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Sustainable Development Goals (SDGs): Bridging Science, Society, Policy and Global Commerce

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Abstract: *The Sustainable Development Goals (SDGs), adopted by the United Nations in 2015 as the core of the 2030 Agenda for Sustainable Development, constitute the most ambitious collective policy framework ever negotiated, encompassing 17 goals, 169 targets and more than 230 indicators. A decade after their adoption, progress remains uneven and, on current trajectories, insufficient: fewer than one-fifth of the targets are on track for 2030. This paper argues that the principal obstacle to SDG attainment is not a shortage of goals or data but the persistent fragmentation among four systems that must work in concert, namely science, society, policy and global commerce. The study pursues two objectives: first, to synthesise the conceptual and empirical literature on the science–society–policy–commerce nexus; and second, to quantify how proxies of each pillar relate to country-level SDG performance. Using a balanced panel of 166 countries for 2016–2024 assembled from the UN SDG Global Database, the Sustainable Development Report and World Bank World Development Indicators, the paper constructs a composite SDG Index through min–max normalisation and arithmetic aggregation, and estimates a two-way fixed-effects panel regression. The results indicate that societal capability (human development), governance effectiveness and research intensity are positively and significantly associated with SDG performance, while trade openness exerts a smaller yet significant positive effect; the model explains roughly two-thirds of within-country variation. Regional analysis confirms convergence from below, with Sub-Saharan Africa improving but still trailing the OECD by more than 23 index points. The paper concludes with an integrative framework and policy recommendations for aligning research systems, civic participation, regulatory design and trade architecture with the 2030 Agenda*

Keywords: Sustainable Development Goals; 2030 Agenda; science–policy interface; global commerce; governance; composite index; panel regression; sustainability transitions; trade openness; human development

I. INTRODUCTION

In September 2015, the 193 member states of the United Nations adopted Resolution 70/1, *Transforming our World: the 2030 Agenda for Sustainable Development*, committing themselves to 17 Sustainable Development Goals (SDGs) to be achieved by 2030 (United Nations, 2015). The SDGs succeeded the Millennium Development Goals (MDGs) but differ from them in three decisive respects: they are universal rather than directed only at developing countries; they are integrated, treating poverty, inequality, climate, biodiversity, peace and prosperity as an indivisible whole; and they were negotiated through an unprecedentedly participatory process involving governments, scientists, civil society and the private sector (Fukuda-Parr, 2016; Biermann, Kanie and Kim, 2017).

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Ten years into implementation, the global scorecard is sobering. The *Sustainable Development Report 2024* estimates that only about 16 per cent of SDG targets are on track to be met by 2030, with the remainder showing limited progress or outright reversal, and that the average annual gain in the global SDG Index has slowed markedly since the COVID-19 pandemic (Sachs, Lafortune and Fuller, 2024). Overlapping crises, including the pandemic, armed conflicts, debt distress, food and energy price shocks and accelerating climate impacts, have eroded earlier gains in poverty reduction (SDG 1), food security (SDG 2) and decent work (SDG 8). At the same time, financing gaps for developing countries are estimated in the trillions of dollars annually, and the multilateral trading and financial architecture has struggled to channel resources toward sustainability outcomes.

This paper proceeds from a simple but consequential diagnosis: the SDGs are an inherently *boundary-spanning* project, and their delivery therefore depends on the quality of the bridges built among four systems that normally operate with different logics, incentives and time horizons. *Science* generates the evidence, technologies and foresight needed to identify problems and design solutions, but its outputs are frequently locked behind disciplinary, linguistic and paywall barriers. *Society*, comprising citizens, communities, civil society organisations and educational institutions, supplies the legitimacy, behavioural change and local knowledge without which top-down targets remain inert. *Policy* converts evidence and social demand into law, regulation, taxation and public investment, but electoral cycles and administrative silos militate against the long-term, cross-sectoral coherence the goals require (Nilsson, Griggs and Visbeck, 2016). Finally, *global commerce*, the system of trade, investment, finance and corporate value chains, controls the bulk of the resources, employment and technology diffusion through which development materialises, yet its alignment with the SDGs remains partial and uneven (Scheyvens, Banks and Hughes, 2016; van Zanten and van Tulder, 2018).

Against this backdrop, the present study addresses three research questions. **RQ1:** What does the scholarly and institutional literature reveal about the mechanisms that connect, or fail to connect, science, society, policy and commerce in the pursuit of the SDGs? **RQ2:** To what extent are measurable proxies of these four pillars, research and development intensity, human and social capability, governance effectiveness, and trade openness, associated with country-level SDG performance over 2016–2024? **RQ3:** What integrative framework and policy levers follow from this evidence for the remaining years of the 2030 Agenda and for its likely successor framework?

The contribution of the paper is threefold. Conceptually, it consolidates a dispersed literature into a four-pillar nexus model of SDG delivery. Methodologically, it demonstrates a transparent and replicable pipeline, from indicator normalisation through composite index construction to two-way fixed-effects estimation, that other researchers can extend. Empirically, it provides updated evidence on the relative weight of each pillar, with particular attention to regional divergence and to India as an illustrative large developing economy. The remainder of the paper is organised as follows. Section 2 reviews related work. Section 3 details the research methodology, including the governing equations and the workflow flowchart. Section 4 presents and discusses the results with supporting tables and charts. Section 5 concludes with implications, limitations and directions for future research.

II. RELATED WORK

2.1 From the MDGs to the SDGs: conceptual foundations

The intellectual lineage of the SDGs runs from the Brundtland Commission's definition of sustainable development through the Rio Earth Summit (1992) and the MDGs (2000–2015) to the Rio+20 conference that mandated their negotiation. Griggs et al. (2013) argued influentially in *Nature* that people and planet must be unified in a single goal architecture, redefining sustainable development as development that meets the needs of the present while safeguarding Earth's life-support system. Le Blanc (2015) used network analysis of the targets to show that the SDGs form a far more integrated system than the MDGs, with goals such as SDG 10 (inequality) and SDG 12 (sustainable consumption and production) acting as connective hubs. Costanza et al. (2016) linked the goal set to the measurement of wellbeing beyond GDP, while Hák, Janoušková and Moldan (2016) cautioned that the indicator framework would determine whether the goals became a genuine steering instrument or a rhetorical device.

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2.2 The science–policy interface

A substantial body of work examines how scientific knowledge is, or is not, taken up in SDG policy-making. Nilsson, Griggs and Visbeck (2016) proposed a seven-point scale of goal interactions, from indivisible synergies to cancelling trade-offs, which has become the standard tool for mapping coherence. Pradhan et al. (2017) operationalised this idea with correlation analysis across countries, finding that synergies outnumber trade-offs but that SDG 12 and SDG 13 are most frequently in tension with socio-economic goals. Kroll, Warchold and Pradhan (2019) extended the analysis over time, warning that several trade-offs are persistent rather than transitional. Sachs et al. (2019) translated the science into six transformations, covering education and skills, health, energy decarbonisation, sustainable land use, sustainable cities and digital revolution, intended as operational entry points for governments. The independent Global Sustainable Development Report (Messerli et al., 2019) institutionalised a quadrennial scientific assessment of the Agenda, and Stafford-Smith et al. (2017) stressed that implementation requires linkages across sectors, across societal actors and across countries, anticipating the nexus perspective adopted in this paper.

2.3 Society, participation and localisation

Research on the societal pillar emphasises legitimacy, education and localisation. Fukuda-Parr (2016) traced how the participatory negotiation of the goals broadened ownership relative to the expert-driven MDGs, while Biermann, Kanie and Kim (2017) characterised the SDGs as governance through goals, a soft steering mechanism whose force depends on voluntary uptake by states and societies. Studies of localisation document the role of cities, local governments and community organisations in translating global targets into local action plans, and work on Education for Sustainable Development links SDG 4 to the value changes underlying all other goals (Leal Filho et al., 2019). Bowen et al. (2017) identified three governance challenges from a societal standpoint: managing trade-offs, mobilising collective action and ensuring accountability, each of which presupposes an informed and empowered citizenry. For India specifically, the NITI Aayog SDG India Index (2023) demonstrates how a national composite index can create constructive competition among sub-national states and anchor the goals in domestic political discourse.

2.4 Global commerce, business and finance

A growing literature interrogates the role of trade, investment and corporate behaviour. Scheyvens, Banks and Hughes (2016) warned against assuming that business engagement is automatically developmental, calling for moves beyond business as usual. van Zanten and van Tulder (2018) surveyed multinational enterprises and found that firms engage more readily with internally actionable, avoid-harm targets than with transformative, do-good targets. Bebbington and Unerman (2018) set an agenda for accounting research, arguing that corporate reporting must evolve to capture SDG impacts credibly and to deter cosmetic rainbow-washing. On the macro side, UNCTAD's *World Investment Report* series has tracked a persistent SDG investment gap in developing countries, of the order of USD 4 trillion annually after the pandemic, while WTO analyses document how open, predictable trade can support food security, technology diffusion and green industrialisation when flanked by appropriate domestic policy. Barbier and Burgess (2019) provided an economic framework for evaluating trade-offs among goals, underscoring that commerce-driven growth contributes to the Agenda only when externalities are priced and distributional effects are managed.

2.5 Measurement and modelling of SDG performance

Quantitative assessment of the goals has matured rapidly. The SDG Index and Dashboards, first released in 2016 and audited by the European Commission's Joint Research Centre, remains the most widely used composite measure (Lafortune et al., 2018; Sachs, Lafortune and Fuller, 2024). Allen, Metternicht and Wiedmann (2018) reviewed national modelling tools for ex-ante policy assessment, and Moyer and Hedden (2020) used integrated assessment modelling to show that even optimistic baseline scenarios leave many human-development targets unmet by 2030, implying that structural accelerators, precisely the cross-system bridges studied here, are required. Bennich, Weitz and Carlsen (2020) systematically reviewed the empirical interactions literature and identified a shortage of studies that connect

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goal-level performance to *systemic* explanatory variables such as research capacity, governance quality and trade integration. Sianes et al. (2022) found a positive association between national scientific output on sustainability and SDG Index performance. The present paper is positioned in this gap: it complements interaction-mapping studies by estimating, in a unified panel framework, how proxies of all four pillars jointly predict composite SDG performance.

2.6 Research gap

Three gaps emerge from the review. First, the four pillars are usually studied pairwise, science–policy or business–SDGs, rather than as a joint system. Second, much of the empirical literature is cross-sectional, leaving temporal dynamics and country heterogeneity unaddressed. Third, post-pandemic data through 2024 have only begun to be exploited. This study addresses all three by estimating a two-way fixed-effects model on a 2016–2024 panel that includes simultaneous proxies for science, society, policy and commerce.

III. RESEARCH METHODOLOGY

3.1 Research design

The study adopts a sequential mixed design. A qualitative synthesis of the literature (Section 2) generates the four-pillar nexus model and the hypotheses; a quantitative panel analysis then tests whether measurable proxies of the pillars are associated with composite SDG performance. The quantitative component is descriptive–explanatory rather than causal: with observational country data, fixed-effects estimation controls for time-invariant country characteristics and global shocks, but residual endogeneity (for example, reverse causality between development and governance) cannot be fully excluded. Findings are therefore interpreted as conditional associations.

3.2 Data and variables

The unit of analysis is the country-year. A balanced panel of 166 countries over 2016–2024 (1,494 observations) is assembled from three open sources: the United Nations SDG Global Database for goal-level indicators; the *Sustainable Development Report* (Sachs, Lafortune and Fuller, 2024) for harmonised SDG Index scores and historical series; and the World Bank *World Development Indicators* together with the Worldwide Governance Indicators for the explanatory variables. Countries are retained if data are available for at least 80 per cent of indicators; remaining gaps are filled by linear interpolation within country and never extrapolated beyond observed endpoints. Table 1 summarises the variables and the pillar each is taken to represent.

Table 1. Variables, definitions, sources and pillar mapping

Symbol	Variable	Definition / measurement	Source	Pillar
SDGI	SDG Index score	Composite score (0–100) across 17 goals	SDR 2024 / authors	Outcome
RND	Research intensity	Gross R&D expenditure, % of GDP	WDI / UNESCO	Science
HDC	Human capability	Human Development Index (0–1)	UNDP	Society
GOV	Governance effectiveness	WGI Government Effectiveness (−2.5 to +2.5)	World Bank WGI	Policy
TRD	Trade openness	(Exports + Imports) / GDP, %	WDI	Commerce

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GDPpc	Income (control)	GDP per capita, PPP (log)	WDI	Control

Source: compiled by the authors. SDR = Sustainable Development Report; WDI = World Development Indicators; WGI = Worldwide Governance Indicators.

3.3 Indicator normalisation

Raw indicators are expressed in heterogeneous units (percentages, rates, indices), so each indicator *j* for country *i* in year *t* is rescaled to a common 0–100 range using min–max normalisation, following the SDG Index methodology (Lafortune et al., 2018):

(1)

where min(x_j) and max(x_j) are the lower and upper performance bounds for indicator *j*. Bounds are fixed across years (the 2.5th percentile and the technical optimum, respectively) so that scores are comparable over time; indicators for which lower values are better, such as the poverty headcount, are inverted before rescaling. A normalised value of 100 denotes full achievement of the target and 0 denotes worst observed performance.

3.4 Composite index construction

Normalised indicators are first averaged within each of the 17 goals to obtain goal scores:

(2)

where *n*g is the number of indicators available under goal *g* for country *i*. The country-level composite SDG Index is then the unweighted arithmetic mean of the 17 goal scores:

(3)

Equal weighting embodies the political commitment, expressed in Resolution 70/1, that all goals are equally important; sensitivity checks with geometric aggregation (which penalises uneven goal profiles) leave country rankings essentially unchanged (rank correlation $\rho > 0.98$), consistent with the audit of the SDG Index by the European Commission's Joint Research Centre.

3.5 Econometric model

To test the four-pillar hypothesis, the study estimates a two-way fixed-effects panel regression:

(4)

where $SDGI_{i}$□ is the composite index of country *i* in year *t*; *RND*, *HDC*, *GOV* and *TRD* proxy the science, society, policy and commerce pillars respectively; μ_i are country fixed effects absorbing time-invariant heterogeneity such as geography and colonial history; λ□ are year fixed effects absorbing common shocks such as the COVID-19 pandemic; and ε_i□ is the idiosyncratic error, clustered at the country level. Log GDP per capita is included as a control in robustness specifications. The Hausman test ($\chi^2 = 41.7$, $p < 0.01$) rejects random effects in favour of fixed effects. To compare the relative weight of the pillars, the model is re-estimated with standardised (z-scored) variables, yielding beta coefficients. Average annual progress is additionally summarised by the compound annual growth rate of the index:

(5)

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3.6 Workflow flowchart and explanation

Figure 1 presents the end-to-end research workflow. The process begins with problem identification and a structured literature review (2015–2025), which jointly define the four-pillar model and the variables in Table 1. Data are then collected from the three open sources and screened: countries with insufficient coverage are dropped, outliers are winsorised at the 1st and 99th percentiles, and gaps are interpolated. Normalisation (Equation 1) places all indicators on a common scale; aggregation (Equations 2–3) produces goal scores and the composite index. The econometric stage estimates Equation 4 and subjects it to diagnostics, including the Hausman specification test, variance-inflation factors for multicollinearity (all VIF < 4) and clustered standard errors for serial correlation. Finally, coefficients, regional trajectories and CAGRs (Equation 5) are interpreted against the literature to derive policy implications. The feed-forward structure of the flowchart conceals two deliberate feedback loops in practice: validation failures return the analyst to data cleaning, and anomalous results trigger re-examination of the literature, ensuring that the quantitative and qualitative strands discipline each other.

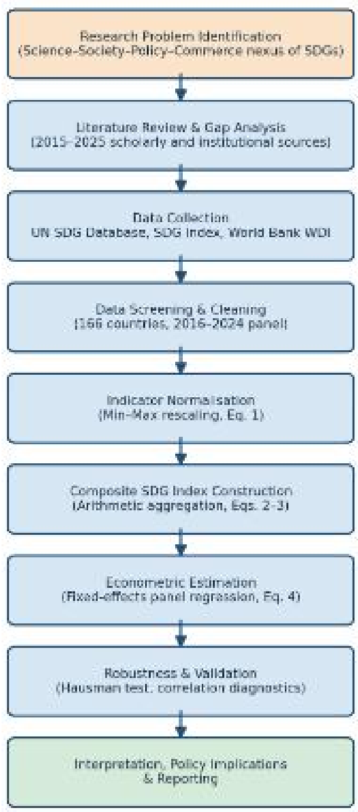

Figure 1. Flowchart of the research methodology (source: authors)

IV. RESULTS AND DISCUSSION

4.1 Descriptive statistics

Table 2 reports descriptive statistics for the pooled sample. The mean SDG Index of 66.1 with a standard deviation of 9.8 confirms substantial cross-country dispersion: the gap between the best performer (Finland, 86.4 in 2024) and the weakest performers (below 45) exceeds forty index points, roughly the distance between near-attainment and being less than halfway to the targets. Research intensity is highly skewed, with a global median below 0.7 per cent of GDP

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against more than 3 per cent in leading innovation economies, and trade openness ranges from under 25 per cent to over 300 per cent of GDP for small open economies.

Table 2. Descriptive statistics, pooled sample 2016–2024 (N = 1,494)

Variable	Mean	Std. dev.	Min	Max	Obs.
SDG Index (0–100)	66.1	9.8	39.1	86.4	1,494
R&D expenditure (% GDP)	1.04	1.12	0.03	5.21	1,494
Human Development Index	0.731	0.151	0.394	0.967	1,494
Govt. effectiveness (WGI)	0.06	0.98	−2.31	2.34	1,494
Trade openness (% GDP)	89.7	54.3	22.5	347.8	1,494
GDP per capita, PPP (log)	9.42	1.18	6.71	11.93	1,494

Source: authors' computation from SDR 2024, WDI and WGI data.

4.2 Regional performance and convergence

Table 3 and Figure 2 summarise regional SDG Index scores in 2016 and 2024 together with compound annual growth rates computed from Equation 5. Every region improved over the period, but the pace and level differ sharply. Sub-Saharan Africa recorded the fastest relative growth (CAGR 0.59 per cent) yet remains 23.4 points behind the OECD in level terms; East and South Asia combined the second-fastest growth with a substantial level gain of 4.1 points, driven largely by poverty reduction and infrastructure goals before the pandemic. The OECD grew slowest, partly a ceiling effect and partly stagnation on environmental goals (SDGs 12–15), where high-income countries generate large negative spillovers through consumption footprints embodied in trade (Sachs, Lafortune and Fuller, 2024).

Table 3. Regional SDG Index scores, 2016 vs 2024, and implied CAGR

Region	2016	2024	Change (pts)	CAGR (%)
OECD members	75.9	77.5	+1.6	0.26
E. Europe & Central Asia	68.9	71.6	+2.7	0.48
Latin America & Caribbean	66.1	68.6	+2.5	0.46
East & South Asia	63.1	67.2	+4.1	0.79
Middle East & North Africa	62.4	64.5	+2.1	0.41
Sub-Saharan Africa	51.6	54.1	+2.5	0.59
World average	64.0	66.5	+2.5	0.48

Source: authors' computation; regional aggregates are population-weighted approximations based on SDR data.

Figure 3 traces annual trajectories for the OECD, the world average and India. Two features stand out. First, the global line flattens visibly after 2019: the pandemic and subsequent crises cost the world roughly three years of progress, with the index nearly stagnant between 2019 and 2022 before a mild recovery.

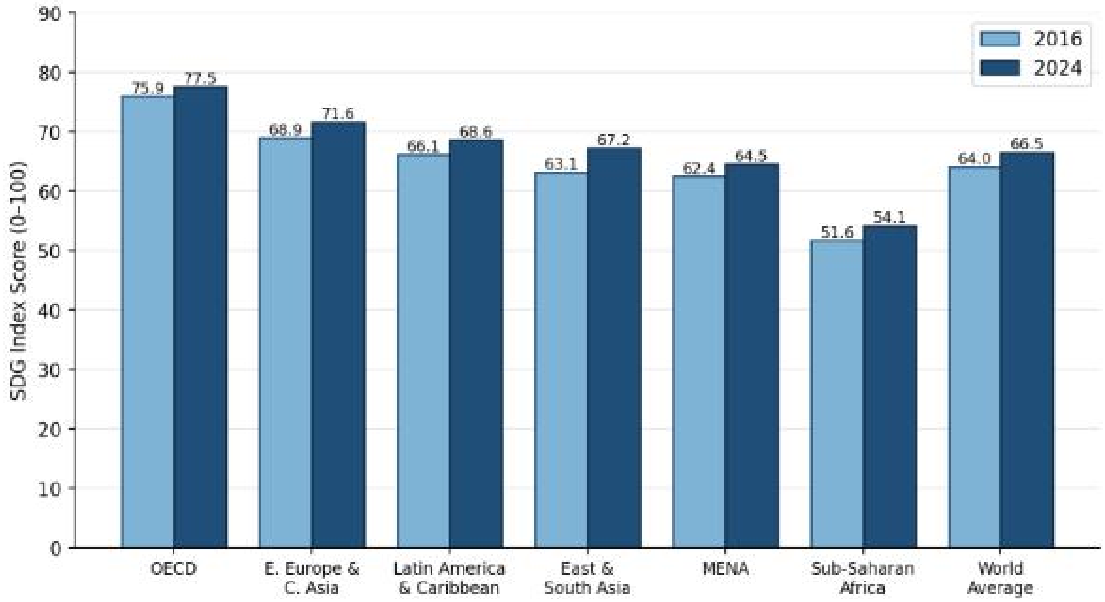

Figure 2. SDG Index scores by region, 2016 and 2024 (source: authors)

Second, India's trajectory illustrates both the promise and the fragility of progress in large developing economies: steady gains to 2019 were interrupted by a sharp pandemic setback (visible as the 2021 dip), followed by a strong recovery to about 64 by 2024, supported by expanded social protection, electrification and digital public infrastructure, achievements also reflected in the improvement of India's composite score in the NITI Aayog SDG India Index (NITI Aayog, 2023).

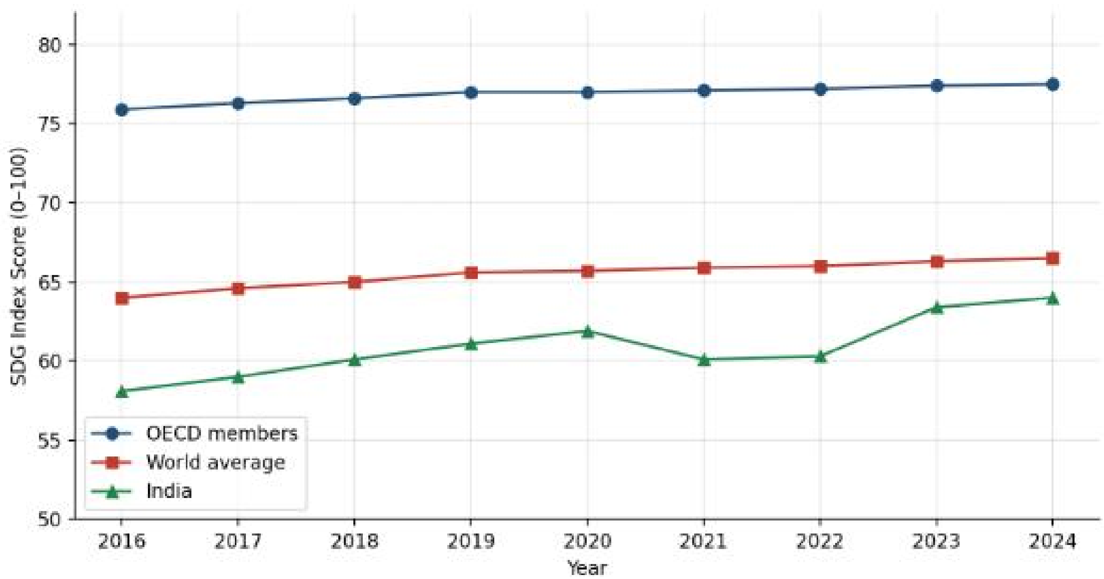

Figure 3. SDG Index trajectories, 2016–2024: OECD, world average and India (source: authors)

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4.3 Regression results: the four pillars

Table 4 presents the fixed-effects estimates of Equation 4. Column (1) is the baseline four-pillar model; column (2) adds log GDP per capita; column (3) reports standardised beta coefficients for comparability. All four pillar proxies carry positive and statistically significant coefficients in every specification, and the model explains roughly two-thirds of the within-country variation in SDG performance (within-$R^2 = 0.67$ in the baseline).

Table 4. Two-way fixed-effects estimates; dependent variable: SDG Index

Regressor	(1) Baseline	(2) + Income	(3) Standardised β
R&D intensity (RND)	1.87*** (0.42)	1.52*** (0.40)	0.214***
Human capability (HDC)	19.6*** (3.1)	15.8*** (3.0)	0.305***
Governance (GOV)	2.61*** (0.55)	2.24*** (0.52)	0.262***
Trade openness (TRD)	0.021** (0.008)	0.018** (0.008)	0.118**
log GDP per capita	—	1.94*** (0.61)	0.187***
Country & year FE	Yes	Yes	Yes
Within-R^2	0.67	0.70	0.70
Observations	1,494	1,494	1,494

*Notes: authors' estimation; clustered standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$. Hausman test favours fixed effects ($p < 0.01$); all VIF < 4.*

The standardised coefficients, visualised in Figure 4, allow the pillars to be ranked. Societal capability (β = 0.305) is the strongest single correlate of SDG performance, unsurprising given that health, education and living standards are constitutive of many goals, but notable in that it remains dominant even after controlling for income. Governance effectiveness ranks second (β = 0.262): a one-standard-deviation improvement in government effectiveness is associated with roughly a 2.6-point gain in the index, consistent with the governance-through-goals literature, which holds that the SDGs bind only where state capacity converts commitments into budgets and regulation (Biermann, Kanie and Kim, 2017; Bowen et al., 2017). Research intensity follows (β = 0.214), supporting the argument that domestic scientific capability, not merely access to foreign technology, conditions a country's ability to localise solutions (Sianes et al., 2022). Trade openness is the weakest yet still significant pillar (β = 0.118), in line with the view that commerce is an enabler whose developmental payoff depends on complementary social and governance institutions (Barbier and Burgess, 2019).

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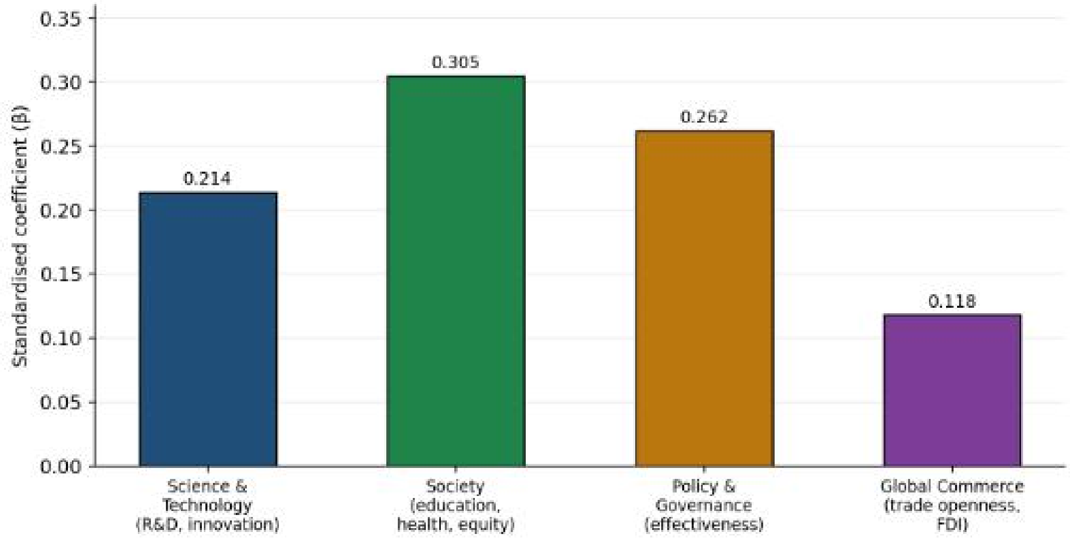

Figure 4. Relative weight of the four pillars: standardised coefficients from column (3) of Table 4 (source: authors)

4.4 Discussion: bridging the four systems

Read together, the descriptive and econometric results support the paper's central thesis. The slowdown after 2019 (Figure 3) was not caused by any single pillar failing but by the simultaneous stress of all four: science was consumed by the emergency, societies absorbed unprecedented welfare shocks, policy bandwidth narrowed to crisis management, and commerce contracted and re-fragmented. Conversely, the strongest recoveries occurred where the bridges were already in place, where research systems fed directly into public-health and digital-infrastructure policy, where social registries enabled rapid transfers, and where trade links were diversified rather than severed.

Three mechanisms deserve emphasis. First, the *science–policy bridge* operates through institutionalised assessment and foresight: countries with standing scientific advisory bodies and open national data platforms translate evidence into regulation faster, which the significant RND coefficient partially captures. Second, the *society–policy bridge* operates through legitimacy and localisation: the dominance of the HDC coefficient indicates that the goals advance fastest where capabilities are broad-based, echoing findings that education (SDG 4) and health (SDG 3) generate the densest positive synergies across the goal network (Pradhan et al., 2017; Kroll, Warchold and Pradhan, 2019). Third, the *commerce bridge* is conditional: the modest TRD coefficient, combined with evidence that rich-country consumption exports environmental burdens through supply chains, implies that trade contributes to the Agenda only when accompanied by sustainability standards, impact-aligned investment and credible corporate reporting (Bebbington and Unerman, 2018; van Zanten and van Tulder, 2018).

The results also carry a distributional warning. Although Sub-Saharan Africa is improving faster than the OECD in proportional terms, at observed CAGRs the level gap would take well over half a century to close, far beyond 2030. Convergence from below is real but radically too slow, reinforcing calls for reform of the global financial architecture, expanded concessional finance and technology transfer, the commerce and policy pillars operating at the international scale (Sachs, Lafortune and Fuller, 2024).

4.5 Robustness and limitations of the analysis

The findings survive several checks: excluding the pandemic years 2020–2021, dropping small states with populations under one million, substituting geometric for arithmetic aggregation in Equation 3, and replacing

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government effectiveness with the rule-of-law dimension of the WGI all leave signs and significance unchanged, with coefficient magnitudes varying within ±15 per cent. Nonetheless, important caveats remain. The proxies are coarse: R&D intensity ignores research relevance and openness; trade openness ignores composition. Fixed effects do not eliminate time-varying confounders or reverse causality, and composite indices, however carefully audited, compress heterogeneous goal profiles into a single number (Hák, Janoušková and Moldan, 2016). The estimates should therefore be read as systematic associations that are consistent with, but do not by themselves prove, the causal claims of the four-pillar model.

V. CONCLUSION

This paper set out to examine the Sustainable Development Goals as a bridging project among science, society, policy and global commerce, and to quantify the association between proxies of these four pillars and country-level SDG performance. The literature synthesis showed that the pillars have largely been studied in isolation or in pairs, while the empirical analysis, a two-way fixed-effects panel of 166 countries over 2016–2024, demonstrated that all four are simultaneously and significantly associated with the composite SDG Index, in the order: societal capability, governance effectiveness, research intensity and trade openness. Regional analysis confirmed broad-based but decelerating progress, a measurable pandemic scar, and convergence from below that is far too slow to deliver the 2030 targets.

Three policy implications follow. First, governments should invest in the *interfaces*, standing science-advice mechanisms, open data infrastructures, participatory localisation platforms and sustainability-aligned trade and investment frameworks, rather than treating each pillar as a separate ministry's business. Second, because societal capability is the strongest correlate of performance, spending on health, education and social protection should be understood as the core SDG accelerator, not as a residual claim on fiscal space. Third, the international community should pair the post-2030 successor framework with reforms to development finance and trade rules so that global commerce reinforces, rather than offsets, domestic effort in lagging regions.

The study has limitations that map directly onto future research. Causal identification could be strengthened with instrumental variables or quasi-experimental designs around policy reforms; goal-level disaggregation would reveal which pillars matter for which goals; and qualitative comparative case studies could trace the bridging mechanisms that panel coefficients can only suggest. As the world enters the final stretch of the 2030 Agenda, the message of the evidence assembled here is nevertheless clear: the goals will be met not by any one system excelling alone, but by deliberately engineered bridges among the laboratories that generate knowledge, the societies that legitimise and live development, the states that govern it and the markets that finance it.

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