

# Fragmentation Dynamics in Global Trade

G7 vs. BRICS+: Decoupling, Re-routing, and Systemic Vulnerability

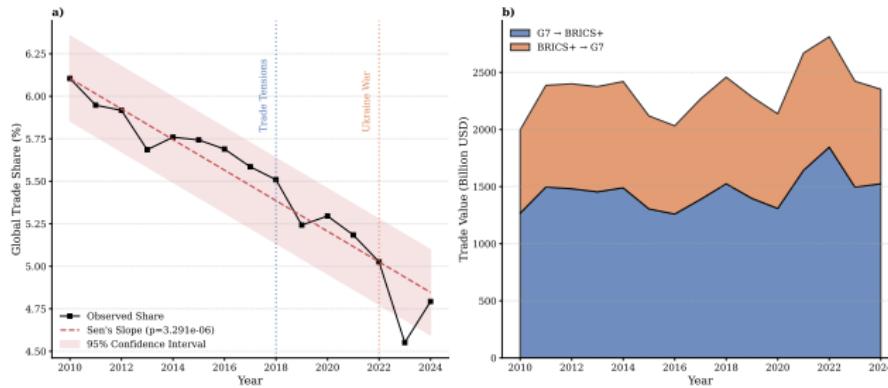
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2010–2024 Analysis

# Agenda

- 1 Strategic Decoupling
- 2 Network Structure
- 3 Geopolitical Alignment
- 4 Systemic Vulnerability
- 5 Conclusion

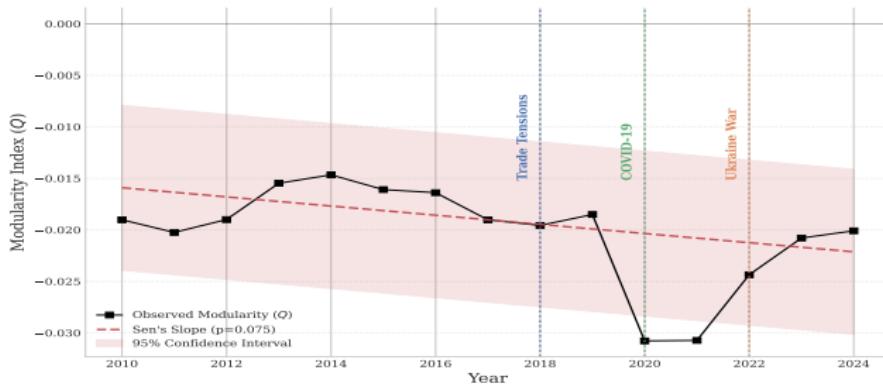
# Declining G7–BRICS+ Trade Integration



**Figure: Direct Decoupling:** Trade share ( $S_t$ ) as % of global commerce. Shaded area (Post-2018) shows accelerated decoupling following the trade war.

- **Significant Downward Trend:** Regression analysis confirms a steady decline with a year coefficient of  $\beta = -0.0177$  ( $p < 0.001$ ), indicating a consistent annual erosion of direct bilateral trade.
- **Geopolitical Inflection:** The shaded post-2018 area highlights an acceleration in decoupling, where trade organization shifts from purely economic efficiency to geopolitical alignment.

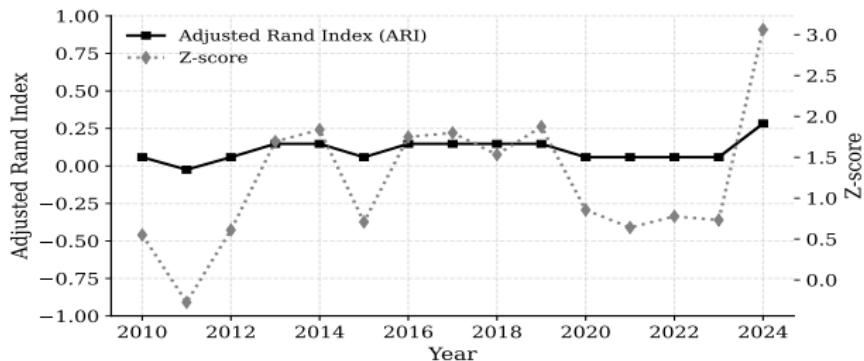
## Figure 2: Absence of Structural Fragmentation



**Figure: Inertial Integration:** Network modularity ( $Q$ ) remains negative, indicating cross-bloc dependencies outweigh regional clustering.

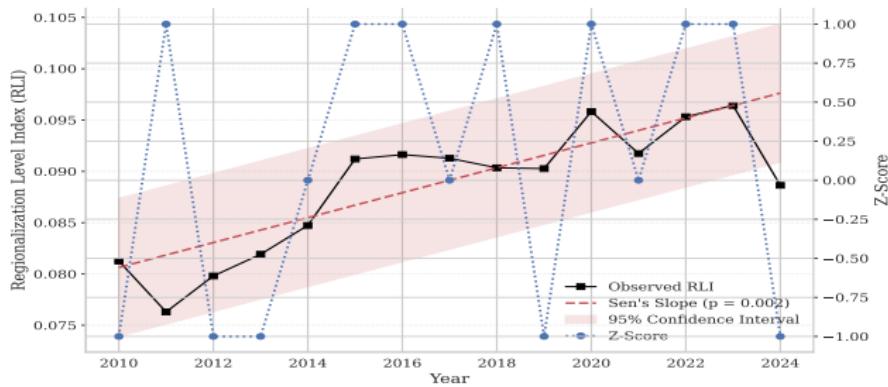
- **Rejection of Fragmentation (H3):** Mann-Kendall tests ( $p = 0.075$ ) confirm the absence of a fragmentation trend. Modularity ( $Q$ ) stays below zero, signifying that nodes connect across group peripheries rather than within isolated blocs.
- **Resilience via Interdependence:** During the 2020 pandemic, modularity reached its most negative point ( $Q = -0.031$ ), suggesting crises actually escalate the functional necessity of cross-bloc partnerships over "friend-shoring."

# Geopolitical Realignment (ARI)



**Figure: Regime Shift:** The Adjusted Rand Index (ARI) spike in 2024 shows trade clusters finally aligning with geopolitical blocs ( $p < 0.01$ ).

## Figure 4: Resilience Loss Index (RLI)



**Figure: Systemic Fragility:** The rise in RLI through 2023 indicates trade concentration in critical "bottleneck" states.

# Summary of Findings

- **Hypothesis 1 (Confirmed):** Significant decline in G7-BRICS+ trade share.
- **Hypothesis 3 (Confirmed):** Global trade network remains topographically unified.
- **Final Insight:** We are seeing a "structural rupture"—decoupling in volume, but not in network connectivity.

## Future Outlook

The 2024 ARI spike suggests the beginning of a "re-binarization" of the international economic order.

# Questions? Thank you for your attention!