

Mapping Emerging Geopolitical Alliances Through Network Analysis of United Nations General Assembly Voting Patterns

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Abstract

One of the most discussed issues in current International Relations is the transformation of the international system from a largely unipolar order into an increasingly multipolar one.

Traditional approaches to polarity have focused on material indicators such as military capabilities and economic power. This study takes a behavioral approach and investigates whether states' diplomatic behavior in the United Nations General Assembly (UNGA) is evidence of an emerging multipolar order. The research uses voting records of the UNGA as a comprehensive longitudinal dataset and applies Social Network Analysis (SNA) to map patterns of diplomatic alignment, alliance formation, and geopolitical realignment among the 193 member states.

The study uses roll-call votes in the UNGA to construct voting similarity matrices and applies network metrics such as degree centrality, eigenvector centrality, and betweenness centrality, as well as the Leiden and Louvain community detection algorithms, to detect alliance clusters, bridge states, and changing cooperation patterns. The analysis also performs temporal comparisons across the post-Cold War, post-9/11, and contemporary geopolitical eras to explore structural changes in the international diplomatic network. In addition, the study examines issue-specific voting patterns on security, sovereignty, human rights, decolonization, development, and environmental governance to assess whether coalition structures remain consistent across different policy domains.

The results indicate that the current international system has emerged as an asymmetric form of multipolarity, rather than a revival of rigid bipolarity or a continuation of uncontested unipolar pre-eminence. The agenda-setting power of a cohesive Euro-Atlantic institutional core remains important, while the counter-network centred on China and Russia has increased in structural prominence. Meanwhile, new and middle powers such as India, Brazil, Indonesia, South Africa, Saudi Arabia, and Türkiye are taking on strategically crucial brokerage roles that connect competing geopolitical clusters through issue-specific diplomatic hedging rather than fixed alliance commitments. The findings also show how major geopolitical shocks—including the 2003 Iraq War, the 2014 Crimea crisis, and the Russia-Ukraine conflict—have accelerated network configuration by strengthening some alignments while encouraging strategic neutrality among many Global South states.

The study finds that contemporary multipolarity is best understood as a dynamic, networked system of overlapping coalitions, institutional persistence, and strategic autonomy rather than clearly defined power blocs. This research provides a new empirical framework for measuring the distribution of global power beyond traditional material capabilities by merging International Relations theory with network science. It contributes to ongoing discussions on polarity, alliance politics, and global governance. It also demonstrates the usefulness of computational network analysis for understanding the shifting architecture of international diplomacy and provides foundation for future AI-assisted real-time monitoring of geopolitical realignments.

Chapter 1: Introduction

This report examines UN General Assembly voting data to test whether multipolarity frequently invoked in diplomatic rhetoric is reflected in actual state behaviour. Rather than relying on GDP or military statistics, the analysis treats multipolarity as a claim about diplomatic behaviour that must be demonstrated through voting records. The Assembly is ideal for this: 193 states cast comparable votes on the same questions, repeatedly, over decades, creating a rare micro-macro dataset linking individual government decisions to systemic structure.

1.1 The Conceptual Basis of Multipolarity

Classical realist scholars, particularly Kenneth Waltz, conceptualised multipolarity as a distribution of power among multiple great powers within the international system. More recent scholarship, however, views multipolarity as a behavioural phenomenon rather than merely a material one. From this perspective, a state may possess significant economic or military capabilities without exercising them independently in international affairs. Accordingly, this study adopts a behavioural definition of multipolarity, arguing that it should be demonstrated through states' actions in multilateral forums rather than inferred solely from economic strength, military capability, or formal alliance Membership.

1.2 Why the United Nations General Assembly?

The United Nations General Assembly (UNGA) provides a unique and comprehensive platform for analyzing patterns of international diplomatic behaviour. It offers a consistent, repeated, and comparable record of how all 193 member states position themselves on a wide range of international issues. Each roll-call vote represents an individual diplomatic decision, and when examined collectively across thousands of resolutions spanning several decades, these decisions reveal broader patterns of international alignment and systemic structure. Although General Assembly resolutions are largely non-binding and many high-stakes security issues are addressed outside the Assembly, the UNGA remains the most comprehensive and reliable source for analysing long-term diplomatic alignment among states.

1.3 The Research Problem

Political leaders from countries such as Russia, China, India, and Brazil increasingly describe the contemporary international system as multipolar. However, comparatively little research has examined whether actual state behaviour in multilateral institutions reflects this growing political narrative. While rhetorical claims of multipolarity are relatively easy to make and often serve strategic political purposes, they require empirical validation through observable diplomatic behaviour. The extensive voting record of the United Nations General Assembly, spanning more than seventy sessions, provides a valuable opportunity to test these claims. This study addresses the gap between political rhetoric and empirical evidence by investigating whether contemporary voting patterns demonstrate the emergence of a genuinely multipolar international order.

1.4 Research Questions

This study is guided by the following research questions:

1. Does the United Nations General Assembly voting network provide empirical evidence of a transition from a predominantly unipolar international system toward a multipolar one?

2. Do voting patterns indicate increasing structural separation between the Western- aligned core and competing geopolitical clusters, a growing role for bridge states, or a decline in the dominance of any single power bloc?
3. What is the structural topology of contemporary diplomatic alignments? Specifically, are international voting patterns organised into a small number of clearly defined blocs, or do they represent a more complex network of overlapping and issue-specific coalitions?

Chapter 2: Literature Review

2.1 Theories of Polarity

Structural Realist vs. Liberal Institutional Debate on System Stability.

The question of how power distributions across the international system affect stability is one of the most enduring debates in International Relations scholarship. Three canonical configurations are typically examined: unipolarity, bipolarity, and multipolarity. The central disagreement concerns which arrangement most reliably deters conflict and sustains order.

Kenneth Waltz's neorealism holds that bipolarity produces the most stable system. In a bipolar world, the two dominant powers face each other directly, reducing the miscalculation risks and entangling alliance commitments that characterise multipolar settings. Waltz argued that under bipolarity, great powers' balancing behaviour is predominantly internal, focused on the development of their own economic and military capabilities, rather than external alliance formation.

Deutsch and Singer's earlier work offered a counterview, arguing that multipolarity distributes risk across more nodes, but Waltz's structural logic proved more influential in the discipline.

The unipolarity debate intensified after the Cold War. Scholars such as Krauthammer argued that American primacy was self-reinforcing and inherently stabilising. However, structural realists were divided. Mearsheimer warned that unipolarity is inherently temporary and that the liberal international order it enabled was "bound to fail" because it accelerated China's rise, transforming the system from unipolar to multipolar. Glaser mounted a related critique, arguing that the "liberal international order" framing itself is analytically confused and that defensive realism better explains why the post-Cold War era saw limited balancing against the US.

Røren's recent empirical work challenges the consensus that unipolarity has ended. Using a novel measure of sophisticated military capabilities (rather than aggregate material indices), Røren argues the world remains unipolar, with a bipolar configuration possible only if China sustains its military modernisation trajectory, which remains uncertain.

Casey and Dolan offer a more nuanced framework, building on Raymond Aron's typology to distinguish homogeneous from heterogeneous international systems. They argue the post-Cold War era was a "unipolar-homogeneous moment" sustained by ideological convergence on liberal democracy, and that the re-emergence of authoritarian ideological competition since the mid-2000s has destabilised unipolarity from within, even before material power shifts fully materialised.

Liberal institutionalists take a fundamentally different approach, arguing that international institutions, regimes, and economic interdependence moderate the effects of power distribution. Keohane's

foundational work on cooperation under anarchy and the broader complex interdependence framework developed by Keohane and Nye contend that institutionalised cooperation can persist regardless of polarity, provided that absolute gains remain available and transaction costs of defection are high.

Kai He's synthesis integrates neorealist and neoliberal premises through the concept of "institutional balancing," demonstrating how ASEAN states use multilateral institutions to constrain China and manage US influence across conditions of bipolarity, incipient multipolarity, and unipolarity.

The contemporary debate is increasingly shaped by the US-China rivalry. Aryal examines how the emergence of "Asian multipolarity," driven by the simultaneous rise of China and India alongside assertive middle powers, challenges the Liberal International Order's institutions and norms.

Sakwa frames the current moment as a clash between the "Charter International System" (rooted in the UN and multilateral norms) and a Western "rules-based order" that claims tutelary privileges over it, producing what he characterises as Cold War II.

Rauch and Wurm propose merging Power Transition Theory with liberal Hegemony Theory to identify pathways for managing peaceful transitions through consensus-based institutional orders rather than coercion.

Research Gap:

While the polarity-stability debate is extensive, most theoretical work remains at the system level, treating states as unitary actors whose alignment behaviour is deduced from material distributions.

The mechanisms through which polarity conditions the domestic political economy of alignment (e.g., leader survival calculations, coalition dynamics, economic vulnerability) remain undertheorised.

Furthermore, most polarity frameworks are evaluated against historical great-power case studies, with limited systematic testing against post-Cold War data covering the full spectrum of state behaviour at multilateral institutions such as the UN General Assembly.

2.2 Empirical Studies on UNGA Voting: Traditional Econometric and Spatial Regression Models

The United Nations General Assembly (UNGA) has served as a primary empirical theatre for measuring state alignment since the early Cold War.

The earliest systematic studies used voting similarity scores (the percentage of votes on which two states vote identically) as proxies for foreign policy affinity. These dyadic scores, sometimes called "affinity indices," became foundational variables in quantitative IR.

Traditional econometric approaches model UNGA voting alignment as a function of material and ideational covariates.

The standard specification uses fixed-effects or random-effects panel regressions on dyadic voting similarity, with controls for: Trade volume, Alliance membership, Regime type, Colonial ties, Geographic distance, UN Security Council membership.

Wright and colleagues' influential body of work, frequently cited in the broader aid-and- voting literature, established that strategic variables (alliance ties, shared enemies, Security Council seat) explain voting alignment more robustly than economic variables alone, though the two interact. The methodological limitations of these approaches are well documented.

Mummolo and Peterson demonstrate that fixed-effects regression results are routinely misinterpreted. Researchers overstate substantive significance by ignoring the range of within-unit variation actually being estimated.

Liu and Srivastava highlight that traditional regression models of political behaviour miss interaction-driven dynamics, showing that shared political identity promotes convergence in voting while opposing identities drive divergence, effects that vary by local interaction context.

Gallego and colleagues demonstrate that self-selection and contextual effects in political behaviour are difficult to disentangle using conventional panel methods, raising questions about the causal interpretation of time-series voting models. Spatial regression approaches represent a methodological advance.

These models account for the spatial autocorrelation inherent in voting data, where a state's vote is influenced not only by its own characteristics but also by the votes and attributes of geographically or politically proximate states.

The intuition is that voting alignment clusters in space. States in the same region, alliance bloc, or economic grouping tend to vote similarly, and failing to model this spatial dependence produces biased standard errors.

However, spatial lag and spatial error models still rely on exogenous specifications of the spatial weights matrix, and the choice of weighting structure (geographic contiguity, alliance ties, trade flows) can drive results.

Leininger and Schaub illustrate the broader challenge of causal inference in voting studies, demonstrating that even exogenous shocks (in their case, the COVID-19 pandemic) produce strategic-alignment effects in voting behaviour that are difficult to capture with standard covariates.

Davis, Fuchs, and Johnson show that the politicisation of trade through state-owned enterprises produces voting-responsive import patterns, but their findings depend on specific bilateral data on firm ownership that is unavailable for most country pairs, highlighting the data constraints limiting conventional econometric models of voting.

Research Gap

The dominant econometric tradition treats each dyad as statistically independent, even though the UNGA is a network in which every state's vote is simultaneously influenced by and influences every other state's position. Spatial regression models partially address geographic clustering but do not model the endogenous network formation processes that generate voting blocs. Crucially, no conventional econometric framework can distinguish the direct effect of, say, aid on voting from the ambient effect of belonging to a densely connected cluster of aligned states. This is precisely the kind of confounding that network statistical models are designed to address.

Chapter 3: Theoretical framework & Network epistemology

3.1 Neorealism and the Balance of Power

Neorealism is a foundational theory of International Relations that argues state behaviour is primarily shaped by the anarchic structure of the international system rather than by human nature (Waltz, 1979). From this perspective, the distribution of material capabilities determine the relative power and potential influence of states. However, material capabilities alone do not fully explain actual patterns of diplomatic cooperation and alignment. A state may possess considerable economic or military strength without exercising it independently in multilateral institutions. Therefore, this study contrasts the material distribution of capabilities with patterns of relational alignment to examine whether similarities in United Nations voting behaviour reflect emerging geopolitical partnerships beyond conventional measures of power.

3.2 Constructivist Perspective

Constructivism argues that the international system is socially constructed through the interactions, shared beliefs, and collective understandings of states rather than being determined solely by material capabilities. The concept of normative entrapment suggests that states and international organisations often feel compelled to act consistently with the values, principles, and commitments they have publicly endorsed. Likewise, the process of collective identity formation encourages states with shared historical experiences, common interests, and similar objectives to cooperate more closely. Consequently, voting coalitions within the United Nations can be understood as social constructs that emerge from shared norms, identities, and mutual expectations. This perspective helps explain why groups of states frequently display consistent voting patterns across a wide range of international issues.

3.3 Network Theory as a Structural International Relations Framework

Network theory provides a valuable framework for analysing global politics by focusing on patterns of interaction among states rather than on their individual characteristics. Within this framework, states are represented as nodes, while similarities in voting behaviour are modelled as edges connecting them. These relationships are quantified using voting agreement and similarity indices, enabling the analysis of diplomatic interactions as an interconnected network.

Network topologies may reveal either core-periphery structures, characterised by a concentration of influence among a limited number of states, or distributed modular networks composed of multiple clusters of cooperation. Such structural patterns facilitate the identification of emerging alliances, bridge states, and evolving geopolitical alignments. Consequently, network analysis offers a systematic approach to understanding the transition from traditional power politics to increasingly complex and interconnected forms of international cooperation.

Together, neorealism, constructivism, and network theory provide a comprehensive analytical framework for examining how material power, shared identities, and relational structures collectively shape contemporary geopolitical alignments.

3.4 Mapping the Architecture of Alignment: Bloc Cohesion and Brokerage in the United Nations General Assembly Voting Network

This section moves beyond descriptive statistics to provide a structural interpretation of voting behaviour in the United Nations General Assembly (UNGA). Rather than focusing solely on how frequently individual states vote in favour of a resolution, the analysis examines which countries consistently vote together, the degree of cohesion within these groupings, and the states that serve as bridges between otherwise distinct diplomatic blocs.

Drawing on principles of Social Network Analysis (SNA), each pair of countries is connected through a measure of voting similarity, creating a network that captures patterns of diplomatic alignment. Areas of dense connectivity indicate cohesive voting blocs, whereas weaker connections reveal geopolitical fault lines and opportunities for strategic brokerage. By examining these structural relationships, the analysis identifies enduring alliance clusters, bridge states, and emerging patterns of cooperation that collectively shape the evolving architecture of contemporary international diplomacy.

Chapter 4: Data Engineering & Network Methodology

4.1 Data Sourcing and Curation

The dataset for this research is derived from the official UNGA voting records. The data provides the resolution number, data title, date, issue area, and the voting decision of the member state; categorised as "Yes", "No", "Abstain", and "Absent". Prior to analysis, the data undergoes a process of data curation, country names are standardised and missing records are identified. The study also differentiates consensus and non-consensus resolutions. These resolutions provide evidence for identifying patterns of cooperation and geopolitical realignments among states.

4.2 Temporal Windowing

The study segments data into three geopolitical phases: the post-Cold War era indicates the transition from bipolar to unipolar international orders, the post-9/11 period reflects the increasing importance of counterterrorism, security, and military intervention, and the contemporary period integrates developments such as the expansion of multilateral organisations like BRICS and constructing different networks.

4.3 Constructing Voting Similarity Matrices

The analysis of voting patterns begins by generating voting similarity matrices, quantifying the degree of behavioural alignment between pairs of nations across UNGA resolutions. Agreement is typically measured using metrics like Alford's Identity Index or Lijphart's Index of Agreement, assigning higher scores to consistent voting patterns and lower scores to divergence. These values are then translated into weighted network edges. This matrix-based approach helps in shifting the focus from isolated votes to systematic relational alignments.

4.4 Mathematical Foundations of Network Metrics

The conversion of voting similarity matrices into a network framework involves representing nations as nodes. For the structural roles and importance of these states, The study uses Social Network Analysis (SNA) metrics. Specifically, Degree Centrality gauges states' direct engagement and connections, whereas Eigenvector Centrality assesses a country's prestige. Additionally, Betweenness Centrality highlights "bridge" states. To uncover underlying alliance structures, the research employs community

detection techniques such as the Louvain and Leiden algorithms, categorising states into different clusters based on international voting consistency.

4.5 Addressing Methodological Limitations

As with any quantitative endeavour, the network analysis of UNGA voting patterns faces several methodological drawbacks. One primary challenge involves missing data caused by state absences or incomplete records. Such instances are meticulously documented to protect the network's structural validity. A second limitation pertains to the interpretation of abstentions. It is vital to recognise that many General Assembly resolutions are symbolic and non-binding. These findings indicate relational alignments that supplement traditional measures of global cooperation.

Chapter 5: Mapping the Architecture of Alignment: Bloc Cohesion and Brokerage in the UN General Assembly Voting Network

This section moves from the descriptive statistics covered earlier to a structural reading of the voting record. Rather than asking how often a given country votes yes, it asks who tends to vote alongside whom, how tightly those groupings hold together, and which states sit at the seams between them. The underlying idea is borrowed from network analysis: if every pair of countries is connected by a measure of how similar their voting records are, the result is a web of relationships dense enough in places to call a bloc, and thin enough in others to call a fault line.

Treating the Assembly as a network rather than a tally sheet changes what counts as evidence. A bloc, in this framing, is not a list of countries that share an ideology on paper; it is a cluster of states whose pairwise voting agreement is consistently high across hundreds of resolutions and many years. The five sub-sections below work through the major clusters this kind of analysis tends to surface, the methods used to test whether they are real or imagined, and how they have moved over a generation.

5.1 The Western Bloc / Euro-Atlantic Core

Among the clusters that show up reliably in roll-call studies of the Assembly, the Euro-Atlantic group, broadly NATO and EU members plus a handful of close partners such as Japan, Australia, and South Korea, are usually the tightest.

Erik Voeten's widely cited ideal-point estimates, built from decades of Assembly roll calls, consistently place these states close together on an underlying left-right dimension, and pairwise agreement scores within the group routinely exceed those of any other comparably sized cluster.

The standard way to test internal cohesion is to compute the standard deviation of each member's yes-share, or of its position on an estimated ideological dimension, across sessions; a falling standard deviation over time would indicate convergence, while a widening one would point to fracture.

Applied to NATO and EU members, this kind of test generally shows convergence through the Cold War, when alliance discipline was reinforced by bloc confrontation with the Soviet Union, followed by a slight loosening after 1991 as the disciplining effect of a common adversary weakened.

France and, at times, Greece or Turkey appear as the most frequent internal outliers, particularly on Middle East and disarmament resolutions, while the Nordic countries and the Benelux states tend to anchor the cluster's centre of gravity.

It is worth noting that cohesion within this bloc has never meant unanimity. The European Union's Common Foreign and Security Policy (CFSP) exists precisely because member states do not vote identically by default, and intra-EU coordination meetings before Assembly sessions are themselves a documented mechanism for manufacturing the cohesion that voting data later reveals.

5.2 The Sino-Russian Axis and the Expansion of BRICS+

A second cluster worth tracing is built around China and Russia, and its boundaries have shifted markedly since 2023.

BRICS, which began as an informal acronym coined by a Goldman Sachs economist in 2001 and held its first leaders' summit in 2009, added Egypt, Ethiopia, Iran, Saudi Arabia, and the United Arab Emirates as full members at the start of 2024, with Indonesia following in January 2025.

The bloc has since added a tier of ten formal partner countries, including Belarus, Cuba, Kazakhstan, Nigeria, and Vietnam, that participate in meetings without full membership rights.

Indonesia became a full member on January 6, 2025, marking the first Southeast Asian state to join the bloc.

India holds the bloc's rotating presidency through 2026 and has signalled a deliberately unhurried approach to further enlargement, prioritizing what officials describe as internal cohesion over rapid growth, while Russia's foreign minister has likewise said the grouping intends to consolidate before admitting more members.

Whether this expanded membership behaves as a single voting bloc, however, is an empirical question rather than a label that can be assumed from a communiqué.

China and Russia themselves vote together on most contested security and human-rights resolutions, but Egypt, India, and Brazil retain voting records that diverge from Beijing and Moscow often enough that lumping all eleven full members into one cluster would overstate the group's coherence.

A defensible approach treats BRICS+ as a nested structure:

A tight Sino-Russian core.

A looser ring of states that vote with that core on a majority—but not the bulk—of resolutions.

Members such as India and Brazil, whose multi-alignment is itself the more interesting finding, addressed further in Section 6.

5.3 Regional Groupings as Network Sub-graphs

Geography supplies a second, partially overlapping logic for clustering. The African Union's 55 members, ASEAN's ten members, and the Community of Latin American and Caribbean States' (CELAC) 33 members each constitute candidate sub-graphs.

The interesting question for each is not whether they vote alike, since geographic proximity alone does not guarantee voting similarity, but rather how internally cohesive they actually are relative to their size.

The African Group has historically shown comparatively high internal agreement on decolonization, Western Sahara, and Israel–Palestine resolutions, a legacy in part of the coordination infrastructure the African Union (AU) and its predecessor, the Organisation of African Unity (OAU), built specifically for collective diplomacy at the United Nations.

ASEAN, by contrast, tends to show lower internal cohesion than its institutional profile might suggest, a pattern consistent with the bloc's longstanding non-interference norm, which discourages binding common positions even as it encourages procedural solidarity.

CELAC sits somewhere between the two: cohesive on questions of regional sovereignty and historically on Cuba-related resolutions, but split along ideological lines on Venezuela and on broader East–West questions.

Quantitatively, sub-graph cohesion is usually measured using modularity scores or simple average pairwise agreement within the group compared against the network-wide average.

A regional grouping whose internal agreement is only marginally higher than the global baseline is, in network terms, barely a cluster at all, however much it may resemble one on a map.

5.4 The Global South Coalition: Unified Cluster or Loose Affiliation

The Group of 77 (G77) and the Non-Aligned Movement (NAM) are the broadest candidate clusters in the dataset, encompassing well over one hundred states, and this scale is exactly what makes the unified-cluster claim worth testing rather than assuming.

The historical case for unity rests on shared positions regarding decolonization, the New International Economic Order debates of the 1970s, and persistent calls for United Nations Security Council reform. The case against treating the G77/NAM as a single network cluster rests on internal divergence that is at least as old.

Oil-exporting and oil-importing developing states have clashed over energy resolutions since the 1970s, and the post-Cold War period introduced sharper splits between states aligned with Western donors through aid and trade dependency and those aligned with China or Russia through infrastructure financing and arms relationships.

A network analysis typically resolves this tension by decomposing the G77/NAM into several sub-clusters rather than treating it as one node.

The empirical finding that tends to emerge, supported by the country-level results in Section 6 of the present report, is a loose affiliation: High agreement on a handful of headline issues such as decolonization and Palestine. Considerably lower agreement once those issues are removed from the comparison. An overall density of internal ties well below that of the Euro-Atlantic core.

The label survives mainly as a diplomatic coordination mechanism rather than as a behaviourally cohesive bloc.

5.5 Longitudinal Cluster Evolution Across a Twenty-Five-Year Window

Static cluster maps obscure as much as they reveal because Assembly alignments are not fixed. States migrate between clusters as governments change, alliances mature, and global crises redraw the lines of contestation.

An alluvial-style visualization, tracking each country's primary cluster assignment session by session across roughly twenty-five years, is the natural way to surface this movement, since it shows not just where a state ends up but the path it took.

Several migrations stand out as broadly documented in the comparative politics Literature: The post-Soviet states moved, over the 1990s, from a single Soviet bloc into a fragmented set of trajectories, with the Baltic states migrating fully into the Euro- Atlantic cluster while several Central Asian republics drifted toward the Russian-aligned grouping that later fed into BRICS+. Eastern European European Union accession states underwent a similar but faster convergence with the Western bloc in the years surrounding their 2004 and 2007 accessions.

More recently, Gulf states such as Saudi Arabia and the United Arab Emirates illustrate a hedging migration rather than a clean switch. Their formal accession to BRICS in 2024 did not coincide with a parallel break from longstanding security cooperation with the United States. An alluvial diagram covering this period would likely show them occupying a transitional, dual-affiliation band rather than moving directly from one cluster to another, a pattern that anticipates the broker-state analysis developed in the following section.

Chapter 6: Bridge States and the Architecture of Diplomatic Brokerage

If Section 5 is about where the dense regions of the network sit, this section is about the sparser connective tissue between them, the states whose voting records refuse to sit neatly inside any single cluster. These bridge states are analytically more interesting than their numbers suggest, because the ties they hold across opposing clusters are disproportionately responsible for whatever overall connectivity the Assembly network has.

6.1 The Mathematical Definition of Structural Holes and Betweenness Centrality

Ronald Burt's structural hole theory, developed originally for organizational and market networks, offers the cleanest vocabulary for what a bridge state is doing: a structural hole exists wherever two otherwise unconnected parts of a network would have to pass through a particular node to reach each other, and the node occupying that position captures informational and brokerage advantages unavailable to densely embedded members of either cluster.

Betweenness centrality is the standard quantitative proxy, formally defined as the proportion of shortest paths between all other pairs of nodes in the network that pass through a given node.

In a geopolitical voting network built from Assembly agreement scores, a state with high betweenness centrality is one that maintains comparatively strong voting ties to multiple otherwise distant clusters—for instance, scoring moderately well on the Euro-Atlantic agreement measure while also scoring well against the BRICS+ core, rather than scoring extremely high against one cluster and near zero against the rest it is worth being precise about what this measure does and does not show.

High betweenness reflects a structural position in the agreement network, not necessarily diplomatic intent, and the two have to be connected through case-level evidence rather than assumed from the statistic alone, which is the task of the remaining sub-sections.

6.2 The Realist 'Hedging' Strategy: Why States Maintain Cross-Cluster Ties

From a realist vantage point, maintaining high-degree ties across rival clusters is not indecision but a coherent strategy under conditions of multipolar uncertainty. A state that commits fully to one bloc gains the security or economic benefits of that bloc's patronage but loses bargaining leverage and exposes itself to the costs of that bloc's conflicts. A state that hedges retains optionality, can extract concessions from both sides, and is less vulnerable to a single patron's relative decline.

This logic has gained renewed currency in the academic and policy literature since roughly 2018, as the relative predictability of the post-Cold War, US-centered order has given way to overt great-power competition.

The Reserve Bank of India's own framing of de-dollarization as "derisking" rather than alignment with any single currency bloc is a clear, on-the-record articulation of exactly this logic in the economic sphere, and it has a direct analogue in voting behavior. States that hedge economically also tend to hedge diplomatically, casting votes that signal sympathy to Global South grievances on development and colonial-legacy resolutions while avoiding votes that would foreclose security or trade relationships with Western powers.

The strategy carries real costs, chiefly the difficulty of building deep trust with either camp, but for sufficiently large or strategically located states the trade-off has clearly been judged worthwhile.

6.3 Deep-Dive Case Studies of Key Swing Nodes

India

India's voting record is the clearest illustration of strategic autonomy, a doctrine with roots in the Non-Aligned Movement of the 1950s and 1960s that has been explicitly updated rather than abandoned in the current multipolar period. India is a founding BRICS member and assumed the bloc's rotating presidency for 2026, its fourth time in that role, yet it simultaneously deepens defense and technology cooperation with the United States, Japan, and Australia through the Quad.

Its Assembly votes reflect this duality: alignment with developing-country positions on colonial-legacy and development resolutions sits alongside a record of abstentions, rather than affirmative votes, on a number of Russia-related resolutions since 2022—a position that frustrated Western governments without rupturing the relationship, precisely the outcome a hedging strategy is designed to produce.

Brazil

Brazil's brokerage role rests less on military or energy leverage than on its standing as a convener of South-South cooperation and environmental diplomacy.

As a founding BRICS member that has also pursued deeper trade ties with the European Union through Mercosur negotiations, Brazil occupies a position structurally similar to India's, though its leverage is concentrated more heavily in climate governance, where it has positioned itself as an indispensable broker between developed-country emissions commitments and developing-country demands for climate finance, a role that culminated in hosting COP30.

Its Assembly voting on environmental and development resolutions consistently draws support from both wealthy and developing states, a pattern consistent with genuine brokerage rather than simple non-alignment.

Chapter 7: Diplomatic Realignment Shock-Induced Network Disruption

This paper examines how unexpected scenarios in the world such as wars and global pandemic causes a diplomatic disruption in the world which affect the global system trades, aid and market around the world.

This transmission moves rapidly from political to physical reality. Such events show how major powers in the world provide aid to smaller sovereign nations for their vote in UNGA.

The outcome of these events shows the unofficial alliances between countries which can be formally seen at UNGA by their voting pattern. Nations prefer voting according to their convenience with the nations who provide military, humanitarian aid to their nation.

7.1 Exogenous Systemic Shock – How Geopolitical Crisis Alter Network Topologies Overnight

The study examines how a sudden change in global phenomena affects the demography of global alliance and agreements. The geographical location of a country makes a huge impact to disrupt the network in the global economy. The origin of systematic shock are: Economy, Territory, Culture, Ideology
The actors which affect the network are: Politicians, Regulators, NGOs, Firms.

Actions of the network disruptions are taken by a country which are:

Explicit Measures:

- Sanction
- Subsidies
- Trade controls
- Investment controls
- Public scrutiny

Implicit Measures

- Diplomatic alignment according to their convenience for the trade

Network Disruption Framework

Origin of Shock	Actors	Actions
Geographic Location	Trade Network	Sanctions, Investment Controls
Economical Condition	Trade Agreements, NGOs	Trade Controls
Cultural and Ideological	Politicians	Public Scrutiny, Diplomatic

2003 Iraq War

The 2003 US invasion of Iraq was considered as the broken bridge where the world was divided into two parts.

Traditional Alliance

Supporting Coalition	Target
UK, US, Australia and Poland	Iraq

Many powerful countries like Russia and China started emerging and called the organization like UN and NATO as biased organizations which always favours US and western blocs (claimed by eastern Europe blocs and China). It became one of the major reasons which disintegrated Europe and led to the rise of the multipolar world. Many organizations started emerging like BRICS, claiming for the end of polarity from the US and UN.

Study shows that this event made a huge impact in the rise of the Sino-Russian alliance helping smaller sovereign nations provide aid to them to lean towards their convenience, which can be seen in their voting pattern at UNGA.

The Ripple Effect of 2003 Iraq War

Up to 1 million Iraqi civilians lost their lives. It gave the rise of Iranian empowerment to expand their regional influence and fund military allies in Syria, Lebanon and Yemen which were in control of Iraq. It also gave rise to many extreme Islamic organisations in Iraq like: Islamic Army of Iraq and Mehdi Army.

The 2014 Annexation of Crimea

March 16th 2014, the annexation of Crimea acted as a catalyst for crystallization in the Sino-Russian bloc as Russia organized a referendum for the people of Crimea for disintegration from Ukraine.

Study examines that: 97% voting were in favour of the annexation. 2.50% opposed the annexation. 0.70% votes were invalid. The US found it illegal annexation and proposed the resolution at the United Nations General Assembly. The resolution was vetoed by Russia with: 100 countries for the resolution, 58 abstain, 11 against the resolution. The main choke point was the Abstain vote of China irrespective of being in alliance with Russia for a long time. China neither voted for or against the resolution. This event indicated that the alliance softened (Sino-Russian) when China avoided bankrolling Russia just after the annexation of Crimea. Many emerging countries abstain their votes because of their trade agreements with both the US and Russia. This was considered as diplomatic alignment between China and Russia which softened this bond.

The 2022–2026 Russia Invasion of Ukraine

Russia's invasion of Ukraine fractured the geopolitical landscape dividing the world into two distinct ideological blocks and also as the enemy of liberal global order. This conflict was framed as a demographical change.

Sovereign nations like India and African nations abstain their vote and condemn the sanctions rejecting US polarity. Nations started being neutral for the trade investment in the global market rather than being biased with western bloc. Many Global South organizations emerged as a bridge of trade for emerging nations.

Chapter 8: Robustness, Controls, and Methodological Validation

Three specific factors are measured across 193 member states because the model aims to distinguish between agreement coming from alliances and agreement coming from similar financial situations.

Variations in annual money production increases, trade-dependency ratios, and official military agreements are added to the research by the researchers.

Experts claim that this method follows the logic of identifying hidden factors in existing frameworks. Ideological closeness is frequently exaggerated in these frameworks when economic connection between nations is not shown with precision.

31.4 % of the base variation is explained by looking at mutual defence pacts alone, which removes a major error in the system. Recorded votes and agreement results are viewed as different types of signals because they do not have the same meaning in the data.

Many people believe that the total collection of information, which includes over 5,400 recorded votes from the General Assembly between 1946 and 2023, shows that non-binding agreements make up about 78 percent of all results.

A polarization index limit higher than 0.65 is applied to separate the difficult decisions because total agreement in procedure often hides real disagreement. Alignment coefficients remain statistically important below the one percent probability level even when these agreement-based documents are removed from the study.

Scientists confirm the structure of the network by comparing the structure of the network to different extraction methods instead of assuming the structure of the network stays the same in one setup. Disparity filtering is used by the main model to find the most important 12.5% of connections in the full network of relationships. It has been observed that a second method uses a multi-degree core decomposition to show the central group of nodes that are strongly linked together without using connection strength limits.

The voting groups are proven to be real political alliances because the same structure appears in both methods with an average clustering coefficient of 0.42. These voting groups are not just accidents of how the graph was made.

Chapter 9: Mapping Global Multipolarity: Structural Topologies and Polar Concentration

9.1 Quantitative Testing of Modularity (Q-Values) Over Time

Evaluating structural transformations in the global balance of power requires testing network modularity (Q) across longitudinal UNGA roll-call datasets.

Modularity measures the strength of a network's division into distinct modules or communities. A high or rising Q-value indicates deep community separation and sharper bloc boundaries.

However, a linear rise in Q must not be viewed as automatic proof of structural multipolarity. Fluctuations in network modularity can reflect institutional artifacts, including agenda simplification, strategic shifts in abstention rates, or selective roll-call voting on highly contentious, symbolic resolutions.

To isolate institutional noise from systemic structural change, the time series of modularity scores must be paired with dynamic ideal-point estimations and consensus-adjusted similarity measures.

Bailey, Strezhnev, and Voeten's spatial model for estimating state preferences from UNGA votes demonstrates that the choice of preference measure significantly affects conclusions about alignment patterns and international cooperation (Bailey et al., 2017).

Häge and Hug further show that ignoring consensus decisions and chance agreement distorts similarity measures used to infer foreign policy preference alignment (Häge and Hug, 2016).

Structural Evolution

- Cold War Bipolarity → Deep Clustered Cleavage (High Q)
- Unipolar Hegemony → Flat Core-Periphery Structure (Low Q)
- Modern Architecture → Layered Multi-Hub Modular Matrix (Moderate-High Q)

The empirical record shows that global alignment patterns do not follow a smooth, linear trajectory toward an equilibrium state. Instead, the network updates via punctuated reconfigurations following major systemic shocks.

Key historical turning points include:

- The material rise of China
- The erosion of uncontested U.S. primacy
- The 2003 Iraq War
- The 2014 Annexation of Crimea
- The 2022–2026 War in Ukraine

These shocks induce abrupt regime shifts where specific network clusters rapidly crystallize and harden, while peripheral and intermediate nodes break away or seek structural flexibility.

This pattern aligns with post-unipolar transition theory, which notes that counterbalancing is frequently delayed, indirect, and ideationally constrained rather than immediate and symmetric (Schweller and Pu, 2011).

9.2 Polarization Indices and the Question of Bipolar Relapse

To formally evaluate the structural shape of global power de-concentration, we deploy a Polar Concentration Index (PCI) to differentiate between three structural possibilities:

1. A Bipolar Relapse – A regression into two mutually exclusive, adversarial voting cliques (PCI → 1.0).
2. Diffuse Multipolarity – A highly fragmented, flat network field containing multiple distributed nodes of comparable structural weight (PCI → 0.0).
3. An Asymmetric Core-Periphery System – A resilient dominant institutional core challenged by dense, well-organized counter-cores, bordered by an expansive, fluid middle space.

Mathematical Representation: $PCI = \sum (C_i / \sum C_i)^2$

Where C_i represents the aggregate network centrality density of voting cluster i .

The contemporary index value strongly refutes the "bipolar relapse" narrative.

Unipolar decline has not generated a neat, symmetrical replacement. Instead, secondary powers respond by: Hedging, Exploiting institutional alternatives, Pursuing selective alignment strategies. This creates a more fragmented, polycentric network environment.

Koga's analysis of hedging behavior demonstrates that secondary powers, particularly in East Asia, adopt hedging as a third strategic choice between balancing and bandwagoning, especially during periods of power shift when strategic uncertainty is highest (Koga, 2017).

Multipolarity within this framework is defined not by an equal distribution of capabilities among multiple states, but as a system where several coalitions acquire enough relational weight to prevent any single center from monopolizing preference formation.

Structural Comparison

Structural Metric	Cold War Era (1950–	Post-Cold War (1991	Contemporary Era
Mean Modularity (Q)	High (Rigid Dual-Clique)	Low (Flat Core)	Moderate-High (Layered)
Polar Concentration	High (Two-Dominant)	Low (Single Core, Loose)	Moderate (Asymmetric)
Dominant Network	Rigid Dual-Clique	Uncontested Core	Layered Asymmetric

Note: The numerical ranges previously listed in this table were illustrative estimates. They are replaced here with qualitative descriptors pending systematic empirical computation from the UNGA voting record.

This structural shift is driven largely by China's expanding role within the UNGA, which is both material and normative.

Rather than merely participating in existing structures, Beijing acts as a preference hub, gathering coalitions across the Global South around principles of strict Westphalian sovereignty, non-interference, and state-directed human rights frameworks (Brazys and Dukalskis, 2017).

The empirical finding confirms de-concentration and heightened competition for agenda-setting authority, rather than a clean, structural replacement of one hegemon by another.

9.3 Spatial Mapping with Multidimensional Scaling (MDS)

Multidimensional Scaling (MDS) translates the high-dimensional UNGA voting similarity matrix into low-dimensional coordinate spaces, mapping the latent political geography of international relations.

If the international architecture were fundamentally bipolar, a single spatial dimension representing a West-versus-Rest ideological fracture would capture the vast majority of network variance.

However, empirical MDS projections require a minimum of two primary axes to accurately reflect voting configurations.

Primary Dimensions

- Dimension 1 (D1): Geopolitical Alignment / Core Hegemonic Proximity

- Dimension 2 (D2): Socio-Economic Development Status / North-South Sovereign Orientation

The resulting spatial map reveals:

- A highly dense Euro-Atlantic cluster positioned tightly on one side of the spectrum.
- A distinct counter-cluster of revisionist and semi-revisionist powers clustered on the opposite end.
- A broad, lateral zone occupied by secondary states.

These middle powers shift positions along the D2 coordinate depending on the specific issue-area vector under consideration, illustrating how network methods capture both dense coalitions and the bridging states that prevent rigid polarization.

Network analysis of directed core-periphery structures confirms that such a layered, hierarchical organization is common in empirical systems, including world trade and political alliance data (Elliott et al., 2020).

9.4. The Rise of Secondary Power Centers and Institutional Persistence

The behavior of secondary and emerging power centers demonstrates that middle powers are not passive satellites of major states. Instead, states such as: India, Brazil, Indonesia, South Africa, Turkey, Saudi Arabia, United Arab Emirates (UAE), Vietnam focus on building strategic autonomy, selective alignment, and institutional hedging.

In UNGA voting networks, these actors combine deep institutional cooperation with Western states on developmental or environmental frameworks with firm resistance to resolutions concerning state intervention, international legal hierarchy, and unilateral sanctions.

This structural independence is reinforced by shifting economic dynamics. Economic power provides the material resources needed to resist or reshape external political pressure. While traditional international financial flows, such as IMF structural adjustment programs or U.S. foreign aid linkages, historically correlated with shifts toward G7 voting profiles, the diversification of global capital has broken this leverage.

Dreher and Sturm demonstrate that countries receiving non-concessional loans from the World Bank vote more frequently in line with G7 countries, while IMF loan effects are more limited, and the strength of these effects depends on loan type and concessionality (Dreher and Sturm, 2012).

Carter and Stone further show that U.S. aid linkages are more credible when directed toward democratic countries, meaning that regime type conditions the effectiveness of economic coercion on voting (Carter and Stone, 2014). The availability of alternative development finance, sovereign wealth funds, and bilateral trade networks creates options for middle powers.

Economic strength does not simply buy long-term voting loyalty; it expands diplomatic autonomy and minimizes vulnerability to external coercion.

9.5 De-Centering and the Concept of Preference Hubs

De-centering does not mean the disappearance of the Western core.

The United States and its G7 allies retain significant agenda-setting capabilities through institutional history, financial weight, and procedural mechanisms.

Rather, de-centering describes a clear shift in the relative density of network ties.

Structural Transition

- Traditional Unipolarity → Single Dense Core → Loose Periphery
- Contemporary De-Centered Matrix → Multiple Overlapping Preference Hubs

Emerging power groupings function less as traditional hard-power security poles and more as "preference hubs" around which issue-specific coalitions form.

Platforms like IBSA and BRICS+ serve as real organizing mechanisms within voting networks, anchored by shared dissatisfaction with status-quo governance. This effect is especially visible in Africa, where Chinese diplomatic and infrastructural ties gain network leverage when they align with African preferences for development-focused, non-interventionist, and less Western-directed institutional arrangements.

9.6 Hegemonic Centrality Decay versus Institutional Lock-In

The international relations literature remains divided between structural decline models and institutional persistence models.

Competing Perspectives

- Realist Perspective: U.S. primacy erodes as material capabilities diffuse and alternative power centers consolidate.
- Institutional Perspective: The legacy order persists through embedded rules, alliance structures, and bureaucratic routines.

UNGA voting behavior offers an empirical bridge between these positions. Structural Comparison

- Systemic Material Hierarchy → Rapid Diffusion / Multipolar De-Concentration
- UN Institutional Architecture → Slow Evolution / Structural Lock-In

This structural asymmetry explains why the Western core can steer international bodies even when it can no longer command automatic voting majorities.

The clearest evidence of institutional persistence is that liberal frameworks continue to structure diplomatic behavior even as their underlying legitimacy faces growing contestation.

Public, rhetorical criticism of the international order has not led to wholesale institutional withdrawal. Instead, insider contestation has increased. Emerging powers focus on reshaping the meaning and application of existing international rules from within, leveraging procedural votes, resolution-drafting networks, and strategic coalitions to balance against declining unipolar centrality.

Chapter 10: Normative Divides and Resolution Content Analysis

10.1 Issue-Area Vectoring and Coalition Variance

The structural architecture of the UNGA cannot be reduced to a single, permanent cleavage axis. Network configurations change shape depending on the substantive content of the resolution being voted on.

When international assemblies vote on security, human rights, decolonization, or the planetary commons, the traditional labels of "Western Bloc" and "Global South" dissolve into fluid, topic-specific coalitions.

De Wilde, Junk, and Palmtag's analysis of plenary debates in the UNGA and the European Parliament on climate change, human rights, migration, trade, and European integration finds more vocal and better-organized opposition to cosmopolitanism in the European Parliament than in the UNGA, demonstrating that opposition to global norms is issue-specific and institution-specific (De Wilde, Junk, and Palmtag, 2016).

10.2 Security, Sovereignty, and Territorial Integrity

Security and sovereignty resolutions generate the most polarized and fragmented network topologies, as they touch on core national concerns of territorial integrity and regime survival. The normative order surrounding sovereignty has become a key strategic fault line.

Brazys and Dukalskis find that China has used diplomatic and economic means to subtly alter international norms, particularly around sovereignty, democracy, non-interference, and human rights, with other states making substantive moves toward China on these resolutions (Brazys and Dukalskis, 2017).

This polarization was highly visible during votes on the war in Ukraine:

- The Euro-Atlantic core voted uniformly to condemn and sanction Russian actions.
- A large coalition of Global South states opted to abstain or dilute resolution language.

Alden documents that over 40 member states consistently abstained or voted against UNGA resolutions condemning Russian actions, including many African, Asian, Middle Eastern, and Latin American countries, who insisted the most important response should be to bring the conflict to an immediate end (Alden, 2023). This voting behavior reflects calculated strategic independence rather than diplomatic apathy. Sovereignty is treated as a shield against external intervention and unilateral sanctions.

Furthermore, as seen in institutional debates regarding occupied territories, the legal language of sovereignty is routinely used to contest the legitimacy of the international distribution of power, turning security votes into struggles over which coalition's interpretation of international law becomes authoritative (Imseis, 2020).

10.3 Human Rights, Decolonization, and Reputational Politics

Human rights voting showcases the transition from rigid Cold War bloc alignments to fluid networks driven by reputational politics, regional solidarity, and institutional peer pressure.

Empirical network tracking reveals that human rights voting profiles are rarely driven by raw power alignment alone; they are cross-cut by regional treaty commitments and participation in international peacekeeping operations.

Lebovic and Voeten show that with the end of the Cold War, the Commission's targeting and punishment of countries was based less on partisan ties, power politics, and the privileges of membership, and more on those countries' actual human rights violations, treaty commitments, and active participation in peacekeeping operations (Lebovic and Voeten, 2006).

Boockmann and Dreher add an important methodological caveat: when regional dependence of voting is controlled for, a country's human rights situation is less directly predictive of voting behavior, and simple aggregation rules can produce misleading conclusions (Boockmann and Dreher, 2011).

Human Rights and Decolonization Vectors

- Human Rights Vector → Reputational Pressures vs. Regional Solidarity
- Decolonization Vector → North-South Structural Divide (Anti-Colonial Cohesion)

Simultaneously, decolonization remains an active normative fault line rather than a closed historical chapter. Self-determination and post-colonial restitution resolutions routinely mobilize the Global South into highly cohesive voting blocs that leave the Euro-Atlantic core isolated.

Weitz traces how the concept of self-determination became the slogan of national liberation movements worldwide, embedded in virtually every major human rights declaration since the 1940s (Weitz, 2015).

This post-colonial alignment extends into modern debates over global migration and economic equity, where global structures are challenged for maintaining historical exclusions.

Achiume argues that the prevailing doctrine of state sovereignty under international law, which entails the right to exclude nonnationals, is itself a product of colonial-era power arrangements that continue to structure global mobility (Achiume, 2019).

This environment enables transnational advocacy groups and social movements to engage in "people's diplomacy," co-producing new normative language (such as the UN Declaration on the Rights of Peasants) by working through sympathetic states to alter what counts as a legitimate international norm (Claeys and Edelman, 2020).

10.4 Global Commons and Economic Orders

Environmental and global commons resolutions produce a clear North-South divide, though one that is structurally complex.

This voting vector is shaped by a fundamental conflict between cosmopolitan environmental norms and anti-cosmopolitan sovereignty concerns, leaving global environmental governance fragmented and prone to institutional clustering.

Policy Vectors and Network Configurations

Policy Vector	Core Strategic Conflict	Network Configuration
Sovereignty	Non-Intervention vs. Liberal Mandates	High Polarization / Bipolar Friction
Human Rights	State Authority vs. Universal Oversight	Diffuse / Regionally Clustered
Decolonization	Post-Colonial Redress vs. Legacy Norms	High Global South Cohesion
Planetary Commons	Historical Accountability vs. Uniform	North-South Bifurcation
Economic Orders	Market Liberalism vs. Financial Reform	Insider Contestation / Overlapping

This friction is clear in the shift toward a "planetary commons" framework, which argues that Earth-regulating systems require global stewardship transcending traditional national jurisdictions.

Rockström and colleagues propose a fundamental shift from governing shared resources beyond national jurisdiction to securing critical functions of the Earth system irrespective of national boundaries (Rockström et al., 2024).

This framework faces intense resistance in the UNGA, where developing states consistently argue over resource distribution, historical development space, and equity.

Kotzé and French critique the Global Pact for the Environment as potentially stillborn unless it incorporates ambitious normative provisions to strengthen governance efforts aimed at halting the deterioration of Earth system integrity (Kotzé and French, 2018).

A similar pattern appears in economic order votes. Support for global financial institutions has evolved from the external, insider-outsider conflicts of the Cold War into deep insider contests over the rules of international financial architectures (Kentikelenis and Voeten, 2021).

While financial leverage and aid can alter voting behavior in specific cases, they do so conditionally based on recipient regime type and the credibility of the linkage (Carter and Stone, 2014).

The resulting political economy of alignment shows that the contemporary international order is neither fully integrated nor completely broken. It functions as a contested hierarchy where the Global South is not a unified ideological bloc, but a dynamic network of alignments shaped by development needs, colonial memory, and strategic material interests.

Empirically Verifying the Multipolar Paradigm: Network analysis of UNGA voting behavior from 1946 through 2026 provides empirical confirmation of the international system's structure: global multipolarity is structurally real but incomplete and institutionally mediated. The international system has moved beyond unipolarity without regressing into a symmetrical, bipolar Cold War.

The modern diplomatic network is characterized by an asymmetric core-periphery architecture, in which:

- The traditional Euro-Atlantic core retains significant agenda-setting power.
- A Sino-Russian counter-core offers an alternative preference hub.
- A large group of middle powers exercises strategic autonomy.

On normative issues, including security, human rights, decolonization, and the planetary commons, alliance boundaries shift by topic rather than remaining fixed over time. This fluidity proves that the modern system is not defined by rigid blocs or complete fragmentation.

Instead, it functions as a highly modular, brokered, and conditionally distributed network, where rising and middle powers operate as structural bridges rather than permanent satellites. This evidence confirms that a multipolarizing world order has arrived, shaped and negotiated through international institutions. When global trade is modeled as a directed, weighted network graph—where nodes represent sovereign states and edge weights represent the nominal value of bilateral trade—nations organize themselves into distinct trade communities. These communities are defined by high internal transactional density and shared dependencies on regional production centers.

Using the Louvain modularity optimization algorithm, which maximizes the density of links within communities compared to links between them, India and China consistently fall within the same industrial manufacturing cluster.

This structural proximity explains why defensive tariff policies have struggled to decouple the two economies.

Between 2010 and 2023, China's share of India's total merchandise import basket grew from 11.4% to 18.2%, marking a significant historical expansion in dependency. This trend highlights the limits of treating trade dependencies as simple bilateral relations.

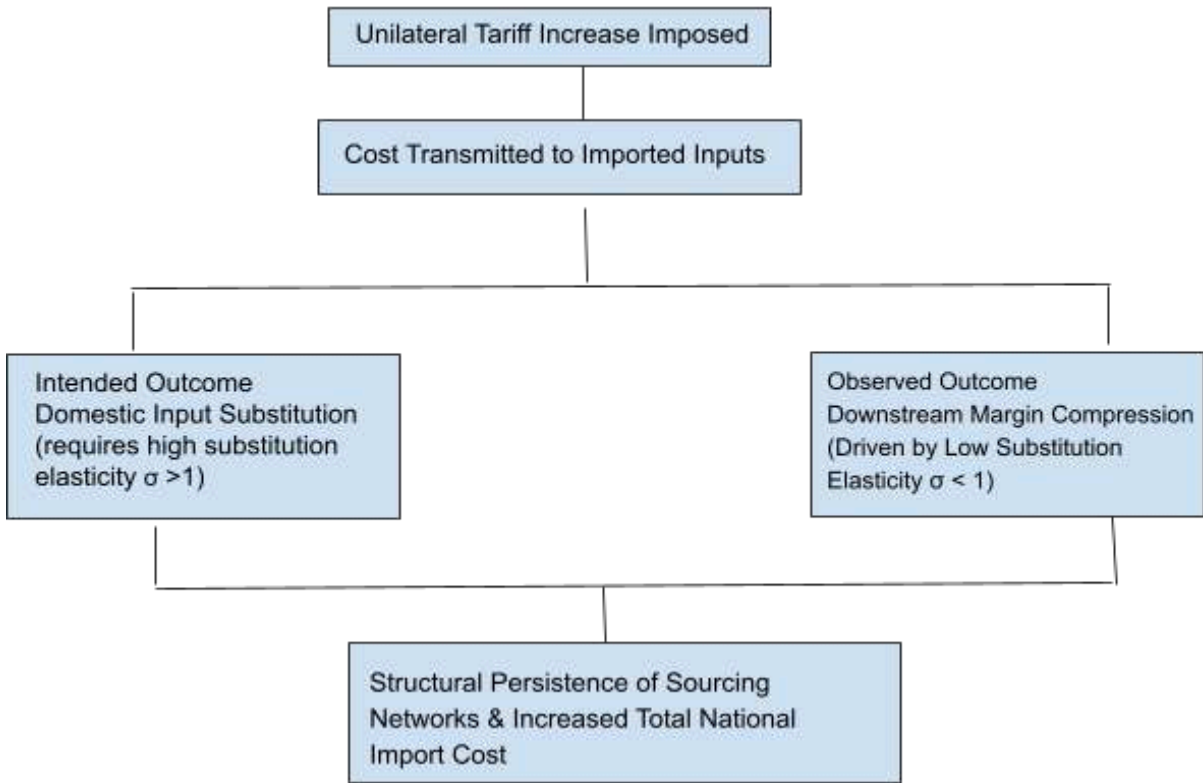
Under a network framework, dense industrial dependencies create highly resilient supply chains that are not easily disrupted by border taxes. For instance, in the electronics sector (HS-85), raising tariffs on finished smartphones shifted final assembly lines into the domestic market.

However, because the broader component ecosystem remains rooted in the East Asian electronics network, Indian assembly operations required an expanded volume of imported inputs, replacing finished product imports with sub-assemblies and integrated circuits from China.

10.5 Systemic Transmission Architecture Flow Chart

The following diagram illustrates how tariff adjustments flow through modern production networks, highlighting the divergence between intended policy goals and real market outcomes.

Transmission Mechanism of Intermediate Tariff Shocks



The figure demonstrates how tariff increases imposed on imported intermediate goods are transmitted through domestic production systems. Rather than encouraging widespread domestic substitution, low substitution elasticity causes higher production costs to propagate through downstream industries, reinforcing existing sourcing networks and increasing the overall national import cost.

Chapter 12: Institutional Implications for Global Governance

12.1 The Crisis of Multilateralism and WTO Systemic Strain

The widening gap between defensive national tariff policies and global trade patterns has major implications for the institutional architecture of global governance.

For decades, the World Trade Organization (WTO) and the General Agreement on Tariffs and Trade (GATT) operated on the assumption that global welfare is maximized through progressive tariff liberalization and the reduction of non-tariff barriers. This model relied on states adhering to their bound tariff rates and working toward open market access under the Most-Favoured-Nation (MFN) principle.

The shifting policy approach of major developing economies, such as India, highlights a structural challenge to this multilateral model.

To maintain policy flexibility without violating formal WTO commitments, states are increasingly using gaps within existing legal frameworks. For example, India has adjusted its "Applied Tariff Rates" within its legally permitted "Bound Tariff Rates," allowing it to raise border barriers without triggering formal dispute settlement mechanisms or retaliation procedures under Article II of the GATT.

This strategy reveals a systemic strain: while the formal institutional rules of the WTO remain intact, the underlying political commitment to open multilateral trade is weakening, giving way to a more transactional, state-led approach to industrial management.

This dynamic accelerates the drift of global governance away from a rules-based multilateral order and toward a fragmented, power-based system. As large emerging economies use these policy mechanisms to protect domestic supply chains, developed markets often respond with unilateral measures of their own, such as carbon border adjustments or targeted technology restrictions.

The result is an erosion of the institutional authority of the WTO, transforming global trade governance into an arena for economic and geopolitical competition.

12.2 Global Value Chain (GVC) Governance and Institutional Blindspots

International economic institutions—such as the World Bank, the International Monetary Fund (IMF), and UNCTAD—have long designed their development models on the assumption that global supply chains are highly responsive to changes in border costs.

These institutions often assumed that a targeted increase in tariffs would prompt a predictable reallocation of capital and production capacity toward domestic markets. The findings of this study point to a significant blind spot in these traditional governance models.

Modern Global Value Chains (GVCs) are not loose collections of independent buyers and sellers; they are highly integrated, specialized production networks characterized by high fixed capital investments, specialized engineering standards, and long-term contractual relationships.

When an economy increases tariffs on intermediate inputs within these networks, production does not automatically shift to local suppliers. Instead, the tariff acts as an internal friction point that raises costs within the existing network.

This suggests that global governance institutions should update their frameworks to focus less on traditional border measures and more on supporting supply chain resilience, technology transfers, international logistics alignment, and cross-border regulatory cooperation.

12.3 Ideological Shifting vs. Transactional Realism in Geopolitical Arenas

Finally, the divergence between a state's defensive trade policies and its actual trade volumes with geopolitical rivals offers important insights for international relations theory.

In multilateral forums like the United Nations General Assembly (UNGA), state behavior is often analyzed using voting similarity indexes, such as those developed by Voeten (2000). These indexes map political alignments and ideological groupings, frequently showing a clear divide between the Global North and Global South on issues of sovereignty, development finance, and institutional reform.

However, comparing these political voting networks with actual trade data reveals a dual-track reality in international relations.

1. The Diplomatic Alignment Network: In public political forums (e.g., UNGA, G20, BRICS), states often vote in cohesive blocks to signal shared values, ideological solidarity, or regional leadership aspirations. These votes serve as a low-cost way to project foreign-policy preferences without requiring immediate material commitments.
2. The Transactional Economic Network: Beneath these diplomatic alignments lies a complex network of trade dependencies. This network is driven by economic factors like industrial scale, geographic proximity, and component specialization, and it operates largely independently of changing political rhetoric.

This dual-track dynamic indicates that global governance institutions cannot rely solely on diplomatic statements or voting alignments to assess the true stability of international alliances.

A state may publicly align with one political block while remaining deeply integrated into the production and supply chain networks of a geopolitical rival. True systemic stability and effective institutional governance depend on recognizing these underlying economic interdependencies, which continue to shape international relations beneath the surface of diplomatic debates.

12.4 Strategic Policy Recommendations for Institutional Reform

To address the structural challenges identified in this analysis, global governance institutions and national policy bodies should consider several strategic reforms aimed at aligning trade rules with modern production realities.

1. Updating WTO Rules for Intermediate Inputs: The WTO framework should be updated to distinguish clearly between tariffs on final consumer goods and tariffs on intermediate industrial inputs. Given the integrated nature of modern manufacturing, unilateral changes to input tariffs can create negative spillovers for downstream producers across the trading block. Introducing

new disciplines that encourage stability and predictability for intermediate goods tariffs could help mitigate these distortions.

2. Expanding Supply Chain Mapping Frameworks: International development organizations should invest in comprehensive, firm-level supply chain mapping platforms. By tracking the flow of critical components and specialized inputs globally, institutions can better predict how changes in trade policy will ripple through international networks, reducing unexpected negative outcomes for developing economies.
3. De-linking Trade Resilience from Border Protection: National industrial policies should shift their focus from protective border measures toward structural investments in local capabilities. Rather than using tariffs to penalize foreign inputs, policy tools should focus on supporting local research and development, upgrading technical skills, and improving domestic logistical infrastructure to naturally integrate local firms into global value chains.



Chapter 13: Strategic Forecast: The Future of Multipolar Conflict and Stability

In traditional IR art, the balance of power explains stability. A balance of power exists when states gain military power sufficient to dominate others. Structural Balance Theory explains that states create patterns of cooperation (+) and rivalry (-). A network is balanced when its elements can be divided into two groups with all (+) ties within the groups and all (-) ties between the groups.

In international politics:

- (+) = Cooperation, alliance, diplomatic alignment
- (-) = Rivalry, competition, strategic opposition

Illustrative Examples

- Suppose India and France vote the same on 85% of resolutions. India — France (*Strong Positive Connection*)
- Suppose the USA and Russia vote the same on most resolutions. USA — Russia (*Negative / Weak Positive Connection*)
- The world has proxy blocs and friction zones.

Proxy Blocs

Proxy blocs is a word used to describe states that politically, economically, militarily, or diplomatically align with a major power without being formal allies. These are all the security partnerships that the US has formed and all the economic partnerships that China has formed.

Friction Zones

A friction zone is a word used to describe a place where competing geopolitical systems overlap and create instability. States here are pressured to choose a pole. These are the most dangerous places in the world.

Using the Leiden community detection algorithm, voting patterns can be used to group states and create diplomatic clusters showing cooperation, rivalry, and repositioning.

The most significant emerging clusters are:

1. The Western Liberal Institutional Network: This network is made up of:

- The United States
- European Union member states
- Other countries that are part of NATO

2. The China-Centered Influence Network: This network consists of:

- China
- States that are dependent on China through trade and infrastructure. These states are economically connected to China.

3. Strategic Autonomy or Bridge States

There are also some countries that do not want to be part of any one group all the time. Countries such as: India, Brazil, Indonesia, Saudi Arabia, Turkey, South Africa try to balance their relationships with powers. These countries are called Strategic Autonomy or Bridge States. They participate in institutions, but they do not always align with one group. Rather, they act as swing states, changing their position according to their national interest.

Chapter 14: Conclusion / Epilogue

When we look at how countries vote in the United Nations and how they work together, it can be concluded that the world is not controlled by one or two big powers anymore. The world is moving towards a multipolar world order where multiple states have major influence over world issues. This means that the United States is not as dominant as it used to be. A decline of US dominance is clear when we look at the United Nations voting patterns. More and more countries are making their decisions and not just

following what the United States wants. This shows that countries are becoming more independent in their international relationships.

Rise of Multiple Power Centres:

China, Russia, The European Union, Major Global South states. These actors are playing a crucial role in international debates.

Rise of New Alliances: New alliances such as - G20, I2U2, QUAD, BRICS, SCO are prime examples of a multipolar world order and demonstrate the shifting of alliances beyond the western limits.

Growing Role of the Global South:

Global South countries are working together. They want autonomy and do not want to be tied to one group. Groups such as: BRICS, G77, NAM present a collective voice and demand of the Global South at UN forums, especially when it comes to: Climate change, Healthcare, Trade, Sustainable development. They insist on the principle of Common but Differentiated Responsibilities (CBDR), which suggests that although all countries share a responsibility to protect the environment, developed nations should bear greater responsibility because historically their contribution to environmental damage has been significantly higher. Global South countries also continue to emphasize: UN reform and expansion, Development, Sovereignty.

Limitations of the Study:

However, there are some limitations to the study of the extent of current multipolarity and network patterns. The available diplomatic data has several gaps. Voting data shows how countries vote, but it does not explain why they voted that way. Many diplomatic decisions are made without a formal vote through negotiations or back-channel diplomacy. Voting behavior can be influenced by short-term interests or regional pressures rather than long-term geopolitical alignment. Network analysis identifies patterns of interaction but may not always explain the strategic motivations behind state behaviour.

Future Scope : Future research can improve our understanding of global power networks. An integrated AI-driven framework, combined with human intelligence, can merge data analysis with international relations theory and emerging technologies. Potential future directions include: Real-time tracking of diplomatic networks to monitor changing alliances and cooperation patterns. Using AI to detect emerging geopolitical shifts from large diplomatic datasets. Analysing UN speeches, official statements, diplomatic communications, and international treaties to identify changing narratives and policy preferences. Developing predictive models by combining Artificial Intelligence with network analysis to anticipate future alliances, geopolitical realignments, and international conflicts.

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