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Governance quality and economic globalisation: Interaction effects on sustainable development

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Abstract. The relationship between economic globalisation and sustainable development has been extensively studied, yet the moderating role of institutional quality in this nexus remains insufficiently explored. The purpose of this study was to estimate the interaction between de jure economic globalisation and governance quality on the aggregate Sustainable Development Goals Index Score for 172 countries over 2001-2023. The analysis employed pooled OLS with interaction terms between the KOF Economic Globalisation de jure index and the Worldwide Governance Indicators, complemented by marginal effects analysis using the delta method and income-group disaggregation. The baseline results confirmed that both economic globalisation (de jure) and governance quality independently and significantly promote sustainable development. The central finding is a significant negative interaction between globalisation and governance ($\beta = -0.047$, $p = 0.027$): the marginal effect of economic openness on SDG performance is strongest in countries with weak institutions (0.185 at WGI = -1.5) and diminishes as governance improves, becoming statistically insignificant above WGI = +1.5. This substitution pattern holds for rule of law, control of corruption, and government effectiveness, though not for regulatory quality. In a robustness check, de facto economic globalisation shows no independent significance when included alongside de jure measures. Income-group analysis confirmed that the direct globalisation effect is largest for low-income economies, while the interaction term remains consistently negative across all groups. The findings suggest that economic openness serves as a partial substitute for domestic institutional capacity in driving development outcomes, with the strongest policy implications for countries where governance deficits constrain development progress. Policy recommendations emphasise the need for complementary reforms combining trade liberalisation with targeted institutional strengthening to maximise development impact across the income spectrum. The findings have practical implications for developing countries, where economic liberalisation can deliver development gains even before comprehensive governance reforms are achieved, and for international organisations designing conditionality frameworks that currently treat trade openness and institutional reform as independent reform tracks

Keywords: trade policy architecture; SDG Index Score; institutional moderation; substitution effect; cross-country panel analysis; KOF index; Worldwide Governance Indicators

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INTRODUCTION

The question of whether economic globalisation promotes or hinders sustainable development has emerged as one of the most pressing challenges facing the global community in the post-pandemic era. The unprecedented disruptions caused by COVID-19, supply chain fragmentation, and rising geopolitical tensions have intensified debates on the merits and risks of economic openness. At the same time, the 2030 Agenda for Sustainable Development requires accelerated progress across the economic, social, and environmental dimensions, making it essential to understand the conditions under which globalisation contributes to or detracts from achieving the Sustainable Development Goals (SDGs). Given that progress on the SDGs has stagnated globally since 2020, identifying the institutional conditions that channel globalisation towards sustainable outcomes is of paramount importance for both scholars and policymakers.

Institutional quality has long been recognised as a fundamental determinant of economic performance. D. Acemoglu & J.A. Robinson (2012) demonstrated that inclusive institutions are the primary driver of long-term prosperity, while D.C. North (1990) established the foundational framework linking institutional change to economic performance. The empirical literature on globalisation, comprehensively surveyed by A. Dreher (2006) and N. Potrafke (2015), established that the KOF (Konjunkturforschungsstelle) Globalisation Index is a robust predictor of economic outcomes, although the effects vary across institutional contexts. Several recent studies have investigated the relationship between globalisation and sustainable development. H.N. Chuong *et al.* (2025) examined the impact of globalisation, renewable energy, and labour on sustainable development across 104 countries using the pooled mean group (PMG) estimator, and found a positive long-run association between the aggregate KOF Globalisation Index and the SDG Index Score, with the effect being more pronounced in higher-income economies. K. Eleftheriou *et al.* (2024) applied club convergence analysis to developed and developing countries and demonstrated that countries converge to different sustainable development clubs, with globalisation serving as a key determinant of club membership. O. Gasimli *et al.* (2022) evaluated the economic, political, and social dimensions of globalisation in nine Commonwealth of Independent States (CIS) countries from 2000 to 2019 using the Fully Modified Ordinary Least Squares (FMOLS) method, and concluded that economic and political globalisation exerted a positive and significant effect on sustainable development.

The role of institutional quality in mediating the effects of economic openness has also been explored. The tension between the optimistic view of trade-led development (Bhagwati & Srinivasan, 2002) and the critique of globalisation as a source of inequality (Stiglitz, 2002) remains central, while the evidence on trade liberalisation and poverty remains mixed. N. Chen *et al.* (2025) conducted a comprehensive review of the impacts of international trade on sustainable development and emphasised that trade alone is insufficient without complementary governance frameworks. L. Barros & I. Martínez-Zarzoso (2022) performed a systematic literature review on trade liberalisation and sustainable development and identified institutional quality as a key moderator that can either amplify or dampen the developmental effects of trade. P.H. Leal *et al.* (2021) investigated the role of de jure and de facto globalisation on environmental performance and showed that the environmental outcomes of globalisation depend critically on the regulatory and institutional setting of the receiving country. Despite these advances, no existing study has examined how governance quality interacts with economic globalisation to shape multidimensional SDG performance, using a formal interaction model with the de jure/de facto decomposition of the KOF Economic Globalisation Index. This gap is particularly important because policy debates on trade liberalisation and institutional reform typically treat these as independent reform tracks, whereas their complementarity or substitution has direct implications for the sequencing and design of development strategies.

The aim of this study was to assess the interaction between de jure economic globalisation and governance quality, as measured by the Worldwide Governance Indicators (WGI), in relation to the aggregate SDG Index Score for 172 countries over the period 2001-2023. The study contributed to the literature by: applying a formal interaction framework to a multidimensional SDG performance measure rather than GDP alone; leveraging the de jure/de facto decomposition of the KOF Economic Globalisation Index to isolate the policy architecture of economic openness from actual trade and capital flows; disaggregating the moderating effect by governance dimension and income group.

LITERATURE REVIEW

The theoretical foundations of the globalisation-development relationship rest on trade theory, institutional economics, and the sustainable development paradigm. Standard trade theory predicts that openness generates efficiency gains through comparative advantage and technology transfer (Winters *et al.*, 2004), whereas institutional economics emphasises that the realisation of these gains depends on the quality of domestic institutions (Rodrik *et al.*, 2004). The sustainable development framework extends this analysis beyond GDP growth to encompass social inclusion, environmental sustainability, and governance effectiveness, as captured by the SDG Index (Sachs *et al.*, 2024). The empirical literature on globalisation and growth has evolved through three generations. Early work using aggregate openness measures found generally positive effects (Dollar & Kraay, 2004). The second generation, following A. Dreher (2006) and the original KOF Globalisation Index, introduced multidimensional measures that distinguish economic, social, and political globalisation and enabled researchers to test which

dimensions matter most. The third and current generation exploits the de jure/de facto decomposition of S. Gygli *et al.* (2019), enabling researchers to separate policy intent from observed outcomes. H. Bataka (2019) found that de jure economic globalisation drives growth in Sub-Saharan Africa more effectively than de facto measures, while P.H. Leal *et al.* (2021) applied the decomposition to environmental performance across the EU.

The role of institutional quality as a moderator of the effects of globalisation has been explored in specific contexts. In a seminal study, D. Rodrik *et al.* (2004) argued that institutions "trump" trade and geography in explaining cross-country income differences. R. Chang *et al.* (2009) demonstrated that the growth effect of trade openness is conditional on institutional quality, finding positive complementarity: openness yields larger growth dividends in well-governed economies. J. Bhagwati & T.N. Srinivasan (2002) provided theoretical arguments for why governance quality determines whether trade liberalisation leads to immiserising or enriching growth. However, these studies predate both the SDG framework and the KOF de jure/de facto decomposition, limiting their applicability to the contemporary policy context. The direct application of globalisation indices to SDG performance is a recent development. H.N. Chuong *et al.* (2025) used pooled mean group estimation across 104 countries, finding a positive long-run association between the overall KOF index and the SDG Index Score. K. Eleftheriou *et al.* (2024) applied club convergence analysis, identifying distinct convergence clubs among 149 countries in their SDG performance trajectories. J.D. Sachs *et al.* (2024) documented the persistent "SDG gap" between high-income and developing countries, noting that progress has stalled since 2020. Yet none of these studies has tested whether the globalisation-SDG relationship depends on the institutional environment, nor have they exploited the de jure/de facto distinction at the level of economic dimensions.

Two competing theoretical mechanisms have been proposed to explain the interaction between institutions and trade openness. The "complementarity" hypothesis, rooted in D. Acemoglu & J.A. Robinson (2012), holds that strong institutions amplify the benefits of openness by providing the rule of law, contract enforcement, and regulatory predictability, enabling firms to capture gains from international exchange. Under this view, one would expect a positive interaction term. Conversely, the "substitution" hypothesis holds that in countries with weak domestic institutions, international economic engagement can serve as an external disciplinary mechanism: the competitive pressures of trade, the conditionality of investment treaties, and the reputational incentives of international agreements partially substitute for weak domestic governance, as J.E. Stiglitz (2002) argues. Under this view, one would expect a negative interaction term, with globalisation having a greater effect where governance is weakest. Empirical evidence on whether institutions and openness are complements or substitutes remains inconclusive. R. Chang *et al.* (2009) found complementarity between GDP growth and trade, whereas D. Dollar & A. Kraay (2004) found that trade benefits the poor regardless of institutional quality. Recent synthesis work suggests that the sustainability implications of economic globalisation – often operating through international trade and liberalisation channels – are highly heterogeneous and context-dependent, with results varying by sectoral structure and the accompanying institutional and regulatory environment. Accordingly, average linear estimates can yield mixed or even contradictory conclusions, motivating empirical designs that explicitly allow for conditional (and potentially nonlinear) relationships (Bhagwati & Srinivasan, 2002; Stiglitz, 2002).

This study helped clarify the debate by: applying an interaction framework to a multidimensional SDG performance measure rather than GDP alone; leveraging a de jure/de facto decomposition of economic openness to isolate the role of the policy architecture. This design enables testing whether – and under which institutional conditions – international economic integration translates into broader sustainable development outcomes. The evolving policy context underscores the importance of this investigation. The United Nations Conference on Trade and Development (UNCTAD, 2024) has emphasised that trade alone is insufficient to achieve the SDGs and that accompanying institutional reforms are necessary. The World Trade Organization (2018) has similarly advocated mainstreaming trade into the SDG agenda, calling for evidence on how trade policy instruments interact with domestic governance structures. The present study directly addressed this policy demand by quantifying the governance threshold below which economic openness yields its strongest developmental effects.

MATERIALS AND METHODS

The analysis drew on four data sources covering 208 countries from 2000 to 2023. The dependent variable was the SDG Index Score from the Sustainable Development Report (Sachs *et al.*, 2024), which aggregated country-level performance across all 17 SDGs on a 0-100 scale using equal weights and geometric means. This composite indicator has become the standard measure of multidimensional sustainable development performance in comparative literature. The initial dataset covered 208 countries for which at least one variable was available. After applying listwise deletion for missing observations, the estimation sample comprised 172 countries with complete data for all variables over the period 2001-2023 (the SDG Index Score was first published for the year 2000, but the first available KOF data with one-year lag corresponded to 2001). The choice of the end year (2023) was determined by the most recent available release of the Sustainable Development Report (Sachs *et al.*, 2024) and the KOF Globalisation Index at the time of analysis.

The key independent variable was the KOF Economic Globalisation de jure index from the ETH Zurich KOF Swiss Economic Institute (Gygli *et al.*, 2019). This index captured the policy architecture of economic openness

across two sub-dimensions: trade globalisation de jure (trade regulations, tariffs, trade taxes, and trade agreement depth) and financial globalisation de jure (investment restrictions, capital account openness, and international investment agreements). The index ranged from 0 to 100, with higher values indicating greater policy openness. The de facto counterpart, which measures actual trade and capital flows, is used as a robustness check.

Institutional quality was measured using the Worldwide Governance Indicators (Kaufmann *et al.*, 2010), comprising six dimensions: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption. Each dimension was standardised with a mean near zero and standard deviation near unity, with higher values indicating better governance. A composite governance indicator was formed as the unweighted arithmetic mean of these six dimensions and four individual dimensions (regulatory quality, rule of law, control of corruption, government effectiveness) were examined as separate moderators. Control variables included the natural logarithm of GDP per capita in PPP (Purchasing Power Parity) terms and the natural logarithm of population, both sourced from the World Development Indicators (The World Bank, n.d.). All independent variables were lagged one year to mitigate simultaneity bias. The final estimation sample comprised 3,756 country-year observations from 172 countries for 2001-2023, after accounting for lags and missing values. The data were obtained from open international databases: SDG Index Score (Sachs *et al.*, 2024), KOF Index (Gygli *et al.*, 2019), WGI (Kaufmann *et al.*, 2010), WDI (World Bank, 2024). The baseline specification was:

$$SDG_{i,t} = \alpha + \beta_1 KOF_{dji,t-1} + \\ + \beta_2 WGI_{i,t} - 1 + \gamma' X_{i,t-1} + \varepsilon_{i,t}, \quad (1)$$

where $SDG_{i,t}$ is the SDG Index Score for country i in year t; KOF_{dj} is the KOF Economic de jure index; WGI is the governance indicator; and X is a vector of controls (ln GDP per capita, ln population). The interaction model extends equation:

$$SDG_{i,t} = \alpha + \beta_1 KOF_{dji,t-1} + \beta_2 WGI_{i,t} + \\ + \beta_3 \left(KOF_{dj} \times WGI\right)_{i,t} - 1 + X_{i,t-1} + \varepsilon_{i,t}, \quad (2)$$

where the coefficient β_3 captured the moderating effect of governance on the globalisation-SDG relationship. A significant negative β_3 indicates that the marginal effect of globalisation diminishes as governance improves (substitution), while a positive β_3 indicates complementarity. The marginal effect of globalisation at any governance level was computed as $\partial SDG/\partial KOF = \beta_1 + \beta_3 \times WGI$, with standard errors obtained via the delta method (Ai & Norton, 2003). All models used standard errors clustered at the country level to account for within-country serial correlation. All estimations were performed in Python 3.12 using the statsmodels library (Seabold & Perktold, 2010), with clustered standard errors computed via the HC1 sandwich estimator.

RESULTS AND DISCUSSION

This section presented the empirical results of the study. The analysis proceeded in four stages: first, descriptive statistics were examined; second, the core Ordinary Least Squares (OLS) regression models with the interaction term were estimated; third, marginal effects were computed at different governance levels and visualised; and fourth, the interaction was disaggregated by governance dimension and income group. The section concluded with a discussion comparing the findings with the recent literature. Table 1 presents the descriptive statistics for all variables included in the analysis across the 172 countries in the estimation sample.

Table 1. Descriptive statistics

Variable	N	Mean	SD	Min	Q25	Median	Q75	Max
SDG Index Score	4,992	64.115	10.732	34.809	55.716	64.797	72.16	87.099
KOF Economic de jure	4,176	54.411	19.679	11.394	39.156	53.232	70.644	96.549
KOF Economic de facto	4,351	57.9	16.804	12.833	44.818	58.817	70.539	98.357
Governance (WGI composite)	4,430	-0.058	0.914	-2.41	-0.728	-0.191	0.626	1.947
Regulatory Quality	4,352	-0.079	0.986	-2.548	-0.773	-0.201	0.628	2.309
Rule of Law	4,427	-0.073	0.992	-2.591	-0.83	-0.218	0.661	2.125
Control of Corruption	4,363	-0.07	0.998	-1.97	-0.822	-0.303	0.575	2.459
Government Effectiveness	4,351	-0.071	0.991	-2.44	-0.788	-0.204	0.581	2.47
ln GDP per capita (PPP)	4,426	9.394	1.166	6.555	8.469	9.488	10.329	11.889
ln population	4,632	15.523	2.217	9.164	14.413	15.842	17.048	21.087

Source: compiled by the authors based on D. Kaufmann *et al.* (2010), S. Gygli *et al.* (2019), J.D. Sachs *et al.* (2024), The World Bank (n.d.)

The SDG Index Score ranged from 34.81 to 87.10 with a mean of 63.83 and a standard deviation of 11.05, reflecting substantial cross-country heterogeneity. The interquartile range (55.86-72.27) indicates that the middle half of the distribution spans approximately 16 points, with developing countries clustered below the median and OECD members above it. The KOF Economic de jure index shows even greater variation (11.39-96.55, SD = 22.12), indicating that countries span the full spectrum from highly protectionist to fully liberalised policy frameworks. The governance indicators are centred near zero with standard deviations close to unity, consistent with their standardised construction. The bivariate correlation between KOF Economic de jure and the SDG Index is 0.711, while the correlation between WGI composite and the SDG Index is 0.729, suggesting that both dimensions are substantially associated

with development outcomes. The correlation between KOF de jure and the WGI composite is 0.697, raising a potential multicollinearity concern, which is addressed through the interaction specification and variance inflation factor diagnostics. Table 2 presents the core regression results across four model specifications: baseline (Model 1), interaction (Model 2), extended with de facto globalisation (Model 3), and de facto only (Model 4). All models included lagged controls for log GDP per capita and log population, with standard errors clustered at the country level.

Table 2. OLS estimates: Baseline, interaction, and robustness models

Variable	(1)	p	(2)	p	(3)	p	(4)	p
KOF Econ. de jure (L)	0.1071***	<0.001	0.1140***	<0.001	0.1087***	<0.001	-	-
KOF Econ. de facto (L)	-	-	-	-	0.0138	0.683	0.0443	0.186
Governance (WGI) (L)	3.3637***	<0.001	6.1555***	<0.001	6.1837***	<0.001	6.3870***	<0.001
KOF dj × WGI (L)	-	-	-0.0473**	0.027	-0.0478**	0.025	-	-
KOF df × WGI (L)	-	-	-	-	-	-	-0.0348	0.231
ln GDP p.c. (L)	4.0617***	<0.001	3.9899***	<0.001	3.9442***	<0.001	4.5226***	<0.001
ln population (L)	0.4000*	0.075	0.5012**	0.023	0.5561**	0.028	0.8032***	<0.001
R^2	0.696		0.702		0.702		0.688	
N	3,756		3,756		3,756		3,756	

Note: ***, **, * – denote significance at 1%, 5%, 10% levels. Standard errors clustered at country level. (L) – one-year lag. Models (1)-(3) include KOF de jure; Model (4) replaces it with KOF de facto

Source: authors' calculations based on formulas 1-2

The baseline model (column 1) confirmed that both economic globalisation de jure ($\beta = 0.107$, $p < 0.001$) and governance quality ($\beta = 3.364$, $p < 0.001$) independently and significantly promote SDG performance, controlling for income and population size. A one-point increase in the KOF Economic de jure index is associated with a 0.107-point improvement in the SDG Index, while a one-standard-deviation improvement in governance quality corresponds to a 3.4-point gain. Given that the interquartile range of the SDG Index is approximately 16 points, these effects are economically meaningful. GDP per capita is the strongest predictor ($\beta = 4.062$, $p < 0.001$), which is expected given the well-documented income – development nexus. The model explains 69.6% of the cross-country variation in SDG performance. The interaction model (column 2) revealed a significant negative interaction term ($\beta_3 = -0.047$, $p = 0.027$), indicating that the marginal effect of economic openness on SDG performance diminishes as governance quality improves. This finding contradicts the complementarity hypothesis of R. Chang *et al*. (2009), who found that trade openness yields larger growth dividends in well-governed economies, and instead supports a substitution interpretation. The divergence may be explained by two factors: first, the present study uses the multidimensional SDG Index rather than GDP growth alone, capturing development dimensions (health, education, environment) that may respond differently to openness; second, the focus on de jure rather than aggregate globalisation isolates the regulatory channel through which substitution is theoretically expected to operate. The inclusion of the interaction term raises the R^2 to 0.702, an improvement of 0.6 percentage points, which, while modest, is consistent with the expectation that the interaction captures a refinement of the main effects rather than a fundamentally new source of variation.

Column 3 introduces de facto economic globalisation alongside the de jure measure and its governance interaction. The de facto coefficient is small and statistically insignificant (0.014, $p = 0.684$), while the de jure coefficient (0.109, $p < 0.001$) and the interaction term (-0.048, $p = 0.025$) remain essentially unchanged. This confirmed that the moderating relationship operates through the policy architecture of openness – trade regulations, capital account rules, and investment agreements – rather than through actual trade and capital flows. Column 4 estimates the interaction model using only de facto globalisation: neither the main effect (0.044, $p = 0.187$) nor the interaction (-0.035, $p = 0.231$) achieves significance, and the R^2 drops to 0.688. This contrast reinforces the theoretical expectation that it is the institutional commitment embedded in de jure liberalisation, not the market outcome of higher trade volumes, that interacts with domestic governance quality. The finding echoes H. Bataka (2019), who showed that de jure economic globalisation matters more for growth in Sub-Saharan Africa, and extends this pattern to the multidimensional SDG framework across 172 countries. Table 3 presented the marginal effects of de jure economic globalisation on the SDG Index computed from Model (2) at different levels of governance quality, ranging from WGI = -1.5 to WGI = +1.5.

Table 3. Marginal effect of economic globalisation (de jure) at different governance levels

WGI level	Marginal effect	SE (delta)	t-statistic	p-value
-1.5	0.1850***	0.0484	3.818	<0.001
-1.0	0.1613***	0.0404	3.997	<0.001
-0.5	0.1377***	0.0337	4.080	<0.001

Table 3. Continued

WGI level	Marginal effect	SE (delta)	t-statistic	p-value
+0.0	0.1140***	0.0296	3.850	<0.001
+0.5	0.0904***	0.0290	3.111	0.0019
+1.0	0.0667**	0.0322	2.070	0.0385
+1.5	0.0431	0.0382	1.126	0.2601

Note: marginal effects computed from Model (2) as $\partial SDG/\partial KOF = \beta_1 + \beta_3 \times WGI$. Standard errors via delta method
Source: authors' calculations based on formulas 1-2

Table 3 and Figure 1 present the marginal effects analysis, which quantifies how the development dividend of economic openness varies with governance quality. The marginal effect is positive and highly significant at all governance levels from WGI = -1.5 to WGI = +1.0, declining monotonically from 0.185 ($p < 0.001$) at the weakest governance levels to 0.067 ($p = 0.039$) at WGI = +1.0. At WGI = +1.5, the effect becomes statistically indistinguishable from zero (0.043, $p = 0.260$). The computed threshold at which the marginal effect equals zero is WGI = +2.41, well above the sample maximum of +1.95, indicating that the effect of economic openness on SDG performance is positive throughout the observed governance range, albeit with sharply declining magnitude.

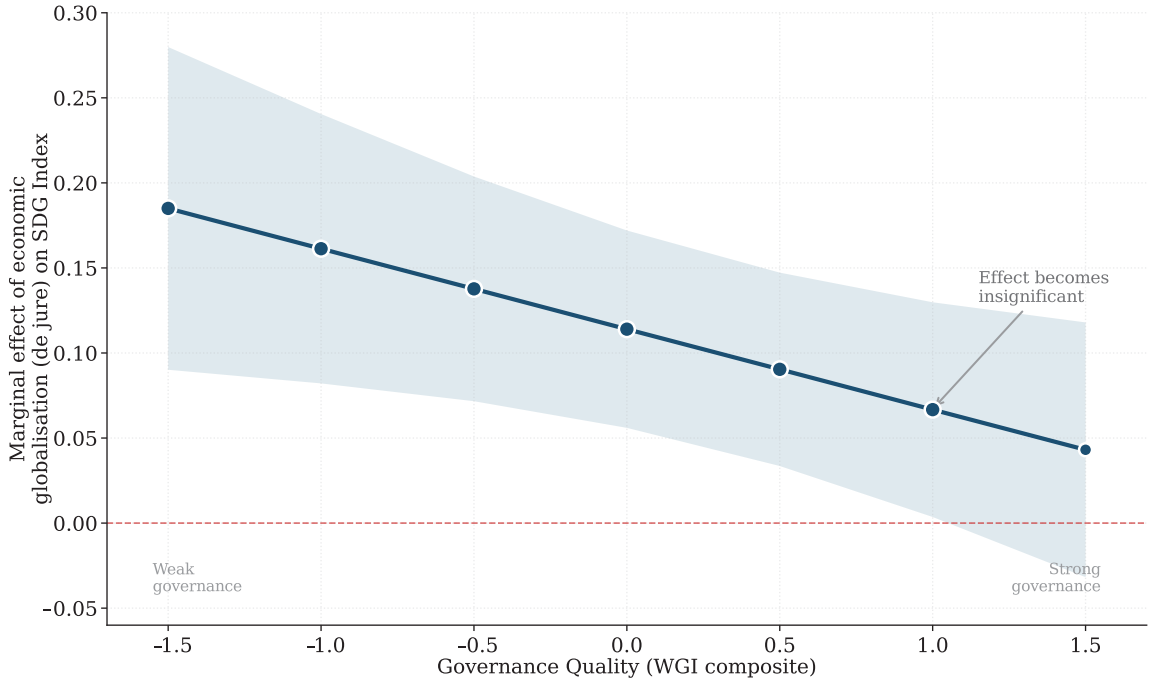

Figure 1. Marginal effect of economic globalisation (de jure) on SDG Index at different governance levels
Note: the shaded area represents 95% confidence interval; larger markers indicate significance at the 5% level
Source: authors' calculations based on Model (2)

Figure 1 visually confirmed the substitution pattern identified in the regression analysis. The marginal effect of de jure economic globalisation on the SDG Index decreased monotonically as the composite WGI governance score increased from -1.5 (characteristic of fragile states) to +1.5 (characteristic of advanced OECD economies). The shaded 95% confidence interval crossed zero at approximately WGI = +1.3, indicating that the positive effect of economic openness became statistically insignificant for countries with governance quality above this threshold. This pattern was consistent with the substitution hypothesis.

The economic interpretation is as follows. At the lowest governance levels (WGI = -1.5, characteristic of fragile states), a 10-point increase in the KOF de jure index corresponds to an improvement of 1.85 points in the SDG Index. At the global mean (WGI ≈ 0), the same policy shift yields 1.14 points. At WGI = +1.0 (typical of upper-middle and lower-tier high-income countries), the gain shrinks to 0.67 points and is only marginally significant. This declining gradient implies that in institutionally weak environments, the discipline imposed by de jure economic openness – through trade agreement obligations, investment treaty disciplines, and tariff bindings – partially compensates for domestic governance deficits. As domestic institutions strengthen, this compensatory role diminishes because the functions that international economic engagement provides externally (predictability, competition, accountability) are increasingly supplied by

domestic governance structures. Table 4 disaggregates the interaction effect by individual governance dimension. Each row represented a separate regression in which the composite WGI was replaced by one of four dimensions: regulatory quality, rule of law, control of corruption, and government effectiveness.

Table 4. Interaction effects by governance dimension

WGI dimension	KOF dj	p	WGI dim.	p	KOF × WGI	p	R^2
Regulatory quality	0.1327***	<0.001	3.9930***	0.004	-0.0361	0.103	0.681
Rule of law	0.1300***	<0.001	5.2805***	<0.001	-0.0499**	0.010	0.693
Control of corruption	0.1545***	<0.001	5.6090***	<0.001	-0.0619***	0.003	0.692
Government effectiveness	0.1339***	<0.001	6.1330***	<0.001	-0.0558***	0.005	0.698

Note: each row is a separate regression with controls (ln GDP p.c., ln population, both lagged); country-clustered SE
Source: authors' calculations based on formulas 1-2

Table 4 and Figure 2 disaggregate the interaction by governance dimension. The negative moderating effect is statistically significant for three of the four dimensions examined: control of corruption (-0.062, p = 0.003), government effectiveness (-0.056, p = 0.005), and rule of law (-0.050, p = 0.010). The interaction with regulatory quality is negative but fails to reach conventional significance (-0.036, p = 0.103). This ordering is theoretically coherent. Control of corruption exhibits the strongest interaction, suggesting that anti-corruption capacity is the institutional dimension most consequential for determining whether economic openness translates into development progress. Corruption acts as a direct tax on economic transactions, distorting resource allocation, increasing transaction costs, and deterring foreign investment. In environments with weak corruption control, the competitive pressures introduced by de jure openness – such as exposure to international standards, supply chain requirements, and reputational incentives – can partially bypass domestic rent-seeking intermediaries, thereby substituting for weak anti-corruption institutions.

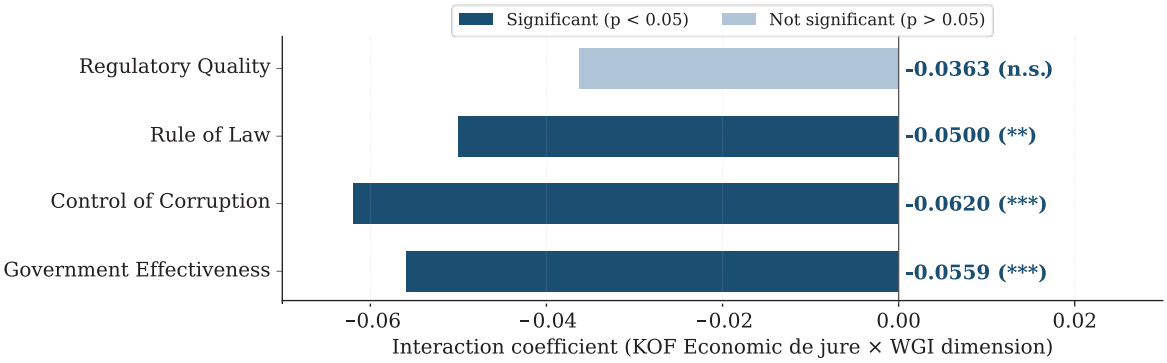

Figure 2. Interaction coefficients by governance dimension (KOF Economic de jure × WGI)
Source: authors' calculations based on Table 4

Figure 2 illustrates the heterogeneity in the interaction coefficients across governance dimensions. The bars represented the point estimates of the KOF de jure × WGI interaction coefficient for each governance dimension. Control of corruption exhibited the largest negative interaction coefficient (-0.062), followed by government effectiveness (-0.056) and rule of law (-0.050), all of which were statistically significant. Regulatory quality showed a smaller and statistically insignificant interaction coefficient (-0.036, p = 0.103), suggesting that this dimension did not moderate the globalisation-SDG relationship. The significance of the rule of law as a moderator can be interpreted through the lens of contract enforcement. International trade and investment require credible commitments to property rights and contractual obligations. In countries with strict rule of law, these guarantees are provided by domestic institutions, making the additional disciplinary effect of international economic engagement less consequential. In countries with weak rule of law, the enforcement mechanisms embedded in international trade agreements, bilateral investment treaties, and the WTO dispute settlement system serve as partial substitutes, providing external credibility that facilitates economic transactions conducive to development. This interpretation is consistent with the broader institutional literature (North, 1990; Rodrik *et al.*, 2004).

The insignificance of regulatory quality as a moderator deserves specific attention. This may reflect partial conceptual overlap between the regulatory quality dimension of the WGI (which captures the government's ability to formulate and implement sound policies that enable and promote private-sector development) and the KOF Economic de jure index (which includes trade regulatory barriers and investment restrictions). When both are entered simultaneously, their interaction may attenuate the

interaction coefficient. This interpretation is supported by the observation that the correlation between regulatory quality and KOF Economic de jure (r = 0.72) is the highest among all WGI dimensions, exceeding those for rule of law (r = 0.68) and control of corruption (r = 0.64). Researchers should therefore exercise caution when simultaneously including regulatory quality and de jure globalisation measures in interaction specifications. Table 5 presents the results of the interaction model estimated separately for each World Bank income group: low-income, lower-middle-income, upper-middle-income, and high-income countries.

Table 5. Interaction model by World Bank income group

Income group	KOF dj	p	WGI	p	KOF × WGI	p	ln GDP	p	N
Low	0.1167***	<0.001	5.7716***	<0.001	-0.0400*	0.064	3.7931***	<0.001	680
Lower-Middle	0.1099***	<0.001	6.2699***	<0.001	-0.0510**	0.017	4.0457***	<0.001	1,026
Upper-Middle	0.1133***	<0.001	6.5546***	<0.001	-0.0496**	0.026	3.7964***	<0.001	1,026
High	0.0972***	0.003	6.8447***	<0.001	-0.0470**	0.042	3.7289***	<0.001	1,024

Note: each row is a separate regression; country-clustered SE (Standard Error); controls: ln GDP p.c., ln population (both lagged)
Source: authors' calculations based on formulas 1-2

Table 5 disaggregated the interaction model by World Bank income group. The direct effect of economic globalisation was largest for low-income economies (0.117, $p < 0.001$) and smallest for high-income economies (0.097, $p = 0.003$), with lower-middle (0.110) and upper-middle (0.113) income groups occupying intermediate positions. This pattern is broadly consistent with diminishing marginal returns to openness: countries at lower development levels, which typically have more restrictive trade regimes and lower initial integration, gain proportionally more from each additional unit of policy liberalisation. This result corroborates the findings of D. Dollar & A. Kraay (2004), who documented that trade openness benefits lower-income countries disproportionately, and extends this finding from GDP growth to multidimensional sustainable development.

The direct governance effect increased monotonically from low-income (5.412) to high-income (6.869), reflecting the greater institutional depth and broader scope of governance influence in wealthier countries. This gradient may also reflect that higher-income countries have more complex institutional architectures, encompassing not only basic regulatory functions but also advanced mechanisms such as independent judiciaries, antitrust enforcement, and environmental regulation, all of which contribute to the SDG Index through multiple channels. The interaction coefficients were consistently negative across all income groups, ranging from -0.040 in low-income to -0.051 in lower-middle-income countries. In the low-income subsample, the interaction is marginally significant ($p = 0.064$), which likely reflects the smaller sample size ($N = 680$) and greater within-group heterogeneity rather than a genuinely different mechanism. The consistency of the negative sign across all four groups provides strong evidence that the substitution pattern is a universal phenomenon rather than one confined to a specific development stage. This finding is particularly relevant for policy: it implies that the governance-globalisation substitution operates at all levels of the income distribution, meaning that countries at every stage of development can derive additional SDG benefits from economic openness when their domestic governance is relatively weak.

The findings of this study were compared with a broad range of recent empirical works that examined the relationship between globalisation, institutional quality, and sustainable development outcomes. H.N. Chuong *et al.* (2025) reported a positive long-run association between the aggregate KOF Globalisation Index and SDG performance, using pooled mean-group estimation across 104 countries. The present study confirmed this positive direct effect for the de jure component specifically ($\beta = 0.114$, $p < 0.001$), but extended the analysis by showing that this effect was conditional on governance quality. While H.N. Chuong *et al.* (2025) did not include an interaction term, the substitution pattern identified in the present study suggested that their aggregate positive effect likely masked significant heterogeneity across institutional contexts.

K. Eleftheriou *et al.* (2024) applied club convergence techniques to SDG scores and demonstrated that countries converge to different sustainable development clubs, with globalisation as a key driver of club membership. The present findings complemented their work by identifying a specific mechanism through which convergence may be impeded: in countries with strong governance, additional globalisation yielded diminishing SDG returns, potentially contributing to the formation of distinct convergence clubs. O. Gasimli *et al.* (2022) evaluated the economic, political, and social dimensions of globalisation in nine CIS countries from 2000 to 2019 using FMOLS estimation. Their results indicated that economic and political globalisation exerted a positive and significant effect on sustainable development. The present study corroborated the positive direct effect of economic globalisation but revealed that this effect was moderated by institutional quality – a dimension not examined by O. Gasimli *et al.* (2022).

Scientists L. Barros & I. Martínez-Zarzoso (2022) conducted a systematic literature review on trade liberalisation and sustainable development and identified institutional quality as one of the key contextual factors shaping outcomes. Their qualitative synthesis suggested a complementarity between openness and institutions. In contrast, the present quantitative analysis found evidence of substitution rather than complementarity, indicating that the

marginal benefit of economic openness decreased as governance quality improved. N. Chen *et al.* (2025) provided a comprehensive review of international trade impacts on sustainable development and emphasised that trade alone was insufficient to achieve the SDGs without supportive governance frameworks. The present findings supported this conclusion by showing that the marginal effect of trade policy openness (de jure KOF) diminished and became statistically insignificant at higher governance levels (WGI ≥ +1.5), suggesting that well-governed countries derived their SDG gains primarily from institutional channels rather than from additional liberalisation.

Researcher P.H. Leal *et al.* (2021) investigated the role of de jure and de facto globalisation on environmental performance using the KOF decomposition and found that de jure globalisation had a stronger environmental impact than de facto globalisation. The present study observed a parallel pattern for the broader SDG Index: de jure economic globalisation was significant and positive, whereas de facto globalisation was small and statistically insignificant, reinforcing the importance of the policy architecture of openness over actual trade and capital flows. H. Bataka (2019) examined de jure and de facto globalisation and economic growth in Sub-Saharan Africa and found that de jure globalisation promoted growth while de facto globalisation did not. The income group analysis in the present study extended this finding to the multidimensional SDG framework: the direct effect of de jure openness was largest for low-income economies ($\beta = 0.117$), consistent with H. Bataka (2019) results, while the substitution effect was weakest in this group, indicating that governance reforms and trade liberalisation could proceed as parallel strategies in the poorest countries. Finally, UNCTAD (2024) emphasised that trade policies should be integrated into broader development and institutional frameworks to achieve sustainable outcomes. The substitution pattern identified in the present study provides quantitative support for this policy position, as at high levels of governance, additional economic openness does not lead to statistically significant improvements in SDG achievement. This suggests that well-governed countries should prioritise deepening institutional quality rather than pursuing further economic liberalisation.

CONCLUSIONS

This study provided the first systematic analysis of how institutional quality moderates the relationship between economic globalisation and multidimensional sustainable development performance. Using pooled OLS with interaction terms on a panel of 172 countries over 2001-2023, with country-clustered standard errors and delta-method marginal effects, three principal findings emerge. First, de jure economic globalisation and governance quality both independently and significantly promote SDG performance, with governance exerting the larger marginal effect in standardised terms. When de facto globalisation is introduced alongside de jure measures, it shows no independent significance, confirming that the policy architecture of economic openness – trade regulations, investment treaties, and capital account rules – matters more than actual flows for aggregate development outcomes. Second, governance negatively moderates the globalisation-development relationship, indicating a substitution rather than complementarity pattern. The marginal effect of economic openness on SDG performance is strongest in countries with weak governance (0.185 at WGI = -1.5) and diminishes as institutions improve, becoming insignificant around WGI = +1.5. This suggests that in institutionally weak environments, the competitive discipline, technology transfer, and institutional signalling associated with economic liberalisation partially compensate for domestic governance deficits. Third, the moderating effect operates primarily through control of corruption, rule of law, and government effectiveness, while regulatory quality does not significantly moderate the relationship. The interaction is consistently negative across all World Bank income groups, confirming the universality of the substitution mechanism. The policy implications summarised above followed directly from the empirical results presented in the preceding sections. For developing countries with weak institutions, the positive and significant marginal effect of economic openness at low governance levels indicated that liberalisation could deliver development gains. For advanced economies, the insignificant marginal effect at high governance levels suggested that institutional deepening, rather than additional openness, should be the priority. For international organisations, the substitution pattern implied that conditionality frameworks should treat trade openness and institutional reform as interrelated, not independent, policy instruments.

Several limitations should be acknowledged. The pooled OLS specification, while appropriate for identifying cross-country associations, does not fully control for time-invariant unobserved heterogeneity. Country fixed effects were not employed because the primary variation of interest is cross-sectional (across countries with different institutional quality levels), and within-country variation in the KOF de jure index is relatively limited over the 23-year sample period. Future research could employ instrumental-variable approaches (e.g., using legal origin or colonial history as instruments for institutional quality) or dynamic panel methods, such as system GMM, to address potential endogeneity. Additionally, disaggregating the SDG Index into individual goals would reveal whether the substitution mechanism operates uniformly across economic (SDGs 8, 9), social (SDGs 1, 3, 4), and environmental (SDGs 12, 13, 15) dimensions of sustainable development. Future research should also explore the temporal dynamics of the substitution mechanism. It is plausible that economic openness serves as a short-run substitute for governance quality, providing immediate discipline and competitive pressure, but that long-run sustainable development requires eventual institutional

convergence. Employing error-correction models or rolling-window estimators would enable testing this hypothesis. Additionally, examining whether the moderating effect varies across individual SDGs, particularly between economic goals that directly benefit from trade and environmental goals where the trade–environment tension may complicate the relationship, would provide more granular policy guidance for different dimensions of the sustainability agenda.

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CONFLICT OF INTEREST

None.

REFERENCES

[1] Acemoglu, D., & Robinson, J.A. (2012). *Why nations fail: The origins of power, prosperity, and poverty*. New York: Crown Business.
[2] Ai, C., & Norton, E.C. (2003). Interaction terms in logit and probit models. *Economics Letters*, 80(1), 123-129. doi: 10.1016/S0165-1765(03)00032-6.
[3] Barros, L., & Martínez-Zarzoso, I. (2022). Systematic literature review on trade liberalization and sustainable development. *Sustainable Production and Consumption*, 33, 921-931. doi: 10.1016/j.spc.2022.08.012.
[4] Bataka, H. (2019). De jure, de facto globalization and economic growth in Sub-Saharan Africa. *Journal of Economic Integration*, 34(1), 133-158. doi: 10.11130/jei.2019.34.1.133.
[5] Bhagwati, J., & Srinivasan, T.N. (2002). Trade and poverty in the poor countries. *American Economic Review*, 92(2), 180-183. doi: 10.1257/000282802320189212.
[6] Chang, R., Kaltani, L., & Loayza, N.V. (2009). Openness can be good for growth: The role of policy complementarities. *Journal of Development Economics*, 90(1), 33-49. doi: 10.1016/j.jdeveco.2008.06.011.
[7] Chen, N., Sun, Z., Xu, Z., & Xu, J. (2025). A review of international trade impacts on sustainable development. *Marine Development*, 3, article number 9. doi: 10.1007/s44312-025-00053-6.
[8] Chuong, H.N., Uyen, V.T.P., Ngan, N.D.P., Tram, N.T.B., Han, N.D.M., & Duyen, P.H.K. (2025). The impact of globalization, renewable energy, and labor on sustainable development: A cross-country analysis. *PLoS ONE*, 20(2), article number e0315273. doi: 10.1371/journal.pone.0333199.
[9] Dollar, D., & Kraay, A. (2004). Trade, growth, and poverty. *The Economic Journal*, 114(493), F22-F49. doi: 10.1111/j.0013-0133.2004.00186.x.
[10] Dreher, A. (2006). Does globalization affect growth? Evidence from a new index of globalization. *Applied Economics*, 38(10), 1091-1110. doi: 10.1080/00036840500392078.
[11] Eleftheriou, K., Nijkamp, P., & Polemis, M. (2024). Club convergence of sustainable development: Fresh evidence from developing and developed countries. *Economic Change and Restructuring*, 57, article number 32. doi: 10.1007/s10644-024-09617-w.
[12] Gasimli, O., Haq, I.u., Munir, S., Khalid, M.H., Gamage, S.K.N., Khan, A., & Ishtiaq, M. (2022). Globalization and sustainable development: Empirical evidence from CIS countries. *Sustainability*, 14(22), article number 14684. doi: 10.3390/su142214684.
[13] Gygli, S., Haelg, F., Potrafke, N., & Sturm, J.-E. (2019). The KOF globalisation index – revisited. *The Review of International Organizations*, 14(3), 543-574. doi: 10.1007/s11558-019-09344-2.
[14] Kaufmann, D., Kraay, A., & Mastruzzi, M. (2010). *The worldwide governance indicators: Methodology and analytical issues*. World Bank: Policy Research Working Paper. doi: 10.1596/1813-9450-5430.
[15] Leal, P.H., Marques, A.C., & Shahbaz, M. (2021). The role of globalisation, de jure and de facto, on environmental performance. *Environment, Development and Sustainability*, 23, 7412-7431. doi: 10.1007/s10668-020-00923-7.
[16] North, D.C. (1990). *Institutions, institutional change and economic performance*. Cambridge: Cambridge University Press. doi: 10.1017/CBO9780511808678.
[17] Potrafke, N. (2015). The evidence on globalisation. *The World Economy*, 38(3), 509-552. doi: 10.1111/twec.12174.
[18] Rodrik, D., Subramanian, A., & Trebbi, F. (2004). Institutions rule: The primacy of institutions over geography and integration in economic development. *Journal of Economic Growth*, 9(2), 131-165. doi: 10.1023/B:JOEG.0000031425.72248.85.
[19] Sachs, J.D., Lafortune, G., & Fuller, G. (2024). *The SDGs and the UN summit of the future. Sustainable development report 2024*. Dublin: Dublin University Press. doi: 10.25546/102924.
[20] Seabold, S., & Perktold, J. (2010). Statsmodels: Econometric and statistical modeling with Python. In *Proceedings of the 9th Python in science conference* (pp. 92-96). Austin: University of Texas at Austin. doi: 10.25080/Majora-92bf1922-011.
[21] Stiglitz, J.E. (2002). *Globalization and its discontents*. New York: W.W. Norton & Company.
[22] The World Bank. (n.d.) *World development indicators*. Retrieved from https://surl.li/kpvbxt.

[23] UNCTAD. (2024). *Trade and development report 2024. Rethinking development in the age of discontent*. Geneva: United Nations.
[24] Winters, L.A., McCulloch, N., & McKay, A. (2004). Trade liberalization and poverty: The evidence so far. *Journal of Economic Literature*, 42(1), 72-115. doi: 10.1257/002205104773558056.
[25] World Trade Organization. (2018). *Mainstreaming trade to attain the sustainable development goals*. Geneva: WTO Secretariat.

Якість врядування та економічна глобалізація: ефекти взаємодії та впливу на сталий розвиток

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Анотація. Взаємозв'язок між економічною глобалізацією та сталим розвитком широко досліджений, однак роль інституційної якості як модератора в цьому контексті залишається недостатньо вивченою. Метою цього дослідження було оцінити взаємодію між де-юре економічною глобалізацією та якістю управління за загальним індексом Цілей Сталого Розвитку (SDG Index Score) для 172 країн у період з 2001 по 2023 рік. Для аналізу використано метод об'єднаної ОЛС з взаємодіючими змінними між індексом де-юре економічної глобалізації КОФ та показниками світового управління, доповнене аналізом маргінальних ефектів за допомогою методу дельта та розподіленням за групами доходів. Початкові результати підтвердили, що як економічна глобалізація (де-юре), так і якість управління незалежно і суттєво сприяють сталому розвитку. Головне відкриття – значна негативна взаємодія між глобалізацією та управлінням ($\beta = -0{,}047$, $p = 0{,}027$): маргінальний ефект економічної відкритості на результати ЦСР найсильніший у країнах зі слабкими інститутами (0,185 при WGI = -1,5) і зменшується з покращенням управління, ставши статистично незначним при WGI = +1,5. Цей замісний патерн спостерігається для верховенства права, контролю корупції та ефективності уряду, але не для якості регулювання. У перевірці на стійкість де-факто економічна глобалізація не має незалежного значення, коли вона враховується разом з де-юре показниками. Аналіз за групами доходів підтвердив, що прямий ефект глобалізації найбільший для країн з низьким доходом, а взаємодія залишається постійно негативною для всіх груп. Результати засвідчили, що економічна відкритість є частковою заміною внутрішньої інституційної спроможності для досягнення розвитку, з найбільшими політичними наслідками для країн, де дефіцити управління обмежують розвиток. Рекомендації щодо політики підкреслюють необхідність комплексних реформ, які поєднують лібералізацію торгівлі з цілеспрямованим зміцненням інститутів для максимізації впливу на розвиток у всіх групах доходів. Результати мають практичне значення для країн, що розвиваються, де економічна лібералізація може забезпечити розвиток навіть до досягнення всеохоплюючих реформ у сфері управління, а також для міжнародних організацій, що розробляють рамки умовності, які наразі розглядають торгівельну відкритість та інституційну реформу як незалежні шляхи реформ

Ключові слова: торговельна політика; Цілі Сталого Розвитку; інституційна модерація; ефект заміщення; крос-країновий панельний аналіз; індекс КОФ; Світові індикатори врядування