006} + \varepsilon_i \tag{3}$$

where $g_i = \left[\ln\left(X_{i,2023}\right) - \ln\left(X_{i,2006}\right)\right]/17$; $\beta < 0$ implies catch-up. For Objective (iii), co-movement, Pearson correlations and panel regressions estimate:

$$\mathrm{GI}_{it} = \alpha + \beta_1 \mathrm{EGI}_{it} + \beta_2 \mathrm{PGI}_{it} + \beta_2 \mathrm{SGI}_{it} + \mu_i + \lambda_t + \varepsilon_{it} \tag{4}$$

estimation proceeded by 3 methods: pooled OLS; fixed effects (FE) using country and year dummies, with cluster-robust standard errors (CRSE) at the country level; and a first-difference (FD) "growth" specification, in an attempt to address any spurious correlation deriving from joint non-stationarity (common trends) (Granger, 1969; Pesaran, 2007; Pesaran & Yamagata, 2008; Breitung & Das, 2005; Love & Zicchino, 2006). It must be kept in mind that GI is a weighted summation of its inputs and, as such, (4) ought technically to be considered purely a consistency decomposition of the GI. Coefficients are expected to be roughly equal to the weights used to construct the index and should not be interpreted as causal esti-

mates. Future work could pursue causal estimation using instruments or system-GMM (Roodman, 2009; Bun & Kiviet, 2006).

Future work could also potentially use time-series causal tools like variants of Granger-causality (Ren et al., 2024; Yuan & Qin, 2012), though they are not used here as T = 18 is likely too short for valid time-series causal inference. Concerning Obj. (iv), results are interpreted within the overarching conceptual framework derived in Sec. 2.4. Python 3.12 (pandas 2.x, statsmodels, matplotlib) was used for analysis, with plots exported at 500 dpi.

3.4. Ethical Considerations

This study relies exclusively on secondary, aggregated, and publicly available macroeconomic data and does not contain personal information, such that the use of human beings or primary data collection is not applicable in this study; hence, informed consent or prior ethics committee approval for this research is unnecessary. However, the study still follows ethically relevant standards, including honesty, clear methodology, and full data availability (cf. Sect. 7).

4. Results

4.1. Levels and Trends of Globalization (Objective i)

The descriptive statistics of the total panel are contained in Table 1 and reveal that the most globalized country is Kenya, with an average Globalization Index (GI) equal to 55.27, followed by Uganda with 52.62, Tanzania with 50.23, Rwanda with 48.10, and finally Burundi with 38.82. In general, it seems that the political aspect is the most globalized (five-country mean, 67.82), whilst the social one is the least globalized dimension (five-country mean, 37.96) and the economic one is an intermediate dimension (five-country mean, 41.22). Finally, Kenya has the highest average with the lowest dispersion, whilst Rwanda has the highest variability, which could imply an accelerating structural change.

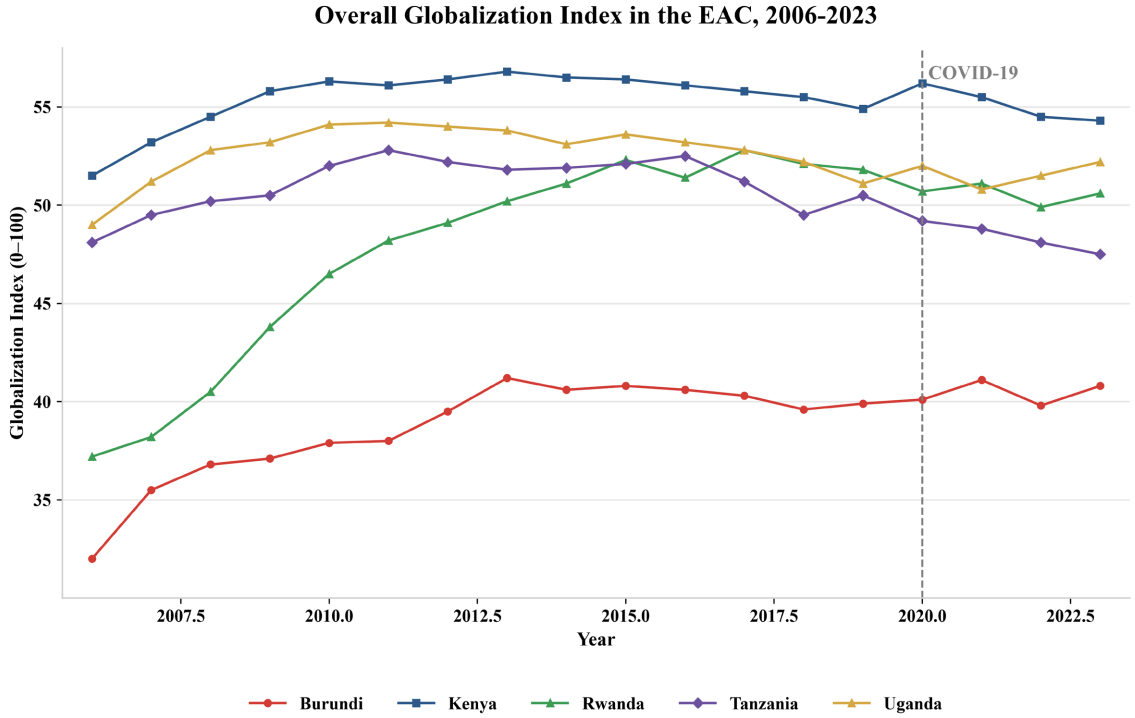
Table 1. Descriptive statistics of globalization indices by country, 2006-2023 (total N = 90 country-year observations; n = 18 observations per country).

Country	GI, Mean (SD)	EGI, Mean (SD)	PGI, Mean (SD)	SGI, Mean (SD)
Burundi	38.82 (2.57)	32.16 (2.74)	54.85 (4.15)	29.52 (4.47)
Kenya	55.27 (1.44)	42.12 (1.60)	78.53 (1.16)	45.00 (3.83)
Rwanda	48.10 (4.84)	44.10 (7.18)	61.57 (3.91)	38.61 (4.19)
Tanzania	50.23 (1.75)	40.10 (4.26)	74.70 (2.02)	35.84 (3.51)
Uganda	52.62 (1.40)	47.62 (1.61)	69.46 (1.54)	40.86 (3.18)
Five-Country Pooled	49.01 (6.26)	41.22 (6.54)	67.82 (9.11)	37.96 (6.43)

Source: TheGlobalEconomy.com; author's computations. GI = overall; EGI = economic; PGI = political; SGI = social globalization index (0 - 100). Each country contributes n = 18 annual observations (2006-2023); the total panel comprises N = 90 country-year observations.

The five series show a general trend of rising to mid-decade peaks: Kenya at

57.04 (2014), Tanzania at 52.52 (2014), Burundi at 41.39 (2015), Rwanda at 52.39, and Uganda at 54.23 (2017), and then declining around 2020, coinciding with the COVID-19 pandemic, and partially recovering thereafter (see Figure 1).



Note: This figure depicts the trends in the Overall Globalization Index for the five member countries of the EAC, namely Burundi, Kenya, Rwanda, Tanzania, and Uganda, for the period between 2006 and 2023.

Figure 1. Overall Globalization Index in the EAC, 2006-2023. The dashed line marks the COVID-19 pandemic period.

Table 2 quantifies the dynamics. Rwanda is the clear leader in overall growth (ΔGI = +12.98 points; CAGR 1.76%), driven by an extraordinary economic opening (ΔEGI = +20.29; CAGR 3.11%). Burundi also converges from a low base (+9.34 points). By contrast, Tanzania's economic globalization contracted sharply (ΔEGI = −10.80; CAGR −1.61%), leaving its overall index flat (−0.36 points), while Kenya and Uganda advanced only marginally overall despite strong social gains (SGI +9.38 and +7.16, respectively).

Table 2. Globalization levels and dynamics by country and dimension, 2006-2023.

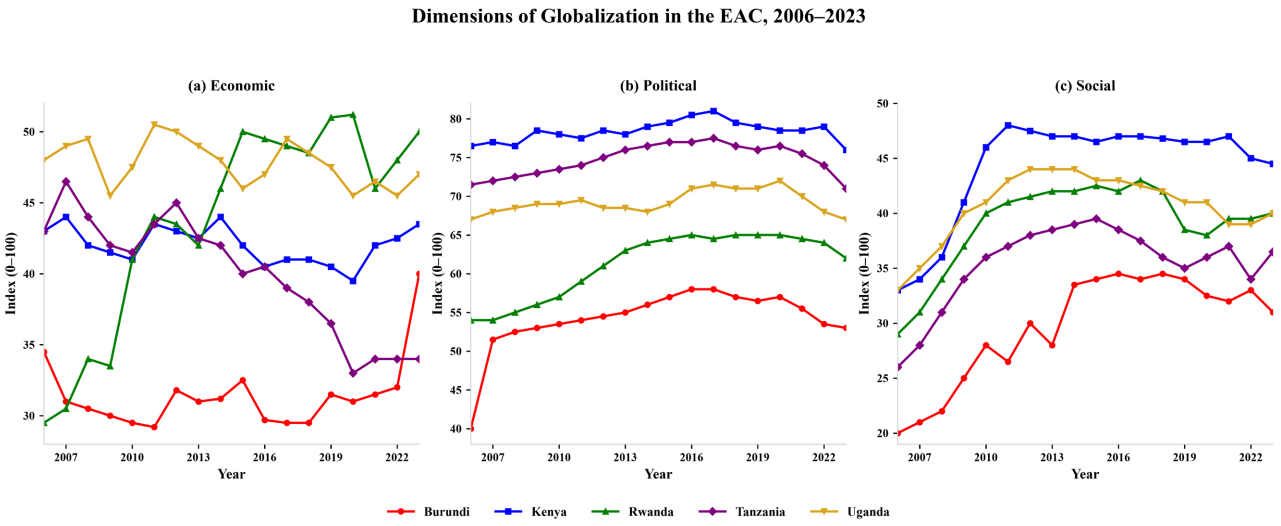
Country	Index	2006	2023	Change	CAGR (%)
Burundi	GI	31.63	40.97	+9.34	+1.53
Burundi	EGI	34.58	40.00	+5.42	+0.86
Burundi	PGI	40.07	53.20	+13.13	+1.68
Burundi	SGI	20.26	30.03	+9.77	+2.34
Kenya	GI	51.60	54.36	+2.76	+0.31

Continued

Kenya	EGI	43.05	43.00	−0.05	−0.01
Kenya	PGI	76.84	76.16	−0.68	−0.05
Kenya	SGI	34.91	44.29	+9.38	+1.41
Rwanda	GI	37.51	50.49	+12.98	+1.76
Rwanda	EGI	29.71	50.00	+20.29	+3.11
Rwanda	PGI	53.99	61.95	+7.96	+0.81
Rwanda	SGI	28.84	39.99	+11.15	+1.94
Tanzania	GI	47.56	47.20	−0.36	−0.04
Tanzania	EGI	44.80	34.00	−10.80	−1.61
Tanzania	PGI	71.69	71.04	−0.65	−0.05
Tanzania	SGI	26.19	36.55	+10.36	+1.98
Uganda	GI	49.15	51.77	+2.62	+0.31
Uganda	EGI	48.16	47.00	−1.16	−0.14
Uganda	PGI	66.58	68.85	+2.27	+0.20
Uganda	SGI	32.72	39.88	+7.16	+1.17

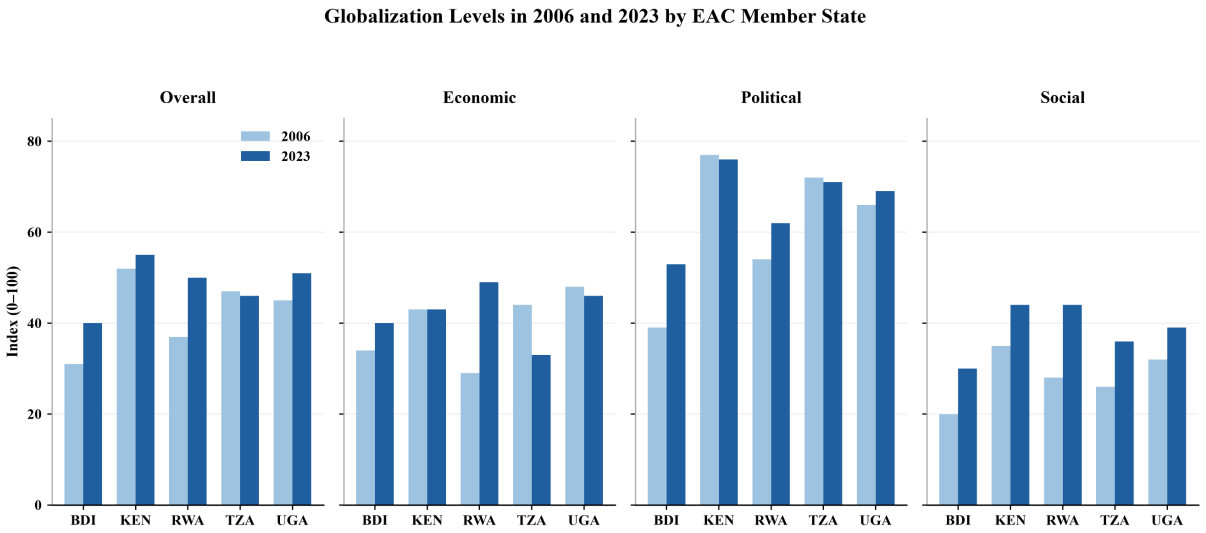
Source: TheGlobalEconomy.com; author's computations. CAGR computed per Equation (1).

The identical information, grouped by dimension, is shown in Figure 2 and Figure 3. The community-wide picture seems quite different. Political globalization is high and stable; social globalization is low but rising everywhere; economic globalization is variable and may explain the bulk of cross-country variation in outcomes.



Note: This figure shows the evolution of economic, political, and social globalization for five EAC member states (Burundi, Kenya, Rwanda, Tanzania, and Uganda) between 2006 and 2023. It indicates whether processes of globalization have increased or decreased in these countries during the period under review.

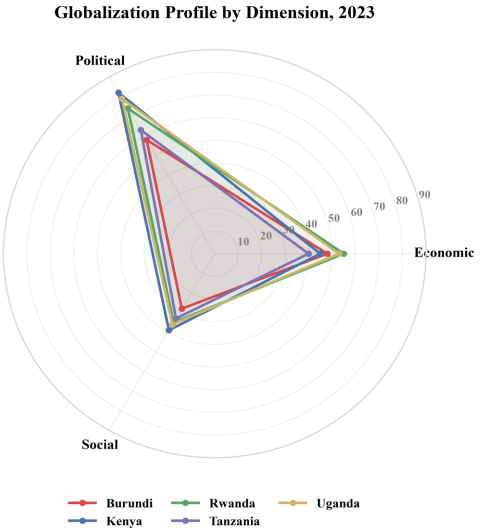
Figure 2. Dimensions of globalization in the EAC, 2006-2023: (a) economic, (b) political, (c) social.



Note: This figure provides a summary of changes in the levels of Globalization between 2006 and 2023 for EAC member states. The data show that in most countries, there was an increase in the Overall, Economic, and Social globalization scores, whilst Political globalization increased in some countries but decreased or remained stagnant in others.

Figure 3. Globalization levels in 2006 and 2023 by member state: (i) overall, (ii) economic, (iii) political, (iv) Social.

The 2023 set reveals a regional bloc having relatively higher levels of political openness, combined with relatively lower levels of economic and social openness. Broadly speaking, the same qualitative hierarchy for the three dimensions seems to hold for the bloc's members in that political openness appears deeper than both economic and social openness. This point signifies the convergence in the three dimensions' development levels across the various bloc countries, although the level of intensity may have differed, as shown in Figure 4.



Note: This figure illustrates 2023 Globalization Profiles for 5 EAC countries is shown below, displaying strong Political and Social dimensions, while exhibiting generally low performance on the Economic dimension of globalization for all member states.

Figure 4. Globalization profile by dimension, 2023 (radar chart).

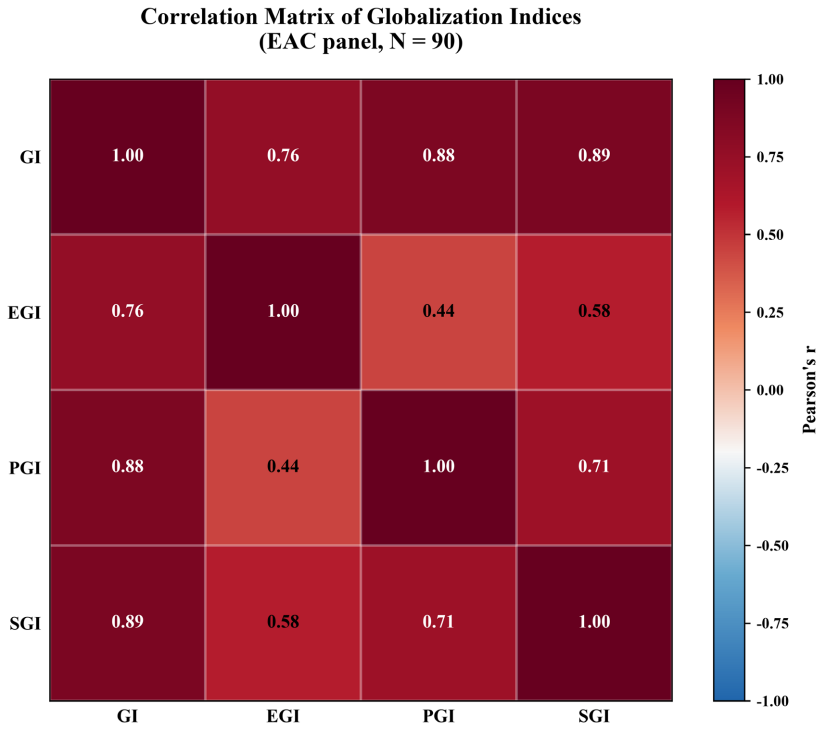
4.2. Co-Movement among Dimensions (Objective iii)

Table 3 reports pooled Pearson correlations. Overall globalization correlates strongly with each component PGI (r = 0.883), SGI (r = 0.890), EGI (r = 0.757), while the inter-component correlations are moderate to strong (0.437 - 0.708). Figure 5 visualizes the matrix. Because these correlations are computed over pooled country-years, they conflate persistent between-country differences with within-country co-movement over time and must be read as associations, not as evidence of temporal co-movement. Temporal co-movement is assessed separately through the first-difference specification reported in Table 4, which differences out persistent country characteristics; the coefficients of that specification likewise recover the construction weights of the composite rather than behavioural elasticities.

Table 3. Pearson correlation matrix of globalization indices (pooled panel, N = 90).

Types	GI	EGI	PGI	SGI
GI	1.000			
EGI	0.757	1.000		
PGI	0.883	0.437	1.000	
SGI	0.890	0.577	0.708	1.000

Source: Author's computations. All correlations are significant at $p < 0.001$.



Note: This figure represents the correlation matrix provided, showing positive relationships between the GI, EGI, PGI, and SGI for the 90-observation panel of the five study countries.

Figure 5. Correlation matrix of the four globalization indices (EAC panel, N = 90).

The composite index appears to be almost perfectly balanced, with a weighting for each component of about one-third. Specifically, the pooled OLS coefficients for EGI, PGI and SGI are 0.330, 0.336 and 0.336 respectively ($R^2 = 0.9997$). This pattern holds up when allowing for country and year fixed effects and when transforming to first differences. Also consistent with treating the composite as a monolithic aggregate, all of the intercept terms are statistically insignificant (See Table 4). These near-equal coefficients are mechanical: because the GI is constructed as an equal-weighted average of its three dimension indices, each dimension receiving a weight of one third (Gygli et al., 2019), regression coefficients of approximately one third simply recover the construction weights of the composite. The decomposition is thus an accounting consistency check and can establish neither spillovers among the dimensions nor equal substantive contributions of the dimensions to globalization outcomes.

In the growth models, the effects on growth in the globalization index of a one-point increase in the economic, political or social indices are 0.32, 0.34, and 0.34 index points, respectively (all $p < 0.001$, $R^2 = 0.9831$). These first-difference coefficients are likewise recovered construction weights rather than estimated behavioural effects. Co-movement of the three dimensions in first differences is consistent with a coupled-spillover interpretation but does not constitute evidence for it; the accounting identity underlying Equation (4) and the high multicollinearity among components preclude disentangling separate dimensional effects within this design.

Table 4. Panel estimates of the composite-index decomposition (dependent variable: GI).

Regressor	Pooled OLS	Fixed Effects (Clustered)	First Differences
EGI	0.329*** (154.3)	0.331*** (83.6)	0.319*** (44.0)
PGI	0.336*** (189.4)	0.329*** (42.8)	0.335*** (35.9)
SGI	0.336*** (121.6)	0.337*** (30.1)	0.336*** (39.5)
Intercept	−0.086 (n.s.)	0.169 (n.s.)	−0.006 (n.s.)
Country FE	No	Yes	No
Year FE	No	Yes	No
R^2	0.9997	0.9998	0.9831
N	90	90	85

Source: Author's computations. t/z statistics in parentheses; Note: ***$p < 0.001$; (n.s.) = not significant. Fixed-effects model uses cluster-robust standard errors by country. First differences: N = 85. Coefficients are interpreted as consistency weights of the composite, not causal effects (Section 3.3).

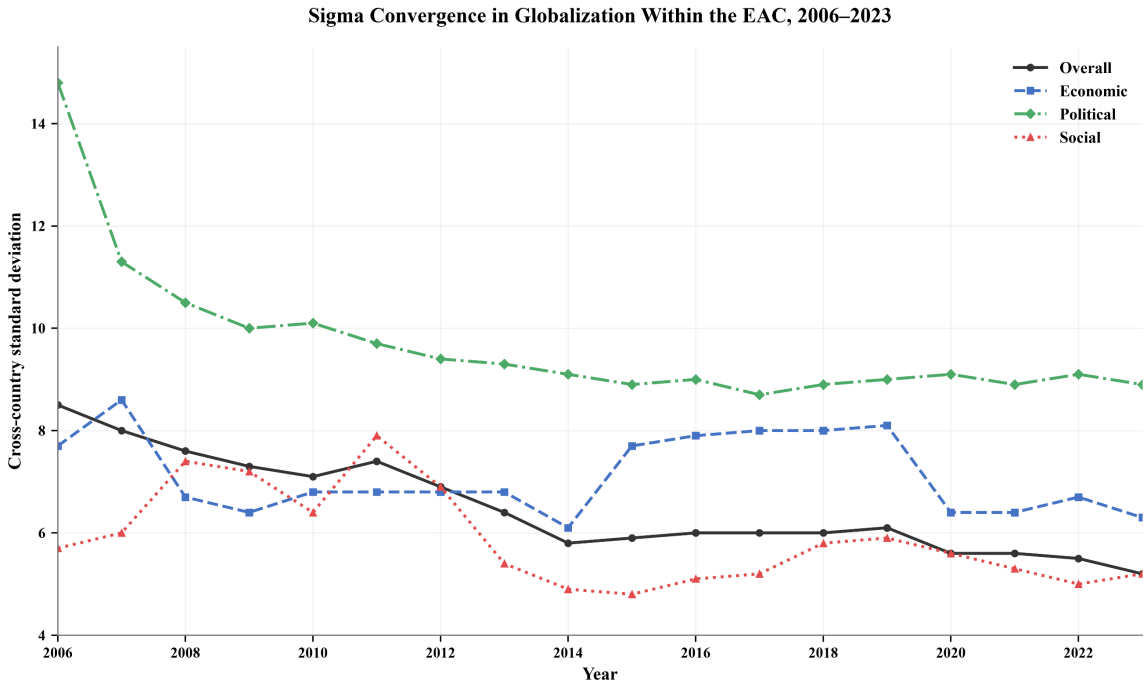
4.3. Convergence within the Community (Objective ii)

The process of sigma-convergence (visible in Figure 6) seems material. Between 2006 and 2023, cross-country standard deviation in GI fell by around 40% (from 8.53 to 5.16), while standard deviation in political globalization was cut by nearly 50% (from 14.83 to 8.90). Also, in Table 5/Figure 6, average growth from 2006 to 2023 is negatively and significantly correlated with the starting value ($\beta = -0.084$;

t = −3.33; $p = 0.045$; $R^2 = 0.787$).

The least globalized members in 2006, Rwanda (followed by Burundi), grew fastest (+1.76% and +1.53% per year, respectively); Kenya, Tanzania, and Uganda, relatively globalized at the start, stagnated or grew more slowly.

Taken together, and subject to the small-sample caveats reported below, these diagnostics are consistent with convergence within the subgroup, although they cannot rule out alternative explanations such as mean reversion or common shocks. They are reported alongside the cautionary results, the statistically insignificant intercepts in Table 4 and the small-sample warning in Table 5, in the interest of transparency rather than suppression.



Note: This figure shows how the cross-country standard deviation has been decreasing from 2006 to 2023 over the overall, economic, political, and social dimensions for EAC globalization.

Figure 6. Sigma-convergence in globalization within the EAC, 2006-2023: cross-country standard deviation by dimension.

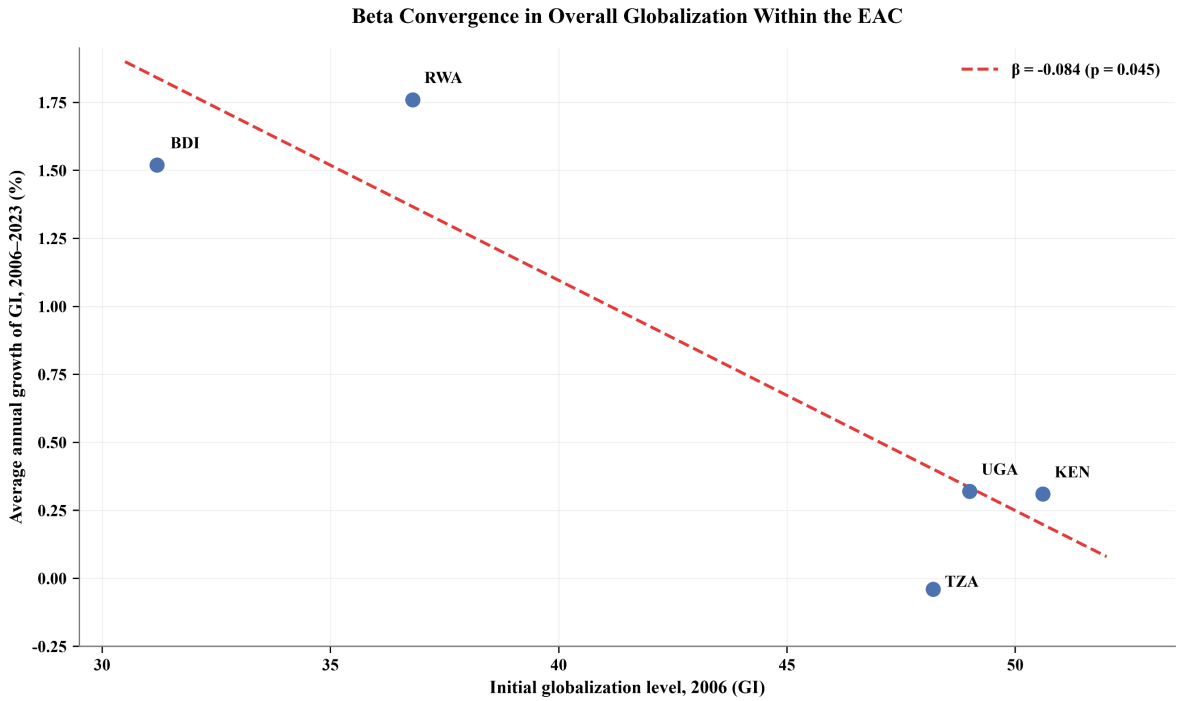
Table 5. Beta-convergence regression (dependent variable: average annual growth of GI, 2006-2023, %; Equation (3)).

Regressor	Coefficient	Std. Error	t	*p*
Constant	4.427	1.116	3.97	0.029
Initial GI (2006)	−0.084	0.025	−3.33	0.045

Source: Author's computations. $R^2 = 0.787$; n = 5 (one observation per member state); intercept and slope jointly significant at the 5% level. Coefficients per Equation (3).

Small-sample robustness. The beta-convergence regression is estimated on only five country-level observations, and the panel significance tests reported in Table 4 rely on cluster-robust standard errors with only G = 5 country clusters; with so

few clusters, cluster-robust inference is unreliable and may overstate precision (Cameron, Gelbach, & Miller, 2008). As a sensitivity check, Equation (3) was re-estimated omitting each country in turn (recomputed from the endpoint values reported in Table 2). The beta coefficient remains negative in all five leave-one-out runs, with point estimates ranging from −0.070 (omitting Rwanda) to −0.116 (omitting Burundi); the baseline estimate ($\beta = -0.084$) is therefore not driven by any single member state. However, none of the leave-one-out estimates is statistically significant at the 5% level (p-values between 0.075 and 0.127), and only four of the five are significant at the 10% level, confirming that formal significance is fragile at n = 5. Given the five-country cross-section, neither bootstrap refinements nor cluster-robust corrections can restore formal inference; the convergence diagnostics are accordingly read as suggestive rather than definitive.



Note: This figure indicates the presence of Beta Convergence in Overall Globalization in the EAC countries, which is negatively correlated. It highlights the fact that, on average, the lower the initial globalization levels of a country in 2006, the more rapidly that country grew on an annual average, as in the case of Burundi (BDI) and Rwanda (RWA) over their counterparts with higher initial levels (Uganda, Kenya, and Tanzania).

Figure 7. Beta-convergence in overall globalization within the EAC: average annual growth, 2006-2023, against the initial 2006 level.

5. Discussion

The study provides direct, unified empirical answers to the study question in Section 1. On levels and trends (Objective i), the study finds that globalization in the five study countries is well entrenched but thin and asymmetric.

Political globalization is well developed, with intense treaty membership and diplomatic interaction; social globalization trails, while economic globalization is

volatile (cf. **Table 1**, **Table 2**; **Figures 1-4**). It must be emphasized that the indices measure each country's connectivity with the world as a whole, not intra-EAC integration; the index values alone therefore cannot identify whether the observed patterns originate in regional institutions, global shocks, or domestic policy choices. This hierarchy concurs with the African reality in the existing research in that, despite the official embrace and intense political embedding into the global system, such formal political incorporation is not consistently accompanied by an economic or social embedding that can be described as transformational, not just for development but integration altogether (Zahonogo, 2018; Glennie Fosah et al., 2023; Ibietan, 2010; Dickson, 2021).

On convergence (Objective ii), the observation of sigma- and beta-convergence (**Table 5**; **Figure 6**, **Figure 7**), subject to the small-sample caveats of Section 4.3, is the primary empirical result of this study, tending towards convergence (or at least no polarization) through a "pull" effect. Viewed from the synthesized framework, this pattern is consistent with a neo-functionalist reading under which the Customs Union and Common Market trigger integration spillovers whose returns accrue disproportionately to late entrants; the study stresses that this is an interpretive hypothesis consistent with the observations, not a tested finding, because the design cannot separate the influence of regional institutions from global shocks or domestic reforms. For instance, the case of Rwanda: the latecomer can harness the membership bloc as a vehicle for global reach in time and in scale. In a transformationalist vein, the overall Globalization Index declined around 2020 for most of the five countries (**Figure 1**), and the subgroup as a whole decelerated after the mid-2010s. The 2020 episode must be stated precisely: as **Figure 2(a)** shows, the economic-globalization index in fact rose from 2019 to 2020 in Burundi and Kenya, while falling in Rwanda, Tanzania and Uganda. Movements in the economic-globalization index must also be distinguished from broader macroeconomic conditions: the index incorporates de jure policy components and trade-to-GDP ratios, so its value can rise during a macroeconomic downturn, for example, when GDP (the denominator of trade ratios) contracts faster than trade flows themselves, or when policy-openness components remain unchanged. These channels are advanced as hypotheses consistent with the observations; the index data alone cannot adjudicate among them. Subject to this qualification, the broadly synchronous movement of the five series around 2020 is consistent with the transformationalist expectation that global crises are transmitted to the subgroup in a largely undifferentiated manner (International Monetary Fund, 2022; Gopinath et al., 2024; Laborde, Martin, & Vos, 2021).

Tanzania's de-globalization (Compound Growth at −1.61%) is worth highlighting. This evidence helps illustrate how convergence in the aggregate index may mask underlying dimension regressions. An economic-nationalist turn, or inconsistency in regional policies, could in principle reverse integration gains and global connectivity even within a seemingly tightening regional bloc; however, the present index data cannot establish such a mechanism for Tanzania, and the study

advances it strictly as a hypothesis that future work with policy-level data could test (Colantone & Stanig, 2019; Rodrik, 2008; Farrell & Newman, 2020).

The observed across-the-board upward trajectory of the social dimension is pleasing in light of findings elsewhere that associate it with lower poverty and increased resilience (Omar & Inaba, 2020; Polloni-Silva et al., 2021; Kwon & Kim, 2014; Clemens et al., 2012).

It started from the lowest base, which might leave households susceptible to the effects of variations in food prices and shock transmission (Winters & Martuscelli, 2014; Ravallion, 2006; Anser et al., 2020; Awaworyi Churchill & Smyth, 2017; Khan et al., 2023).

The main contribution of this paper is based on a disciplined dual-lens analysis: a neo-functionalist lens to trace internal spillover and catch-up, and a transformationalist lens to trace the limitations of these processes via global structures. Both lenses are used as interpretive frameworks rather than tested theories. The near-identical component coefficients (**Table 4**) recover the construction weights of the composite (Section 4.2) and therefore cannot, by themselves, constitute evidence of spillovers; the co-movement of the three dimensions is consistent with spillover but does not test it. It recognizes that degrees of freedom are limited by the small-n nature of the study (five countries over 17 years) and does not claim to break or extend the statistical power, but instead carries out beta regressions with care to ensure findings do not mislead.

Furthermore, composition identities forced R of decomposition closer to unity (so the index composition Equation (4) acts as an accounting identity rather than a causal check).

Causality wasn't tested without instrumental variables (Granger, 1969; Pesaran & Yamagata, 2008). Future work will scale up the panel to the "wider" EAC (including DRC, Somalia and South Sudan) and use System-GMM to link index dimensions to poverty reduction and economic growth (Ivanic, Martin, & Zaman, 2012; De Hoyos & Medvedev, 2011; Ortiz-Ospina & Roser, 2023).

In practice, for EAC policymakers, the core issue is bridging the political and economic chasm—moving towards authentic, harmonized digital trade, investments, and mobility in factors. Promoting social and environmental elements is low-hanging fruit through digital connectivity and educational exchanges, etc., which are already in existing regional treaties. Finally, for the academy, the paper demonstrates regional communities exist as measurable integration-complexes rather than just legal-treaty structures; it reinforces that well-measured indexes on even small and well-chosen samples yield theoretical insight as long as small-sample power constraints are treated carefully in the empirical findings.

6. Conclusion

The study scrutinized the change, configuration, and convergence of social, political, and economic globalization within the EAC (EAC) context spanning 2006-

2023, focusing on five member states selected for data availability and comparability. By leveraging data provided by The Global Economy.com and implementing a mixed-methods quantitative design-comprising descriptive dynamics, convergence diagnostics, and panel estimation-the results show a moderately ascending, yet deeply asymmetrical integration among the five study countries; essentially politically open, economically shallow, and socially laggard. Results for both sigma- and beta-convergence point in the direction of catch-up, mainly reflecting the faster growth of Rwanda and Burundi relative to the stagnating or declining trajectories elsewhere, especially Tanzania on the economic dimension; given the five-country cross-section, these results are suggestive rather than definitive (Section 4.3). Consequently, the observed patterns are consistent with the hypothesis that EAC integration operates as a neo-functionalist engine of convergence under transformationalist global pressure; because the indices capture global connectivity rather than intra-regional integration, this reading is an interpretation to be tested, not a demonstrated mechanism.

The main strength of the study lies in its provision of the first harmonized tri-dimensional measurement of globalization in the bloc while also pioneering a replicable analytical methodology applicable to other African RECs. Limitations include, but are not limited to, the small cross-sectional sample, which is, moreover, a subgroup of the current EAC membership, so that community-wide generalization requires caution; the index identity and the absence of causal identification. Assessing the causal effect of each dimension on income poverty and food security under an enlarged sample through the application of instrumental-variables or GMM approaches would definitely constitute a key priority for future empirical research. In an era where geo-economic fragmentation dominates the world economy, asking if community blocks like the EAC can leverage politically open relations into shared economic and social outcomes is, therefore, more than a theoretical question—it is a critical one for regional developmental policy.

Data Availability

The dataset is publicly available from TheGlobalEconomy.com (https://www.theglobaleconomy.com/), which republishes the revised KOF Globalisation Index of the KOF Swiss Economic Institute (Gygli et al., 2019; https://kof.ethz.ch/en/forecasts-and-indicators/indicators/kof-globalisation-index.html); all derived statistics, figures and analysis code are reproducible from the source spreadsheet, which is available from the corresponding author upon reasonable request together with the Python analysis code.

Author Contributions

Alexis Nzikobanyanka conceived the study, formulated the research objectives, designed the methodology, and supervised the entire research process. Alexis Nzikobanyanka also contributed to the literature search, developed the theoretical

model, and collected the data. In addition, Alexis Nzikobanyanka contributed to data analysis, interpretation of results, preparation of tables and figures, discussion of results, validation of results, and critical revision of the manuscript. Léonidas Ndayizeye, Pacific Makuta Mwambusa, Emmanuel Kwizera, and Jean Baptiste Bukuru helped in the interpretation of the results, editing of the manuscript, and reviewing the final version of the manuscript. The authors have all read and approved the final manuscript and confirm that they are willing to be accountable for all aspects of the work.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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