Geoeconomics: Navigating the New Global Landscape

with a Data Science Twist

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Preface

Geopolitics, in its most elementary sense, designates a systematic reflection on the relationships between geography, power, and collective organization. Its etymological roots in the Greek *geo* ( ), referring to the Earth, and *politiká* ( ), denoting the affairs of the city, already signal an intrinsic connection between spatial constraints and political authority. Although the term *geopolitics* was formalized at the turn of the twentieth century—most notably through the work of Friedrich Ratzel and later through Halford Mackinder's emphasis on strategic "pivot areas"—the underlying intuition is far older. Classical philosophy had long recognized that environment, material conditions, and spatial organization shape social order, political stability, and the exercise of power.

Within this tradition, Epicurus and his followers articulated the ideal of *ataraxia* ( ), understood as a state of tranquility achieved by distancing oneself from external disturbances, including political life. While this notion retains philosophical appeal at the individual level, it offers little guidance for understanding political and economic systems. States, societies, and economic actors cannot withdraw from the structures in which they are embedded. Geography, institutions, and material constraints continuously condition strategic behavior, making conflict, negotiation, and adaptation enduring features of historical development. In this respect, Heraclitus' insight that tension and struggle are constitutive of becoming remains analytically relevant: stability is not a natural equilibrium, but a contingent outcome of ongoing contestation.

In the contemporary period, this logic has become increasingly visible through the rise of geoeconomics. Whereas classical geopolitics privileged territory, borders, and military capability, geoeconomics foregrounds the strategic use of economic instruments and economic networks as vectors of power. Trade policy, investment regimes, financial infrastructures, technological standards, data ecosystems, and supply-chain chokepoints now operate as mechanisms through which influence is exercised and vulnerabilities are managed. This shift does not displace geography; it transforms it. Geography now encompasses the spatial organization of production, logistics, energy systems, and digital infrastructures. Interdependence, once celebrated primarily as a source of mutual gain, has thus become a central site of strategic leverage and exposure, as economic connectivity can be selectively exploited for coercive purposes (Luttwak (1990); Blackwill and Harris (2016); Farrell and Newman (2019)).

Global power is consequently shaped by the capacity to organize, secure, and reconfigure economic connectivity. Established powers such as the United States, China, and Russia

continue to exert influence through combinations of military strength, industrial capacity, financial reach, and alliance structures. Yet the contemporary landscape cannot be reduced to a small group of dominant states. Emerging economies, regional hubs, and large firms increasingly shape outcomes through regional value chains, demographic scale, regulatory strategies, and control over critical nodes of connectivity. These forms of influence are distinctly geoeconomic in character, grounded less in territorial control than in the governance of networks and infrastructures.

This book proposes an analytical framework for making sense of these transformations by integrating geopolitical reasoning with geoeconomic mechanisms, while explicitly incorporating data science as a methodological extension. The objective is not to replace interpretive analysis with computation, but to enhance analytical precision in a world where the relevant phenomena—trade flows, investment networks, migration dynamics, energy dependencies, digital infrastructures, and climate exposures—are increasingly observable through large and heterogeneous datasets. A geoeconomic perspective becomes operational when it is paired with tools capable of mapping interdependence, identifying asymmetries, and assessing how shocks propagate across interconnected systems.

Accordingly, the book mobilizes network analysis, predictive modeling, and Geographic Information Systems to render power relations empirically tractable. Network approaches reveal the topology of trade, finance, and technological relations, making visible patterns of centrality, dependence, and asymmetric exposure that are often obscured in aggregate statistics. Predictive methods provide a disciplined way to reason under uncertainty, particularly when geopolitical outcomes depend on interacting risks such as demographic change, resource constraints, institutional fragility, and climate stress. GIS anchors these dynamics spatially, connecting abstract interdependence to concrete infrastructures such as ports, corridors, production clusters, and urban systems. The methodological ambition is straightforward: to move from qualitative claims about vulnerability and leverage to indicators that can be measured, compared, and replicated.

The thematic core of the book addresses major contemporary challenges—including inequality, digital transformation, climate change, global health, and violent conflict—not as exogenous shocks, but as arenas in which geoeconomic instruments are actively deployed. Cyber operations, for example, increasingly intersect with economic competition, as attacks on data infrastructures and intellectual property can generate strategic advantage without conventional military engagement. Climate change similarly functions as a geoeconomic driver, reshaping energy systems, commodity markets, insurance regimes, migration patterns, and the distribution of economically viable territory.

The analysis then turns to emerging frontiers where geoeconomic rivalry is likely to intensify, notably artificial intelligence, space-based infrastructures, and the contest over technological standards. In these domains, strategic advantage depends less on isolated breakthroughs than on sustained access to data, computing capacity, critical inputs, and skilled labor. Measurement, modeling, and anticipation therefore become central capabilities, reinforcing the relevance of data science as a complement to geopolitical and geoeconomic analysis.

Finally, the book situates national strategies within the broader architecture of interdependence. Countries are not treated as autonomous units, but as nodes embedded in dense systems of trade, finance, technology, and logistics. National power, in this perspective, derives not only from internal attributes such as demography or industrial composition, but also from positional advantages within global networks.

As global power shifts and economic interdependence becomes increasingly politicized, the need for analytically disciplined and empirically grounded frameworks grows more acute. This book seeks to contribute to that effort by bridging traditional geopolitical thought with contemporary geoeconomics and the analytical possibilities offered by data science. Its ambition is not to offer an illusory escape from conflict, but to provide a structured cartography of the mechanisms through which competition, vulnerability, and resilience now shape the global landscape.

Part I

New Geoeconomics

1 Introduction

The early twenty-first century is marked by a profound reconfiguration of the global order in which economic relations have re-emerged as central instruments of power. After several decades during which globalization was predominantly interpreted through the lenses of efficiency, comparative advantage, and market self-regulation, economic interdependence is now widely understood as a source of vulnerability, leverage, and strategic contestation. Trade flows, financial networks, technological standards, supply chains, and data infrastructures no longer function merely as neutral channels of exchange. They have become arenas in which states, firms, and institutions deliberately pursue political and strategic objectives. This transformation signals the consolidation of geoeconomics as a dominant framework for interpreting contemporary international economic relations.

Geoeconomics departs both from classical geopolitics and from orthodox economic theory. Unlike traditional geopolitics, which emphasized territorial control, military capability, and physical proximity, geoeconomics foregrounds the strategic manipulation of economic instruments within highly interconnected systems. Unlike orthodox economics, which abstracts from power and often treats markets as politically neutral coordination mechanisms, geoeconomics explicitly recognizes that markets are embedded in institutional, legal, and technological structures that can be shaped and exploited. As Edward Luttwak famously observed, the logic of conflict has progressively colonized the grammar of commerce (Luttwak (1990)). What distinguishes the current phase is not the novelty of economic statecraft per se, but the unprecedented density, scale, and complexity of the global economic networks through which such statecraft now operates.

The depth of contemporary interdependence has fundamentally altered the modalities through which power is exercised. In a world characterized by tightly coupled production systems, globally integrated financial markets, and digitally mediated flows of information, influence is increasingly exerted through control over access rather than through direct coercion. Regulatory authority, technological standards, payment systems, and logistical chokepoints have become strategic assets. As argued by Blackwill and Harris, economic tools now operate alongside, and sometimes in place of, traditional military instruments as means of statecraft (Blackwill and Harris (2016)). Crucially, these tools derive their effectiveness not from isolation, but from asymmetry within interdependence. Power emerges from network position, from the ability to deny, condition, or restructure access to critical nodes.

Recent developments have rendered these dynamics unmistakable. Strategic rivalry between major powers has unfolded primarily through economic and technological channels rather

than through direct military confrontation. Export controls on advanced semiconductors, investment screening regimes targeting sensitive technologies, large-scale industrial policies, and selective supply-chain reconfiguration illustrate how economic openness is increasingly subordinated to security and strategic considerations. At the same time, the extensive use of financial sanctions—particularly those leveraging the centrality of dollar-denominated clearing and settlement systems—has demonstrated how structural power embedded in global networks can be mobilized coercively. Farrell and Newman conceptualize this phenomenon as "weaponized interdependence," emphasizing that network centrality enables states to transform economic connectivity into geopolitical leverage (Farrell and Newman (2019)).

From a longer historical perspective, the current moment appears less as a rupture than as an inflection point. Previous waves of globalization have repeatedly encountered political limits once economic openness collided with security concerns or domestic distributional pressures. Hirschman's analysis of the interwar period demonstrated how trade dependence could be deliberately structured to create political influence and constraint (Hirschman (1945)). The post-1945 international economic order sought to mitigate such dynamics through multilateral institutions designed to reconcile openness with domestic stability, a compromise famously described as "embedded liberalism" (Ruggie (1982)). The neoliberal turn of the late twentieth century, by contrast, rested on the presumption that markets could be progressively insulated from political intervention. From a geoeconomic perspective, this insulation was always partial and contingent. The contemporary re-politicization of economic relations thus reflects the reassertion of a structural tension between efficiency and control that has never been fully resolved.

This book advances two central propositions. First, contemporary global competition is increasingly organized around economic networks—global supply chains, financial systems, technological ecosystems, and data infrastructures—whose structure determines both vulnerability and influence. Economic power today is less a function of aggregate size than of position within these networks. Second, understanding and navigating this landscape requires analytical tools capable of capturing complexity, scale, and interdependence. Qualitative and interpretive approaches remain indispensable, but they are no longer sufficient on their own. The availability of large-scale, high-frequency, and spatially explicit data calls for methodological frameworks that can systematically analyze network structures, identify chokepoints, and model the propagation of shocks across interconnected systems.

It is in this context that data science becomes analytically consequential for geoeconomics. Network analysis provides a formal language for describing economic connectivity, revealing patterns of centrality, clustering, and dependence that are invisible in bilateral or aggregate statistics. Geospatial analysis anchors these networks in physical space, linking abstract flows to ports, corridors, production clusters, and territorial constraints. Predictive modeling and simulation allow analysts to formalize scenario-based reasoning under uncertainty, particularly when outcomes depend on interacting risks such as demographic change, resource scarcity, institutional fragility, and climate stress. The relevance of such approaches is underscored by

work demonstrating how network structures can amplify or dampen aggregate shocks (Acemoglu et al. (2012)), as well as by analyses of how digital technologies have reshaped the geography of production and trade (R. Baldwin (2016)).

The contribution of this book is therefore both conceptual and methodological. Conceptually, it synthesizes insights from international political economy, strategic studies, and economic geography to articulate a geoeconomic framework centered on power, interdependence, and resilience. Methodologically, it demonstrates how data-driven approaches can operationalize these concepts, transforming abstract notions of leverage and exposure into measurable and replicable indicators. Data science is not treated as a technical appendix, but as an integral component of contemporary geoeconomic reasoning, reshaping how strategic questions are formulated and answered.

The structure of the book reflects this ambition. The first part introduces the principal actors and evolving configurations of power, moving beyond a purely state-centric view to incorporate firms, platforms, and new economic hubs. The second part examines the structural landscapes—political, demographic, religious, and resource-based—that condition strategic behavior and constrain economic choice. The third part focuses on major domains of contestation, including inequality, digital infrastructures, climate change, global health, and conflict, each analyzed as a site where economic instruments and political objectives intersect. The fourth part turns to strategic responses, addressing resilience in global supply chains, the geoeconomics of space, the economics of war and peace, and the role of regional trade agreements. The final part grounds the analysis in contemporary economic geography, with particular attention to the United States and to the spatial reorganization of global production.

By combining theoretical rigor with empirical depth, *Geoeconomics: Navigating the New Global Landscape with a Data Science Twist* aims to equip scholars, policymakers, and practitioners with a framework for interpreting a world in which markets and power are inseparable. The central argument is not that globalization has ended, but that it has entered a phase in which economic openness is strategically managed, vulnerabilities are actively assessed, and political choices increasingly hinge on data, networks, and computational insight.

2 The Big Players: Analyzing Traditional Geopolitical Powerhouses through Data

Below is a **fully rewritten and substantially restructured chapter**, aligned with the tone, scope, and analytical density of a standard academic monograph in geopolitics/geoeconomics. All references are cited **in-text using BibTeX keys**, and a **clean BibTeX block** is provided at the end, ready to be pasted directly into `references.bib`.

The contemporary geoeconomic landscape remains deeply shaped by a small number of actors whose structural influence far exceeds their numerical representation in the international system. These traditional geopolitical powerhouses—the United States, China, Russia, and the European Union—continue to exert disproportionate influence over global economic governance, security arrangements, and technological trajectories. While their historical paths and institutional configurations differ markedly, they share a defining characteristic: each occupies strategically advantageous positions within global economic, financial, military, and diplomatic networks. Understanding how this influence is produced, maintained, and transformed in the twenty-first century requires moving beyond narrative accounts toward analytically disciplined, data-informed frameworks.

This chapter advances the argument that traditional power remains measurable, not merely observable. Economic size, military expenditure, diplomatic reach, and network centrality can be systematically analyzed using contemporary data science tools. Rather than treating power as an abstract attribute, the chapter conceptualizes it as an emergent property of position within interconnected systems—systems that can be mapped, quantified, and compared over time.

2.1 From Globalization Phases to Structural Power

Globalization has not been a linear or uniform process. Its successive phases have redistributed productive capacity, technological capabilities, and bargaining power across regions in uneven ways. The first modern wave of globalization, driven by industrialization in Northern economies, entrenched a sharp divergence between industrial cores and peripheral regions.

Productivity gains, technological innovation, and economies of scale allowed early industrializers to consolidate economic dominance, while much of the Global South remained locked into primary production structures (R. E. Baldwin, Martin, and Ottaviano (2001)).

The second phase, catalyzed by advances in information and communication technologies, fundamentally altered this configuration. The fragmentation of production and the rise of global value chains enabled firms to relocate labor-intensive segments of production to lower-cost regions without relinquishing control over design, branding, or intellectual property. Emerging economies such as China and India leveraged these opportunities to industrialize rapidly, closing portions of the productivity gap with advanced economies (R. Baldwin (2016)). These shifts are visible in longitudinal trade and GDP data, which show a steady increase in the contribution of emerging markets to global output and trade volumes.

Yet this rebalancing did not eliminate asymmetries; it reconfigured them. Control over standards, finance, logistics, and technology remained concentrated, reinforcing the strategic importance of network position. As globalization deepened, power became increasingly embedded in infrastructures rather than territories, in rules rather than borders, and in coordination capabilities rather than sheer output.

2.2 Economic Metrics as Indicators of Geoeconomic Power

Economic capacity remains a foundational component of geopolitical influence, but its meaning has evolved. Aggregate indicators such as GDP, trade volumes, and foreign direct investment flows provide necessary but insufficient insights. What matters increasingly is not only how much a country produces, but how its economy is integrated into global systems.

The United States exemplifies this logic. Beyond its economic scale, its influence is amplified by the centrality of its financial institutions, the dominance of the dollar in international transactions, and its agenda-setting role in multilateral economic governance (Helleiner (2014)). These features confer structural advantages that extend far beyond conventional trade metrics.

China's ascent illustrates a different pathway. Since its accession to the World Trade Organization, China has combined export-led growth with strategic state intervention, industrial policy, and outward investment. Initiatives such as the Belt and Road Initiative have extended China's economic footprint across Asia, Africa, and Europe, reshaping trade routes, infrastructure networks, and diplomatic alignments (Cai (2017); Huang (2016)). From a data science perspective, China's growing influence can be quantified through network analyses of trade flows, infrastructure financing, and bilateral agreements, revealing increasing centrality in multiple regional systems.

The European Union occupies a distinct position. As a regulatory power rather than a centralized state, its influence derives from the size of its internal market and its capacity to

externalize regulatory standards. Analyses of intra-EU trade networks and regulatory diffusion demonstrate how the EU exercises power through rules and norms rather than direct coercion (Jones (2019)).

2.3 Military Expenditure, Geography, and Strategic Reach

Military capacity remains a critical dimension of power, particularly when integrated with economic and technological resources. Global military spending data reveal persistent hierarchies, with the United States maintaining a level of expenditure unmatched by any other actor. However, longitudinal data also show sustained increases in Chinese and Russian military investments, reflecting strategic ambitions and regional security concerns (Kalkman (2020)).

Geospatial analysis enhances understanding of military power by situating expenditures within physical space. The global distribution of military bases, troop deployments, and defense agreements reveals patterns of reach and constraint. The extensive overseas basing network of the United States underpins its capacity for global power projection (Cooley and Nexon (2013)). Russia's strategic emphasis on neighboring regions and the Arctic similarly reflects a geographically grounded conception of influence (Giles (2019)).

Network analysis further clarifies how military alliances structure global security. NATO, for example, functions as a dense security network that amplifies the collective power of its members, illustrating how institutionalized cooperation modifies individual capabilities.

2.4 Diplomatic Networks and Institutional Centrality

Diplomatic influence operates through institutional participation, coalition-building, and agenda-setting. Multilateral forums such as the United Nations, the World Trade Organization, and the International Monetary Fund provide arenas in which power is exercised through negotiation and rule-making rather than force. Voting patterns in the United Nations General Assembly, when analyzed using network methods, reveal persistent blocs and shifting alignments that reflect underlying economic and political ties (Voeten, Strezhnev, and Bailey (2009)).

China's expanding diplomatic engagement with the Global South, often linked to economic investment, has altered these patterns. Network analyses of aid, trade, and diplomatic exchanges show how Beijing has progressively increased its influence across Africa and Latin America (Alden (2007); Shambaugh (2013)). These developments underscore the complementarity between economic engagement and diplomatic leverage.

The increasing availability of high-resolution economic, military, and diplomatic data has transformed the study of geopolitics. Network theory allows scholars to conceptualize power as relational rather than absolute, emphasizing position, connectivity, and dependence. Predictive

analytics enable the modeling of how shocks—such as sanctions, trade wars, or conflicts—propagate through interconnected systems.

Machine learning approaches have been applied to conflict prediction, sanction effectiveness, and alliance dynamics, demonstrating the potential of computational methods to complement traditional analysis (Cederman and Gleditsch (2009)). At the same time, data science sheds light on soft power by analyzing cultural flows, media narratives, and digital influence, expanding the analytical toolkit beyond material capabilities (Nye (2004)).

2.5 Conclusion

Traditional geopolitical powerhouses continue to shape the global order, but the mechanisms through which they do so have evolved. Power today is increasingly exercised through economic networks, institutional positions, and infrastructural control rather than through territorial dominance alone. By integrating data science methodologies into geoeconomic analysis, this chapter has demonstrated how power can be systematically measured, visualized, and compared.

This approach does not diminish the role of history or qualitative judgment. Rather, it complements them by providing empirical grounding for strategic analysis. As subsequent chapters will show, the same tools used to analyze traditional powerhouses can be applied to emerging actors, systemic risks, and future domains of contestation, reinforcing the central claim of this book: in the contemporary world, understanding power requires understanding data, networks, and their spatial organization.

3 The New Big Players: Emerging Powers in a Reconfigured Geoeconomic Order

The contemporary transformation of the global order cannot be understood solely through the lens of traditional great powers. Alongside established actors, a growing set of emerging states and regional groupings has acquired the capacity to shape economic rules, strategic dependencies, and institutional outcomes. Countries such as India, Brazil, Turkey, and Indonesia, as well as coalitional formations like ASEAN and BRICS, no longer occupy peripheral positions in the world economy. They increasingly act as agenda-setters, brokers, and sometimes veto players in a global system marked by fragmentation, rivalry, and strategic interdependence.

This chapter argues that the rise of these new big players is best interpreted as a geoeconomic phenomenon rather than as a simple redistribution of military or diplomatic power. Their influence stems primarily from their roles within economic networks—trade, production, finance, energy, and technology—through which leverage is exercised and vulnerabilities are managed. While empirical evidence and quantitative indicators are indispensable for tracing these dynamics, the analytical focus remains firmly on geoeconomics: the strategic use of economic position, connectivity, and institutional choice in pursuit of national and regional objectives.

3.1 Emerging Powers and the Logic of Strategic Interdependence

Emerging powers differ from traditional hegemons not only in scale but in strategy. Rather than seeking comprehensive dominance, they often prioritize autonomy, diversification, and bargaining power within existing structures. The literature on rising powers emphasizes that these actors aim to expand their room for maneuver in a system historically shaped by Western preferences, without necessarily overturning it wholesale (Hurrell (2006)). This behavior reflects a broader transition toward a more pluralistic international order, in which influence is dispersed across multiple centers and exercised through overlapping institutional and economic arrangements (Acharya (2014)).

From a geoeconomic perspective, what distinguishes emerging powers is their capacity to exploit asymmetries in interdependence. They may not control global financial infrastructures or security alliances, but they often command critical markets, resources, corridors, or labor pools that others depend upon. Their leverage is therefore relational rather than absolute, rooted in position within networks rather than in unilateral capability.

3.2 Trade, Production, and Value Chain Positioning

Trade and production networks constitute the primary arena through which emerging powers project influence. India's growing importance, for example, lies not only in its demographic scale or growth rates, but in its evolving position within global value chains. As multinational firms seek to diversify production away from concentrated hubs, India has leveraged its large domestic market, human capital base, and policy initiatives to position itself as both an alternative manufacturing location and a global services provider. This strategy reflects a broader attempt to move up value chains and reduce dependence on external technological and industrial ecosystems (Nayyar and Nayyar (2024)).

Brazil exemplifies a different geoeconomic pathway. Its influence is closely tied to its role as a major supplier of agricultural and mineral commodities, which places it at the intersection of food security, energy transitions, and environmental governance. In a world increasingly shaped by climate constraints and resource competition, commodity exporters with reliable production and logistics capabilities can exert significant influence over global prices and supply conditions. Brazil's geoeconomic relevance thus derives less from industrial scale than from its position within critical resource networks.

Regional groupings such as ASEAN further illustrate how collective strategies can amplify the influence of individual states. By integrating production systems and presenting a relatively unified investment environment, ASEAN has become a central node in global manufacturing and logistics. Its significance lies in providing firms and states with strategic optionality, reducing overdependence on any single country while maintaining access to dense regional markets.

3.3 Finance, Sanctions, and Economic Autonomy

Financial relations have become a central dimension of geoeconomic contestation. The expanded use of sanctions and financial restrictions by established powers has sharpened the incentives for emerging economies to seek greater autonomy within global monetary and payment systems. Research on sanctions highlights that their effectiveness depends critically on the structure of the targeted country's external economic ties and its access to alternative partners (Connolly (2018)).

Emerging powers have responded not through wholesale withdrawal from global finance, but through selective diversification. Regional development banks, alternative financing arrangements, and efforts to reduce exposure to specific currencies or settlement systems are all part of a broader strategy to mitigate vulnerability. The emergence of institutions such as the Asian Infrastructure Investment Bank and the New Development Bank reflects an attempt to complement, rather than immediately replace, Western-dominated financial architectures. From a geoeconomic standpoint, these initiatives signal a gradual rebalancing of influence within

global finance, driven by dissatisfaction with existing governance structures rather than outright rejection of globalization.

3.4 Energy, Resources, and Corridor Power

Energy and resource endowments remain foundational to the geoeconomic strategies of many emerging and resurgent powers. Control over production, transit, and pricing of energy resources creates leverage that extends well beyond national borders. Russia's continued relevance in global energy markets, despite extensive sanctions, underscores how resource-based interdependence constrains the effectiveness of economic coercion. By redirecting energy exports toward Asian markets, Russia has demonstrated how geographic and infrastructural flexibility can sustain influence even under adverse conditions.

Other emerging actors pursue different energy strategies. Brazil's leadership in biofuels and renewable energy positions it as an important player in the global energy transition, while Middle Eastern producers continue to shape oil markets through coordinated production decisions. In each case, geoeconomic power is exercised through control over critical inputs and the ability to shape expectations about supply, prices, and long-term investment.

3.5 Technology, Standards, and Rule-Shaping

Technological capabilities increasingly shape geoeconomic influence, but their importance lies less in innovation per se than in the capacity to embed technology within markets, standards, and regulatory frameworks. China's technological rise illustrates this dynamic. Its investments in infrastructure, digital platforms, and industrial ecosystems have allowed it to extend influence across multiple regions, particularly through initiatives that link technology deployment with financing and construction (Huang (2016)).

India's trajectory highlights a complementary approach, centered on digital public infrastructure and service-based capabilities. Rather than competing directly across all technological domains, India has focused on scalable systems—such as digital identity and payments—that strengthen domestic coordination and enhance its standing in international discussions on digital governance. These strategies reflect a broader shift among emerging powers toward influencing the rules and norms that govern new economic domains, rather than merely adapting to those set elsewhere.

3.6 Conclusion

The new big players of the global economy are not simply ascending replicas of earlier great powers. Their influence is more selective, more networked, and more tightly bound to economic

interdependence. Through strategic positioning in trade, finance, energy, and technology, they have expanded their capacity to shape outcomes within a fragmented but deeply interconnected world economy.

This chapter has argued that understanding these actors requires a geoeconomic lens that foregrounds economic structure, connectivity, and institutional choice. Empirical indicators and quantitative evidence serve to illuminate these dynamics, but the core analytical task remains the interpretation of how economic relations are mobilized for strategic ends. As subsequent chapters will show, the rise of these new big players reshapes not only global hierarchies, but also the nature of competition, cooperation, and vulnerability in the international system.

Part II

Geoeconomic Landscapes

4 Political Landscapes: Institutions, Power, and Evidence in Global Governance

The global political landscape is structured by enduring institutions, formal alliances, and evolving patterns of cooperation and contestation. For much of the twentieth century, these structures were primarily analyzed through diplomatic history, legal texts, and qualitative interpretations of state behavior. While such approaches remain indispensable, the contemporary international system generates a volume of observable political outcomes—votes, treaties, deployments, sanctions, missions, and compliance records—that allows political structures to be examined with greater empirical precision. The purpose of this chapter is not to recast global politics as a technical exercise, but to use data as evidence to illuminate geoeconomic and geopolitical mechanisms that have long been theorized but were previously difficult to observe systematically.

Political landscapes are not reducible to borders or regime types. They are constituted by institutional authority, coalition structures, and asymmetric influence within international organizations. These dimensions matter because they shape how economic power is translated into political outcomes and how constraints are imposed on states' strategic choices. By examining institutions such as the United Nations, NATO, the World Trade Organization, the International Monetary Fund, and the World Bank, this chapter shows how political influence can be documented empirically and how geoeconomic power is embedded within rules, procedures, and collective decision-making.

4.1 International Institutions as Political Architectures

International organizations form the backbone of contemporary global governance. They do not eliminate power asymmetries; rather, they structure them. Voting rights, veto powers, weighted quotas, and informal norms determine how influence is exercised and whose preferences prevail. The United Nations illustrates this duality particularly well. On the one hand, the General Assembly operates on the principle of sovereign equality, granting each member state one vote. On the other hand, effective authority over security matters is concentrated in the Security Council, where the five permanent members retain veto power.

Empirical evidence illustrates how these institutional arrangements translate into political outcomes. Between 1946 and 2022, the permanent members of the Security Council exercised the veto more than 300 times, with marked variation across periods and actors. The Cold War era

was characterized by frequent veto use by both the United States and the Soviet Union, while the post-2011 period has seen a renewed concentration of vetoes linked to conflicts in Syria and Ukraine, primarily by Russia and China. This pattern reflects not institutional failure per se, but the re-emergence of great-power rivalry within a formal governance framework.

Voting behavior in the UN General Assembly further reveals the structure of political alignment. Studies of roll-call votes consistently show stable blocs, with high voting cohesion among Western states, growing coordination among emerging economies, and strategic swing behavior by middle-income countries (Voeten, Strezhnev, and Bailey (2009)). These alignments are not merely symbolic; they shape the legitimacy of resolutions, the framing of norms, and the political cost of non-compliance.

4.2 Alliances, Commitments, and Collective Security

Security alliances provide another window into the political landscape. NATO remains the most institutionalized military alliance in the international system, combining collective defense commitments with standardized planning, interoperability requirements, and burden-sharing rules. Empirically, NATO's relevance can be illustrated through defense expenditure and force posture data. As of 2023, NATO members accounted for more than 55 percent of global military spending, with the United States alone representing roughly two-thirds of total Alliance expenditures. At the same time, European members have increased defense budgets significantly since 2014, reflecting heightened threat perceptions following Russia's actions in Ukraine.

These figures matter geoeconomically because they signal credible commitments. Defense spending, troop deployments, and military exercises translate economic resources into political assurances that affect investment decisions, energy security, and regional stability. For example, the reinforcement of NATO's eastern flank has been accompanied by shifts in infrastructure investment and energy diversification strategies across Central and Eastern Europe, underscoring the interaction between security guarantees and economic planning.

Beyond NATO, regional security arrangements in Asia, the Middle East, and Africa illustrate alternative political architectures. Their looser institutionalization often results in greater strategic flexibility but weaker enforcement mechanisms, which in turn shapes how economic incentives and coercion are deployed.

4.3 Trade Governance and Political Authority

The World Trade Organization exemplifies how political landscapes shape economic outcomes through rules and dispute resolution mechanisms. Although formally based on consensus and

legal adjudication, the WTO reflects underlying power asymmetries in agenda-setting and enforcement capacity. Between 1995 and 2020, a small group of advanced economies accounted for the majority of dispute filings, both as complainants and respondents. This concentration reflects not only trade volumes, but legal capacity and strategic use of institutional mechanisms.

Trade data provide further insight into the political economy of compliance. Sudden tariff increases, export restrictions, or discriminatory subsidies often precede formal disputes. Empirical analyses of trade policy changes show that periods of heightened geopolitical tension—such as the U.S.–China trade conflict after 2018—are associated with measurable deviations from previous liberalization trajectories. These patterns illustrate how political considerations reassert themselves within formally rules-based systems.

Regional trade agreements add another layer to the political landscape. Their proliferation over the past three decades reflects dissatisfaction with multilateral negotiation and a desire to secure preferential access and regulatory influence. From a geoeconomic standpoint, these agreements are instruments for locking in supply chains, standards, and investment rules, thereby reshaping competitive environments beyond tariffs alone.

4.4 Peacekeeping, Conflict Management, and Institutional Capacity

One of the most visible manifestations of political authority at the global level is peacekeeping. United Nations peace operations provide a measurable record of international engagement in conflict management. As of the early 2020s, the UN had deployed more than 70 peacekeeping missions since 1948, with personnel levels peaking at over 100,000 uniformed personnel in the mid-2010s.

Empirical studies consistently show that peacekeeping presence is associated with lower risks of conflict recurrence, particularly when missions are adequately staffed and possess robust mandates (Fortna (2008); Höffler, Heisey, and Söderbom (2011)). Budgetary data further reveal the distribution of political responsibility: while troop contributions come primarily from middle- and low-income countries, financial contributions are dominated by advanced economies, with the United States, China, and the European Union collectively accounting for the majority of assessed contributions. This division of labor reflects both economic capacity and political bargaining within the institution.

Conflict event datasets, such as those tracking political violence and ceasefire violations, show how peacekeeping effectiveness varies across contexts. Missions deployed in regions with strong regional backing and clear political agreements tend to perform better than those operating amid fragmented authority and unresolved political disputes. These patterns underscore the limits of institutional action when political consensus among major powers is absent.

4.5 Political Landscapes and Geoeconomic Power

Across institutions, alliances, and governance mechanisms, a consistent pattern emerges: political landscapes shape how economic power is converted into influence. States with central positions in institutions can amplify their economic resources through rule-making and agenda-setting. Conversely, states operating at the margins face higher costs in defending their interests, even when their economic weight is substantial.

This observation is central to geoeconomics. Economic instruments—sanctions, trade preferences, financial conditionality, development assistance—derive their effectiveness from political structures that legitimize, coordinate, or constrain their use. The political landscape therefore conditions not only the feasibility of economic statecraft, but its distributional consequences and long-term sustainability.

4.6 Conclusion

Global political landscapes are neither static nor opaque. They are structured by institutions, alliances, and formal procedures that generate observable outcomes. Examining voting records, budgetary contributions, alliance commitments, and conflict management efforts provides empirical grounding for longstanding debates about power, legitimacy, and cooperation in international relations.

This chapter has shown that political authority in the contemporary world is exercised through institutionalized frameworks that both reflect and shape geoeconomic power. Data serve here not as a substitute for theory, but as evidence that clarifies how political structures operate in practice. As subsequent chapters will demonstrate, these political landscapes interact closely with demographic, resource, and technological dimensions, jointly shaping the constraints and opportunities faced by states in a strategically interdependent global economy.

5 The World's Faiths: Religious Influence on Geoeconomic and Geopolitical Strategy

Religion remains one of the most persistent sources of collective identity in international affairs, not because faith determines state behavior mechanically, but because religious affiliation often co-varies with social organization, political legitimacy, transnational solidarities, and the symbolic geography of territory. In many regions, religious identities overlap with national narratives and with the distribution of political authority, shaping both domestic coalitions and external alignments. For geoeconomics, the relevance is direct: religious demography and religious institutions influence market access, coalition formation in international organizations, risk perceptions, and the political feasibility of cross-border projects, from energy corridors and ports to digital infrastructure and migration governance.

A disciplined analysis begins with the demographic baseline. The contemporary religious map is not static; it is undergoing a structural transformation driven by differential fertility, age structures, and patterns of religious switching. Projections by the Pew Research Center indicate that Christians constituted about 31.4% of the world population in 2010, while Muslims represented about 23.2%; by 2050, the Muslim share is projected to rise to roughly 29.7%, approaching parity with Christians, who are projected to remain near 31.4% under the report's baseline assumptions (Pew Research Center (2015)). This prospective convergence is not merely a sociological curiosity. It implies a long-run redistribution of labor forces, consumer markets, and political constituencies, with implications for the geography of growth, diaspora networks, and the domestic politics of foreign policy in both majority-Christian and majority-Muslim states.

5.1 Mapping Religious Demography as Strategic Context

Religious demography conditions state strategy by shaping legitimacy, coalition formation, and the policy space available to governments. In countries where political authority is strongly associated with religious identity, shifts in the demographic balance between majority and minority groups can reconfigure domestic politics in ways that affect external relations. India offers a salient illustration. The consolidation of Hindu nationalism has altered the domestic framing of citizenship, identity, and security, with spillovers into regional diplomacy and the management of relations with Muslim-majority neighbors and partners (Jaffrelot (2019)). In

such cases, demography matters not as a deterministic cause of conflict, but as a context that shapes which foreign policy choices are politically sustainable.

At the global level, mapping religious distributions is also a way to understand where transnational constituencies exist and how they may be mobilized. The Catholic Church, for example, constitutes a transnational institution with diplomatic capabilities and agenda-setting influence disproportionate to the territorial scale of Vatican City. Likewise, large and spatially concentrated religious communities can affect trade and investment decisions through informal networks of trust, diaspora connections, and philanthropic channels. The point is not that religious identity overrides economic incentives, but that it can modify transaction costs, political risk, and the credibility of commitments, all of which are central variables in geoeconomic reasoning.

5.2 Religion, Conflict, and the Political Economy of Violence

Religion is frequently present in conflicts, but the relevant analytical question is when and how religious cleavages become politically activated and economically consequential. Comparative research has shown that religious identity can become salient in civil wars when it aligns with political exclusion, territorial contestation, or external intervention. In a well-known quantitative study of civil wars from 1940 to 2000, Toft reports that Islam was involved in a disproportionately high number of civil wars relative to other religious traditions, and the article develops mechanisms linking religious structures and mobilization dynamics to conflict patterns (Toft (2007)). This finding should not be interpreted as a claim about theology producing violence, but as an empirical regularity requiring political economy explanation, including colonial legacies, state capacity, and the strategic behavior of external actors.

Event-level conflict datasets have made it possible to document how violence diffuses spatially and temporally, and how conflict risks vary across regions with different demographic and institutional configurations. The ACLED project, introduced in the scholarly literature as a georeferenced event dataset capturing multiple forms of political violence and unrest, exemplifies this approach by coding events with dates, locations, and actors, enabling systematic spatial analysis of conflict dynamics (Raleigh et al. (2010)). The strategic relevance for geoeconomics lies in the linkage between violence and connectivity: conflict alters trade routes, increases insurance premia, deters investment, and can transform specific corridors, ports, and border crossings into chokepoints with disproportionate systemic effects.

5.3 Religious Alliances, Institutions, and Coalition Power

Religious affiliations also shape international cooperation through institutions that organize solidarity and coordinate positions on salient issues. The Organisation of Islamic Cooperation, for instance, comprises 57 member states and constitutes a recurrent coalition arena

for diplomacy on conflicts, minority issues, and questions of legitimacy in international forums (Organisation of Islamic Cooperation (n.d.)). Such institutions matter geoeconomically because coalition power can influence sanctions enforcement, voting behavior in multilateral organizations, the framing of investment projects, and the reputational costs associated with specific foreign policy choices.

Beyond formal institutions, religious alliances operate through softer but still consequential channels: humanitarian networks, educational linkages, media ecosystems, and religious tourism. Pilgrimage economies illustrate the interaction of religion with logistics, public health, and infrastructure investment. The management of mass religious mobility requires coordination across airlines, ports of entry, health systems, and security services; it also creates economic rents and diplomatic leverage. Similarly, religiously codified markets, such as halal certification and Islamic finance, shape regulatory competition and standards diffusion. These are not marginal phenomena: they constitute rule-governed market segments that can reinforce or constrain trade integration depending on how certification regimes, financial compliance standards, and geopolitical tensions interact.

5.4 Sectarian Geographies and Regional Strategy

In some regions, sectarian divisions intersect with state rivalries and external interventions, shaping both conflict and alignment patterns. The Sunni–Shia cleavage, while rooted in historical and theological divergence, is politically consequential insofar as it structures alliance networks, legitimates proxy mobilization, and influences the domestic narratives of regime security. Nasr's account of the "Shia revival" frames sectarian politics as a long-run factor reshaping regional competition and governance debates in the Middle East (Nasr (2007)). From a geoeconomic standpoint, these dynamics influence energy security, infrastructure routing, and the political risk associated with investment in contested or strategically sensitive areas.

5.5 Conclusion

Religion influences geoeconomic and geopolitical strategy not because faith displaces material interests, but because religious identities and institutions shape the social foundations of legitimacy, coalition formation, and political risk. The global religious map is changing in ways that have measurable implications for markets, labor forces, migration systems, and the coalition structures of international diplomacy. The projected near-parity between Christians and Muslims by mid-century is a demographic shift with long-run consequences for the geography of growth and the politics of international order (Pew Research Center (2015)). At the same time, evidence from comparative conflict research and event-based datasets underscores that religion becomes strategically salient when it aligns with political exclusion, territorial

contestation, or external intervention, thereby affecting the stability of corridors and the governance of interdependence (Toft (2007); Raleigh et al. (2010)). For a geoeconomics-oriented analysis, the task is therefore to treat religion as a structural variable in the organization of connectivity—one that shapes incentives, constraints, and the management of vulnerability in a fragmented global system.

6 Population Patterns: Demographics and Geoeconomic Power

Population dynamics are not merely background conditions of international politics; they are constitutive determinants of state capacity, market size, fiscal sustainability, and the organization of strategic industries. In the contemporary period, demographic change has acquired a distinctly geoeconomic meaning: it shapes not only the aggregate "weight" of states, but also their position in global production networks, their vulnerability to disruption, and their capacity to mobilize resources for security and social cohesion. Demography therefore functions simultaneously as a slow-moving structural variable and as a proximate driver of policy instruments—migration regimes, industrial policy, welfare reform, and human-capital strategies—that increasingly define competitive advantage.

A demographic perspective is indispensable for interpreting the current transition in the world economy. On 15 November 2022, the global population reached approximately eight billion, a milestone formally recognized by the United Nations. (United Nations) The same demographic system is now characterized by a broad-based deceleration of growth. The 2024 revision of the United Nations World Population Prospects projects that world population will continue to rise for several decades before peaking around 10.3 billion in the mid-2080s, followed by a slight decline toward the end of the century. (World Population Prospects) This macro-trajectory is not uniform. It is driven by sharp regional divergences: sustained growth in many sub-Saharan African countries, continued urban expansion across South Asia and Africa, and demographic stagnation or decline in large parts of Europe and East Asia. (United Nations) These divergences will structure future patterns of production, consumption, migration, and political stability.

From the standpoint of geoeconomics, demographic power operates through at least four interlocking channels. First, population size and age structure shape the scale of domestic markets, thereby influencing investment incentives, innovation ecosystems, and the feasibility of large industrial strategies. Second, demographic composition conditions the labor supply, skill distribution, and the political sustainability of openness to trade, capital, and immigration. Third, migration and diaspora networks redistribute human capital and connect states through remittances, transnational communities, and political influence. Fourth, urbanization reorganizes spatial power by concentrating economic activity in metropolitan regions while rendering critical infrastructures—energy, logistics, water, and data networks—more exposed to disruption and political contestation. In short, demographic trends are best understood as drivers of both productive capacity and strategic vulnerability.

6.1 Demographic transitions as geopolitical inflection points

Long-run population history matters because it underscores a key point: demographic change is non-linear, and its inflection points have repeatedly coincided with transformations of economic organization and political power. Pre-modern population growth was constrained by high mortality and recurrent shocks. The modern era, by contrast, was shaped by sustained declines in mortality and later, though unevenly, declines in fertility. The result was the well-known demographic transition, which enabled rapid population growth and, crucially, altered the composition of societies toward larger working-age cohorts and, later, aging populations. While demographic transitions are often treated as domestic social processes, their international implications are straightforward. When a state's working-age population expands rapidly, it may gain a "demographic dividend" that supports growth, industrial upgrading, and military recruitment, provided institutions and labor markets can productively absorb that cohort. When fertility collapses and aging accelerates, states face rising dependency ratios, fiscal pressure on pensions and health systems, and potential constraints on growth and defense capacity.

The current global landscape is defined by asynchronous transitions. Many advanced economies confront rapid aging and low fertility, while many lower-income economies remain characterized by high fertility and youthful populations. The geoeconomic implication is not a simplistic "advantage" for one group over another; it is a reconfiguration of comparative strengths and exposures. Aging societies may possess deep capital stocks, advanced technological capabilities, and institutional stability, yet face labor shortages and higher fiscal burdens. Younger societies may possess expanding labor pools and potential for scale, yet face acute demands for employment creation, education, and infrastructure, alongside higher risks of political instability if opportunities lag behind expectations.

These demographic divergences increasingly translate into strategic economic behavior. States with aging populations tend to compete for talent via immigration regimes, education pipelines, and selective openness, while simultaneously attempting to automate production and maintain productivity through technological adoption. States with youthful populations face a different strategic imperative: turning demographic growth into human-capital formation and productive employment, rather than into unemployment, informalization, and social conflict. In a geoeconomic world, these are not simply social-policy choices; they are determinants of long-run competitiveness, resilience, and the capacity to sustain social contracts.

6.2 Migration as a geoeconomic mechanism of redistribution and leverage

Migration is the most direct bridge between demographic change and international power relations. It redistributes labor, skills, and family networks across borders, and it generates flows of remittances that can rival or exceed other external financial inflows for many economies.

It also affects domestic politics within receiving states by reshaping labor markets, electoral coalitions, and perceptions of identity and security. For these reasons, migration has become a core geoeconomic variable: it is simultaneously a driver of growth, a source of political polarization, and a mechanism through which interdependence is negotiated.

Contemporary forced displacement illustrates the scale of demographic shocks generated by conflict and fragility. According to UNHCR's Global Trends reporting, 117.3 million people were forcibly displaced by the end of 2023, with further increases reported for 2024. (unhcr.org) Such numbers matter for geoeconomics because they describe not only humanitarian crises but also major reallocations of labor, demand for public services, and pressure on institutional capacity in neighboring host states. They also alter regional bargaining dynamics. Large host countries can gain political leverage in international negotiations by virtue of their role in containing displacement flows, while origin countries face losses of human capital and long-run reconstruction challenges.

Economic migration has equally significant consequences, especially when it becomes structurally embedded in national development models. Migrants' remittances create durable financial linkages between receiving and sending states. The World Bank has estimated that officially recorded remittance flows to low- and middle-income countries were expected to reach approximately USD 685 billion in 2024, highlighting both the scale of these flows and their macroeconomic salience. (World Bank Blogs) Remittances contribute to consumption smoothing and can reduce poverty, but they may also create dependence on external labor markets, affect exchange rates, and generate political sensitivities in both origin and destination countries. From a geoeconomic perspective, remittances are not merely private transfers; they represent a transnational income stream that can stabilize states, shape monetary conditions, and influence bilateral relations.

Migration also interacts with the strategic competition for human capital. As the demographic center of gravity shifts and aging accelerates in many high-income states, immigration becomes a policy instrument for sustaining labor supply and fiscal bases. Yet, because migration is politically contested, it is also a vector through which domestic polarization can be intensified. This duality is central to "population power" in the present era: states may need migration economically while struggling to legitimize it politically. In turn, political contestation can generate policy volatility, which increases uncertainty for firms and weakens the credibility of long-term development strategies.

6.3 Urbanization and the spatial concentration of power and vulnerability

Urbanization is frequently described as an economic modernization trend, but its geoeconomic implications are more complex. Cities concentrate capital, innovation, services, and political influence. They also concentrate risk. Infrastructural interdependence in metropolitan

regions—electricity networks, supply chains, communications systems, and water provision—creates systemic vulnerabilities to disruption, whether through climate shocks, cyber incidents, political unrest, or conflict. The strategic relevance of cities is therefore twofold: they are engines of national competitiveness and critical nodes whose failure can produce cascading economic consequences.

Rapid urbanization in parts of Africa and South Asia will reshape global economic geography by expanding new consumer markets and labor pools, while also intensifying demands for housing, transportation, governance capacity, and environmental management. This process may generate new hubs of industrial activity and services, but it may also produce political fragility if urban growth outpaces public capacity to provide security and basic services. The geoeconomic lens emphasizes that urbanization is not only a demographic movement; it is an infrastructure and governance challenge that affects investment risk, supply-chain reliability, and the distribution of state authority across territory.

6.4 A data science approach to demographic geopolitics

Demographic analysis is unusually well suited to data science methods because it combines relatively stable cohort processes with highly contingent drivers of change, including policy, conflict, and climate. The baseline tool remains cohort-component projection, which formalizes population change as a function of fertility, mortality, and migration across age and sex cohorts. Yet contemporary questions increasingly require methods that move beyond deterministic projection. Migration flows, for instance, are sensitive to wages, networks, border enforcement, conflict intensity, and climate shocks; they are therefore well suited to predictive analytics and causal inference frameworks that integrate heterogeneous data sources.

A geoeconomic approach with a data science twist implies methodological pluralism. Demographic projections establish plausible baselines, while machine learning can improve short-horizon forecasting where non-linearities and interactions are prominent. Geospatial analysis can map exposure to climate risks and infrastructure constraints, linking population density and mobility to chokepoints in logistics and service provision. Network analysis can model diaspora ties and remittance corridors, clarifying how human mobility embeds states within transnational systems of finance and political influence. Finally, scenario modeling offers a disciplined way to integrate demographic baselines with contingent shocks, enabling strategic planning under uncertainty.

Importantly, the value of these tools is not purely predictive. Their deeper contribution lies in operationalizing concepts central to geoeconomics: dependency, resilience, exposure, and leverage. Demography becomes actionable when it is translated into measurable indicators—dependency ratios, labor-force trajectories, urban growth rates, displacement risk, and remittance dependence—and when these indicators are integrated into models of fiscal capacity, industrial competitiveness, and political stability.

6.5 Conclusion

Population patterns are among the most consequential determinants of geoeconomic power in the twenty-first century. Their influence operates through market size, labor supply, fiscal sustainability, migration and remittances, and the spatial concentration of activity and vulnerability through urbanization. At the global level, the demographic future is characterized less by uniform growth than by divergence and asynchronous transitions: some societies age and contract, others expand and urbanize rapidly. (World Population Prospects) These divergences will shape comparative advantage, the politics of openness, and the strategic management of interdependence.

A data science approach does not replace demographic theory; it strengthens it by integrating new data sources and by providing tools to diagnose risk and resilience in a world where demographic change interacts with conflict, climate, and technological transformation. Forced displacement and remittance dependence already illustrate how population mobility reorganizes economic and political linkages at scale. (unhcr.org) Demography, in this sense, is not a slow-moving background variable. It is a driver of strategic behavior and a measurable component of national power—one that increasingly demands rigorous, data-driven analysis.

6.6 References

United Nations. (2022). *World population to reach 8 billion on 15 November 2022*. United Nations Department of Economic and Social Affairs. (United Nations)

United Nations. (2022). *Day of 8 Billion*. United Nations. (United Nations)

United Nations. (2024). *World Population Prospects 2024: Summary of Results*. United Nations Department of Economic and Social Affairs. (World Population Prospects)

United Nations. (2024). *UN projects world population to peak within this century*. United Nations. (United Nations)

United Nations High Commissioner for Refugees. (2024). *Global Trends Report 2023*. UNHCR. (unhcr.org)

United Nations High Commissioner for Refugees. (2025). *Global Trends*. UNHCR. (unhcr.org)

World Bank. (2024). *In 2024, remittance flows to low- and middle-income countries are expected to reach $685 billion*. World Bank Blogs. (World Bank Blogs)

7 Resource Allocation: Energy, Commodities, and Global Influence

Natural resources, particularly energy resources and critical commodities, have long been central to geopolitical strategy. Control over these resources often determines a nation's influence in international relations, as the ability to access and manage energy sources, minerals, and water supplies is fundamental to economic stability and military power. Throughout history, nations have vied for control over vital resources—whether oil fields, strategic minerals, or freshwater reserves—as these assets directly affect economic growth, technological advancement, and political leverage.

This chapter explores the geopolitics of natural resources by leveraging **datasets** on resource distribution, including **oil**, **natural gas**, **rare earth metals**, and **water resources**, to understand how resource control shapes global power dynamics. **Data science techniques**, such as **geospatial mapping**, **resource flow models**, and **predictive analytics**, are critical for analyzing how access to these resources influences international relations, trade, and conflict. In the context of a rapidly shifting global landscape—marked by climate change, population growth, and evolving energy needs—understanding resource allocation is more critical than ever.

The global demand for energy and commodities, coupled with the unequal geographical distribution of these resources, often leads to competition, alliances, and conflicts. From the oil-rich Middle East to the rare earth metal reserves of China, the strategic control of these resources plays a pivotal role in shaping the political decisions of both producer and consumer nations. This chapter will examine how energy, commodities, and resource distribution are intertwined with geopolitical influence and will explore emerging trends that may reshape the future of global power.

7.1 The Geopolitics of Oil and Natural Gas

Oil and natural gas have been the primary drivers of global economic growth for over a century. Control over these energy sources has historically been linked to geopolitical influence, particularly in regions such as the **Middle East**, **Russia**, and the **United States**. Countries rich in oil and gas reserves hold significant sway over the global economy, as these resources are essential for industry, transportation, and national security.

In terms of **global distribution**, about **80% of the world's proven oil reserves** are concentrated in just a few regions: the **Middle East**, **Russia**, and **North America** (BP, 2021). These regions have used their energy wealth to assert influence over international markets and geopolitics. For example, the **Organization of the Petroleum Exporting Countries (OPEC)** has historically played a crucial role in regulating global oil prices by controlling production levels among its member states. Data on oil production and exports, along with **energy market analytics**, helps in understanding how OPEC's decisions impact global prices and the political leverage of oil-rich nations (Smith, 2009).

Russia is another prime example of how energy resources can be wielded for geopolitical influence. With vast reserves of **natural gas**, Russia supplies significant portions of **Europe's energy needs**, particularly through pipelines like **Nord Stream** and **TurkStream** (Mitrova, 2019). Data science techniques, such as **flow network analysis**, can map the movement of natural gas from Russia to Europe, demonstrating how energy dependency shapes diplomatic relations. **Predictive models** further help forecast the impacts of energy sanctions, as seen during the 2014 **Ukraine crisis**, when the EU and U.S. imposed sanctions on Russian energy exports, forcing both sides to reevaluate their energy strategies (Boussena & Locatelli, 2017).

The United States, historically one of the largest producers and consumers of oil, underwent a significant transformation with the advent of the **shale revolution**, which turned the U.S. into a net exporter of oil and gas by the 2010s. This shift reshaped global energy markets and lessened the U.S.'s reliance on Middle Eastern oil, providing Washington with greater strategic autonomy (Yergin, 2020). Using data science to track production trends and price fluctuations in global oil markets allows policymakers to predict future supply and demand dynamics.

7.2 The Role of Rare Earth Metals and Strategic Minerals

While oil and gas are often the focal points of geopolitical resource discussions, **rare earth metals** and **strategic minerals** are becoming increasingly critical due to their essential role in **high-tech industries** and **renewable energy technologies**. Rare earth elements (REEs) are crucial for the production of **electronics**, **electric vehicles**, **wind turbines**, and **military technologies**. The control of these resources can determine the competitiveness of entire industries and the technological capabilities of nations.

China dominates the global supply of rare earth metals, controlling over **60%** of the world's production (Mancheri et al., 2019). This monopoly gives China significant leverage over global supply chains, particularly as the world transitions towards green energy technologies that rely heavily on these materials. For instance, electric vehicle batteries and wind turbines require large quantities of **lithium**, **cobalt**, and **neodymium**—minerals concentrated in regions such as **China**, **Chile**, and the **Democratic Republic of Congo**.

Data science techniques like **supply chain analytics** and **market simulations** allow for detailed tracking of rare earth metal flows and forecast potential supply shortages or price spikes.

For example, during the U.S.-China trade war, China hinted at restricting rare earth exports, which would have had severe implications for U.S. industries reliant on these materials (Pitron, 2020). By analyzing trade data, geospatial distribution, and extraction rates, researchers can assess vulnerabilities in supply chains and recommend strategies for diversifying sources.

Additionally, competition over **strategic minerals** has led to a new form of resource nationalism, where countries are tightening control over their mineral resources to safeguard future economic interests. In Africa, for example, **cobalt** mining has become a flashpoint for geopolitical rivalry, with both **China** and the **United States** vying for influence over mineral-rich regions (Nassar et al., 2020). Predictive analytics can be used to model future mineral demand and assess geopolitical risks associated with reliance on specific suppliers.

7.3 Water Resources and Geopolitical Tensions

Water is another vital resource whose scarcity has increasingly become a source of geopolitical tension, particularly in regions already suffering from **water stress**. In many parts of the world, water resources are transboundary, shared across national borders, which leads to disputes over access and control. The **Nile River**, the **Jordan River**, and the **Tigris-Euphrates system** are examples of water sources that have been at the center of international conflicts.

For instance, **Ethiopia's construction of the Grand Ethiopian Renaissance Dam (GERD)** on the Nile River has raised concerns in **Egypt**, which relies heavily on the Nile for its freshwater supply. Using **geospatial data** and **hydrological models**, researchers can simulate how changes in water flow, dam operations, and climate conditions affect downstream countries, providing a basis for negotiations and conflict resolution (Cascão & Nicol, 2016).

Water stress is also a growing concern in **South Asia**, where **India** and **Pakistan** share the waters of the **Indus River** system. The **Indus Water Treaty** has long been a stabilizing factor between the two nations, but increasing water demand and reduced flows due to climate change have placed the treaty under strain (Salman & Uprety, 2020). Predictive models of **climate-induced water shortages** and **population growth** can help forecast areas of future conflict and guide international efforts to mediate disputes over water resources.

7.4 Climate Change and Resource Conflicts

Climate change is reshaping the geopolitics of natural resources by exacerbating existing resource shortages and creating new areas of competition. **Arctic melting**, for example, has

opened up new shipping routes and access to previously untapped oil and gas reserves. Countries with Arctic coastlines, including **Russia**, the **United States**, and **Canada**, are positioning themselves to capitalize on these resources, leading to increased militarization and diplomatic tensions in the region (Keil, 2014).

Data science models that incorporate **climate change projections**, **resource distribution**, and **geopolitical risk factors** are essential for predicting future conflicts over resources. These models can simulate the impact of rising sea levels, changing precipitation patterns, and temperature increases on the availability of critical resources like water, arable land, and minerals. By understanding how climate change affects resource distribution, nations can better prepare for the economic and political challenges that lie ahead.

7.5 Conclusion

Natural resource control remains a cornerstone of geopolitical strategy. Whether it is **oil**, **natural gas**, **rare earth metals**, or **water**, the distribution and management of these resources significantly impact global power dynamics. Through the application of **data science techniques** such as **geospatial mapping**, **flow analysis**, and **predictive modeling**, this chapter has explored how resource allocation shapes international relations, trade, and conflicts. As global demand for resources continues to grow, and climate change further exacerbates resource scarcity, the ability to analyze and predict these dynamics using data science will become even more essential for policymakers and researchers alike.

7.6 References

- BP. (2021). *Statistical Review of World Energy 2021.* BP.
- Boussena, S., & Locatelli, C. (2017). Energy Institutional and Policy Changes in the EU and Russia: Revisiting Gas Relations. *Energy Policy, 106*, 519-528.
- Cascão, A. E., & Nicol, A. (2016). GERD: New Norms of Cooperation in the Nile Basin? *Water International, 41*(4), 550-573.
- Keil, K. (2014). The Arctic: A New Region of Conflict? The Case of Oil and Gas. *Cooperation and Conflict, 49*(2),

162-190. - Mancheri, N. A., Sprecher, B., Bailey, G., Ge, J., & Tukker, A. (2019). Effect of Chinese Policies on Rare Earth Supply Chain Resilience. *Resources, Conservation and Recycling, 142*, 101-112. - Mitrova, T. (2019). Russia's Energy Strategy-2035: Struggling to Remain Relevant. *Energy Policy, 133*, 110883. - Nassar, N. T., Wilburn, D. R., & Goonan, T. G. (2020). By-Product Metals Are Critical to Modern Technologies. *Science Advances, 6*(49), 902-914. - Pitron, G. (2020). *The Rare Metals War: The Dark Side of Clean Energy and Digital Technologies.* Scribe Publications. - Salman, S. M. A., & Uprety, K. (2020). *The Indus Waters Treaty: Half a Century of Success, But Will It Survive?* Springer. - Smith, J. L. (2009).

World Oil: Market or Mayhem? *Journal of Economic Perspectives, 23*(3), 145-164. - Yergin, D. (2020). *The New Map: Energy, Climate, and the Clash of Nations.* Penguin Press.

Part III

Geoeconomic Challenges

8 Global Inequality: Income Disparities and Their Geopolitical Consequences

Global wealth inequality has profound implications for international relations, social stability, and geopolitical dynamics. The unequal distribution of income and resources between and within countries drives migration, fuels social unrest, and shapes alliances, making it a key factor in the contemporary geopolitical landscape. This chapter explores the complex relationship between **income disparities** and global politics, examining how economic inequality both influences and is influenced by geopolitical forces. Using **data on income distribution**, **economic growth**, and **inequality trends**, this analysis aims to uncover how disparities in wealth and resources contribute to political instability, migration crises, and the formation of geopolitical alliances.

Income inequality, both within nations and across borders, has widened dramatically over the past few decades. The **top 1% of the global population** holds more than **twice as much wealth** as the bottom 50% (Oxfam, 2020). This growing disparity between the rich and poor, exacerbated by globalization and technological change, has heightened social tensions and sparked movements calling for economic justice. As economies become more interconnected, the ripple effects of inequality are felt globally—through labor migration, political populism, and shifts in international power structures.

Data science techniques, such as **economic modeling** and **inequality mapping**, help quantify these disparities and predict their consequences for global governance. By analyzing income inequality trends, we can better understand the geopolitical challenges posed by poverty, economic disenfranchisement, and the concentration of wealth in certain regions. This chapter will explore the drivers of income inequality, the geopolitical consequences of wealth disparities, and the role of international policies in mitigating or exacerbating these inequalities.

8.1 Income Disparities: Global Trends and Regional Variations

Income inequality is a global phenomenon, but its manifestations vary widely between regions. **Developed countries**, such as those in **North America**, **Western Europe**, and parts of **East Asia**, generally have higher per capita incomes but are also seeing rising inequality within their borders. In contrast, **developing regions**, particularly in **Sub-Saharan Africa**, **South Asia**, and parts of **Latin America**, experience both high levels of poverty and stark

internal disparities between the wealthy elite and the broader population (World Inequality Database, 2021).

Economic data over the past 50 years reveals significant inflection points in global inequality. In the post-World War II era, income inequality between nations began to decline somewhat as developing nations experienced rapid economic growth and industrialization. However, since the **1980s**, the rise of neoliberal economic policies, deregulation, and globalization has led to increasing wealth concentration in the hands of a few, particularly in high-income countries (Piketty, 2014). **Data science techniques** like **Gini coefficient analysis** and **Lorenz curves** are commonly used to quantify the degree of income inequality in different regions, offering visual and statistical insights into wealth distribution patterns.

Countries such as **the United States** and **China** present interesting case studies. The U.S. has seen its wealth inequality rise dramatically, with the top 10% holding nearly **70% of the wealth** (Saez & Zucman, 2020). Meanwhile, **China**'s rapid economic growth has lifted millions out of poverty, but its wealth gap has also widened considerably, creating significant regional imbalances and urban-rural divides (Li & Sicular, 2014). In both cases, rising inequality has led to growing political tensions, as marginalized populations push back against economic policies that favor the wealthy.

In developing regions, the effects of income inequality are particularly acute. In **Sub-Saharan Africa**, where poverty rates remain high, inequality exacerbates social fragility and contributes to political instability. Resource-rich countries like **Nigeria** and **South Africa** face internal divisions driven by uneven wealth distribution, leading to conflicts over access to resources and political power (Collier, 2008). **Latin America** also continues to grapple with some of the world's highest levels of inequality, particularly in countries like **Brazil** and **Mexico**, where wealth is concentrated among a small elite, while large segments of the population remain impoverished (Hoffmann & Centeno, 2003).

8.2 Social Unrest and Political Instability

One of the most visible consequences of income inequality is social unrest. Large income disparities create discontent, as marginalized populations feel excluded from the benefits of economic growth. This sense of injustice often translates into political instability, with protests, strikes, and sometimes violent uprisings becoming more common in highly unequal societies. Research has shown that high levels of inequality correlate with an increased risk of civil conflict, as disenfranchised groups mobilize against governments and elites (Cederman et al., 2013).

The **Arab Spring** of 2010-2011 provides a striking example of how inequality can drive political upheaval. While the immediate causes of the Arab Spring were varied—including political repression and lack of democratic freedoms—economic inequality and high youth unemployment were significant underlying factors (Joffé, 2011). The protests that swept across **Tunisia**,

Egypt, **Libya**, and other countries in the region were fueled in part by economic grievances, as populations demanded greater access to jobs, fair wages, and improved living conditions. **Data-driven analysis** of economic conditions leading up to the Arab Spring shows how inequality, particularly among younger generations, contributed to the broader political crises.

In **Latin America**, where inequality has long been a source of tension, recent years have seen renewed social unrest. Protests in **Chile**, **Colombia**, and **Venezuela** have highlighted the dissatisfaction of populations living in highly unequal societies, where access to education, healthcare, and economic opportunities is limited for large segments of the population. Data science tools such as **sentiment analysis** of social media posts and **economic inequality indices** can track how public frustration correlates with rising inequality, helping to predict where future unrest may occur (Chenoweth & Stephan, 2011).

8.3 Migration and Geopolitical Alliances

Income inequality is also a major driver of **migration**, as individuals seek better economic opportunities in wealthier countries. Economic migration, both within regions and across international borders, is a direct consequence of imbalances in wealth and opportunity. For example, **South-to-North migration** patterns, where individuals move from developing regions such as **Latin America**, **Africa**, and **Southeast Asia** to wealthier countries in **North America** and **Europe**, are largely driven by economic disparities (Hatton & Williamson, 2005).

Remittance flows, in turn, have become a critical factor in the economies of many developing nations. In countries like **Mexico**, **the Philippines**, and **Bangladesh**, remittances from migrant workers represent a significant source of foreign income, helping to alleviate poverty and reduce inequality. However, this reliance on remittances also creates new geopolitical dependencies, as sending countries become increasingly tied to the economic fortunes of migrant-receiving nations (Ratha, 2013).

Migration flows driven by inequality have geopolitical implications beyond economics. **Refugee crises**—often caused by a combination of political instability and economic hardship—place enormous pressure on neighboring countries and international institutions. The movement of people across borders due to inequality-induced migration often leads to tensions between sending and receiving nations, influencing global alliances and shaping foreign policy.

For example, the ongoing migration crisis from **Venezuela**, where economic collapse has driven millions to flee to neighboring countries such as **Colombia**, **Brazil**, and **Peru**, has strained regional relations and necessitated international cooperation. **Data analytics** helps track these migration flows, using tools such as **predictive modeling** and **geospatial analysis** to forecast the movement of people and assess the economic and political pressures on receiving countries (Bahar et al., 2020).

8.4 The Role of Global Governance and Economic Policies

International organizations such as the **International Monetary Fund (IMF)**, **World Bank**, and **United Nations** play a key role in addressing global inequality, but their policies have often been criticized for exacerbating disparities. **Structural adjustment programs (SAPs)** implemented by the IMF and World Bank during the 1980s and 1990s, for example, have been blamed for widening inequality in developing countries by promoting austerity measures that disproportionately affected the poor (Stiglitz, 2002).

Today, efforts to address global inequality focus on promoting **inclusive growth**, **sustainable development**, and equitable access to resources. The **United Nations' Sustainable Development Goals (SDGs)**, particularly **Goal 10: Reduce Inequality Within and Among Countries**, represents a global effort to tackle inequality through policy reforms, social programs, and international cooperation (UN, 2015). **Data science** plays a crucial role in monitoring the progress of these goals, with tools such as **big data analysis** and **development indices** being used to track changes in income distribution, poverty rates, and economic mobility.

In addition, emerging technologies like **blockchain** and **digital currencies** are being explored as potential tools to reduce inequality by increasing financial inclusion. **Digital financial services**, particularly in **Africa** and **South Asia**, are helping to provide access to banking and credit services for populations that have traditionally been excluded from the formal economy. **Machine learning models** can be used to analyze the impact of these technologies on reducing inequality, providing insights into how digital innovation can reshape economic landscapes (Demirgüç-Kunt et al., 2018).

8.5 Conclusion

Global income inequality remains one of the most pressing challenges of our time, with profound implications for social stability, migration, and international relations. By using **data science techniques** to analyze income distribution, economic trends, and migration patterns, we can better understand the geopolitical consequences of wealth disparities. As inequality continues to shape global alliances, drive social unrest, and influence migration, it is essential

for policymakers to develop strategies that address these disparities and promote more equitable economic growth. Failure to do so risks exacerbating existing tensions and creating new geopolitical challenges in an increasingly interconnected world.

8.6 References

- Bahar, D., Dooley, M., & Huang, C. (2020). Venezuelan Migration, Crime, and Misperceptions. *The Brookings Institution*.
- Cederman, L.-E., Weidmann, N. B., & Gleditsch, K. S. (2013). Horizontal Inequalities and Ethnonationalist Civil War: A Global Comparison. *American Political Science Review, 105*(3), 478–495.
- Chenoweth, E., & Stephan, M. J. (2011). *Why Civil Resistance Works: The Strategic Logic of Nonviolent Conflict*. Columbia University Press.
- Collier, P. (2008). *The Bottom Billion: Why the Poorest Countries Are Failing and What Can Be Done About It*. Oxford University Press.
- Demirgüç-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2018). The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution. *The World Bank*.
- Hatton, T. J., & Williamson, J. G. (2005). *Global Migration and the World Economy: Two Centuries of Policy and Performance*. MIT Press.
- Hoffmann, K., & Centeno, M. A. (2003). The Lopsided Continent: Inequality in Latin America. *Annual Review of Sociology, 29*, 363-390.
- Joffé, G. (2011). The Arab Spring in North Africa: Origins and Prospects. *The Journal of North African Studies, 16*(4), 507-532.
- Li, S., & Sicular, T. (2014). The Distribution of Household Income in China: Inequality, Poverty, and Policies. *The China Quarterly, 217*, 1-41.
- Oxfam. (2020). *Time to Care: Unpaid and Underpaid Care Work and the Global Inequality Crisis*. Oxfam International.
- Piketty, T. (2014). *Capital in the Twenty-First Century*. Harvard University Press.
- Ratha, D. (2013). The Impact of Remittances on Economic Growth and Poverty Reduction. *Migration Policy Institute*.
- Saez, E., & Zucman, G. (2020). *The Triumph of Injustice: How the Rich Dodge Taxes and How to Make Them Pay*. W.W. Norton & Company.
- Stiglitz, J. E. (2002). *Globalization and Its Discontents*. W.W. Norton & Company.
- UN. (2015). *Transforming Our World: The 2030 Agenda for Sustainable Development*. United Nations.
- World Inequality Database. (2021). *World Inequality Report 2021*. World Inequality Lab.

9 The Digital Battlefield: Cyber Operations, Information Manipulation, and Geoeconomic Rivalry

The digital domain has become a constitutive arena of contemporary power. Cyber operations and information manipulation no longer sit at the margins of diplomacy or conflict; they shape market access, technological advantage, coercive capacity, and domestic political stability. As states, firms, and households rely on networked infrastructures for finance, energy, logistics, communications, and public administration, the digital layer functions simultaneously as a productivity multiplier and as a systemic vulnerability. In geoeconomic terms, the central point is not that "cyber" is new, but that it has become an instrument through which interdependence can be exploited: the same connectivity that enables cross-border production and coordination also creates attack surfaces that can be activated for strategic effect (Segal (2016); Farrell and Newman (2019)).

This chapter develops a geoeconomic interpretation of the "digital battlefield" by distinguishing three intertwined mechanisms. The first is disruption, where cyber operations degrade, delay, or disable critical services and thereby impose economic costs on an adversary. The second is appropriation, where cyber espionage and intellectual property theft accelerate catch-up or sustain competitive advantage in strategic sectors. The third is manipulation, where information operations alter beliefs, polarize publics, and undermine institutional trust, thereby affecting regime stability and the credibility of commitments. These mechanisms are not mutually exclusive; the most consequential campaigns often combine them across time, using technical intrusion to enable data extraction, coercive signaling, or narrative amplification.

9.1 Cyber operations as non-kinetic coercion

Cyber operations are frequently described as "below the threshold" alternatives to conventional force. From a geoeconomic perspective, this characterization is incomplete. The relevant question is how cyber capabilities change bargaining positions in a world where coercion can be exercised through finance, trade, technology controls, and infrastructural chokepoints. Cyber operations can impose costs without physical occupation, but they often aim at economic and institutional targets whose disruption produces strategic leverage. The operational object is therefore not only military communications, but also payment rails, port operations, hospital

systems, industrial control systems, and the data architectures that coordinate production and distribution.

The global spread of ransomware illustrates this logic in a stylized way. Even when campaigns are not state-directed, they reveal how technical vulnerability translates into economic disruption, and how defense depends on organizational practices as much as on technical solutions. Research in security studies and computer security has emphasized that ransomware is effective precisely because it exploits predictable organizational weaknesses—patching gaps, segmented access failures, and inadequate recovery planning—rather than requiring exceptional technical sophistication in each case (Kharraz et al. (2016); McIntosh et al. (2021)). The strategic implication is that digital resilience is now part of national competitiveness: systemic insecurity functions as an implicit tax on production, investment, and public service delivery.

At the state level, cyber operations can also serve as instruments of strategic signaling and coercion. They may be used to demonstrate reach, to induce self-deterrence by highlighting vulnerability, or to generate uncertainty about the reliability of critical infrastructures. The difficulty of attribution does not eliminate these functions; rather, it changes the calibration of escalation, making ambiguity a strategic resource.

9.2 Digital sovereignty, standards, and the re-bordering of cyberspace

The increasing salience of cyber risk has strengthened a policy impulse toward digital sovereignty. In its most general form, digital sovereignty refers to the capacity to control the infrastructures, data flows, and standards regimes that underpin national autonomy. This includes not only domestic regulation, but also the ability to reduce dependence on foreign-controlled platforms, hardware supply chains, cloud infrastructures, and undersea cable routes. The strategic logic is analogous to energy security: dependence is manageable when governance is stable and rules are credible, but it becomes a vulnerability when rivalry intensifies.

This impulse is visible in efforts to build redundant payment and messaging infrastructures, to localize sensitive data, and to shape global technical standards. Such strategies have ambiguous welfare effects. On one hand, they can reduce exposure to coercive leverage. On the other hand, they can fragment markets and raise coordination costs, reducing the gains from scale that digital infrastructures typically generate. The resulting trade-off is a core geoeconomic dilemma: how to preserve the productivity of openness while managing the strategic risks of dependence (Segal (2016); Farrell and Newman (2019)).

9.3 Information warfare as a contest over legitimacy and governance

Information warfare constitutes the second pillar of the digital battlefield. Its strategic objective is not primarily to destroy assets, but to degrade the epistemic foundations of collective choice: trust in institutions, agreement on facts, and the perceived legitimacy of outcomes. The economic consequences are indirect but substantial. When trust erodes, transaction costs rise; when polarization intensifies, policy becomes less predictable; when democratic procedures are discredited, international credibility and alliance cohesion weaken.

Empirical research on computational propaganda has documented how influence campaigns exploit platform affordances to amplify divisive narratives and microtarget publics. The Oxford Internet Institute report on the Internet Research Agency's activity surrounding the United States provides a detailed account of how coordinated campaigns used multiple platforms to polarize discourse and to reach targeted audiences (Howard et al. (2018)). Such campaigns are geoeconomically relevant not only because they influence elections, but because they can alter the trajectory of regulation, trade policy, sanction coalitions, and alliance commitments by reshaping domestic political constraints.

The conceptual vocabulary of "sharp power" is helpful here. It distinguishes influence strategies based on manipulation and information control from the attraction-based mechanisms typically associated with soft power. Authoritarian influence operations often combine state media, covert amplification, and narrative laundering through intermediaries, exploiting the openness of democratic information environments (Walker (2018); Walker and Ludwig (2017)). This is not merely a communications phenomenon. It is a strategic practice that aims to shape the policy space of adversaries by altering the informational conditions under which democratic contestation occurs.

9.4 Synthetic media and the acceleration of credibility crises

The rapid diffusion of synthetic media technologies intensifies the information warfare challenge by lowering the cost of plausibly deniable fabrication. "Deepfakes" are strategically significant less because any single fake persuades everyone, and more because they increase ambient uncertainty, making verification slower and denial easier. Chesney and Citron argue that synthetic media can undermine trust and complicate democratic accountability by enabling persuasive falsifications and by creating a generalized "liar's dividend," where real evidence can be dismissed as fake (Chesney and Citron (2019)). In geoeconomic terms, these dynamics matter because credibility is a strategic asset: it underpins contractual enforcement, the stability of financial expectations, and the legitimacy of crisis responses.

9.5 Implications for geoeconomic strategy

The digital battlefield reshapes geoeconomic competition in four ways. First, it introduces a new layer of systemic risk into global production and finance, where disruption can be triggered without kinetic engagement and where recovery depends on institutional preparedness. Second, it expands the toolkit of coercion by enabling interference with infrastructural coordination, from logistics to payments. Third, it accelerates rivalry over standards, platforms, and data governance, because control over digital architectures can translate into leverage. Fourth, it destabilizes domestic political foundations by weaponizing narratives, thereby altering the feasibility of consistent external strategy.

In this context, national and corporate resilience strategies converge around a shared set of priorities: redundancy and segmentation in critical infrastructures; credible recovery and continuity planning; governance frameworks that enable rapid information sharing during crises without creating excessive surveillance externalities; and institutional arrangements that limit the strategic exploitation of chokepoints. These are not purely technical matters. They are questions of political economy, because they involve distributional conflicts, regulatory authority, and the international allocation of risk.

9.6 Conclusion

Cyber operations and information manipulation have become durable instruments of geopolitical and geoeconomic competition. They operate through disruption, appropriation, and manipulation, exploiting the dependence of modern societies on networked infrastructures and the vulnerability of open information ecosystems. The strategic challenge is not to eliminate connectivity, which would sacrifice productivity and innovation, but to govern it in ways that reduce exploitability under rivalry. The digital battlefield is therefore best understood as a contest over the infrastructures and informational conditions of interdependence, where security, competitiveness, and legitimacy are increasingly inseparable.

Our own analysis of disinformation's institutional consequences provides a useful bridge between the empirical study of campaigns and the policy question of democratic resilience, particularly in the context of generative technologies and rapidly shifting informational ecosystems (Warin (2024)).

10 Climate Change: Environmental Stressors and Their Geopolitical Implications

Climate change is no longer just an environmental issue—it is a profound geopolitical challenge that is reshaping borders, forcing mass migrations, and destabilizing regions. As global temperatures rise, sea levels increase, and extreme weather events become more frequent, the implications for national security, international relations, and global governance are increasingly dire. This chapter focuses on the intersection of **environmental data** and **geopolitics**, exploring how climate change is becoming a central factor in shaping global power dynamics. Using **data science**, we can model climate risks, track environmental changes, and predict regions where resource scarcity, migration, and border conflicts may escalate into geopolitical crises.

One of the most direct consequences of climate change is the impact on national borders and territorial disputes. **Rising sea levels** threaten to submerge low-lying island nations and coastal regions, while **melting ice in the Arctic** is opening new trade routes and sparking competition for untapped natural resources (Keil, 2014). Similarly, the increasing frequency of **extreme weather events**, such as hurricanes, floods, and droughts, is leading to widespread displacement, putting pressure on neighboring countries and triggering migration crises. Data science tools, such as **predictive modeling** and **geospatial analysis**, are essential in mapping these risks and identifying hotspots of future conflict.

For example, **Bangladesh** is one of the countries most vulnerable to rising sea levels, with predictions suggesting that large portions of the country could be underwater by 2050, displacing millions of people (Islam & Winkel, 2017). This potential mass migration could lead to tensions with neighboring **India**, which is already grappling with border security issues. Meanwhile, the melting of **glaciers in the Himalayas** is affecting water supplies for millions of people across **India**, **China**, and **Pakistan**, raising concerns about future water conflicts in this highly militarized region (Pomeranz, 2019).

Data science models can project the scale and timing of these environmental stressors, allowing policymakers to develop strategies for **conflict prevention** and **disaster preparedness**. **Climate migration**—the movement of people due to environmental changes—represents one of the most significant geopolitical challenges of the coming decades. By integrating **climate models** with **migration data**, researchers can predict migration flows and assess the social, economic, and political impacts on both sending and receiving countries (Black et al., 2011). As

resource scarcity and displacement become more pronounced, nations must develop cooperative frameworks to manage these challenges, or risk escalating tensions.

10.1 Energy Transition: The Geopolitics of Renewable Energy and Fossil Fuels

The global energy landscape is undergoing a dramatic transformation as the world shifts from **fossil fuels** to **renewable energy**. This transition is reshaping geopolitical alliances, altering the balance of power among energy-producing and energy-consuming nations, and creating new forms of competition for technological and resource dominance. **Data on energy consumption**, **production**, and **technological advancements** is crucial for understanding how countries are positioning themselves for the future of energy and what the geopolitical implications of this shift will be.

For much of the 20th and early 21st centuries, **fossil fuels**—particularly **oil**, **natural gas**, and **coal**—have been the foundation of global energy systems and geopolitical strategy. Nations with abundant fossil fuel reserves, such as **Russia**, **Saudi Arabia**, and **the United States**, have wielded significant influence over the global economy by controlling access to these critical resources. However, as the world moves toward **decarbonization** and the adoption of **renewable energy technologies**, the geopolitical map is being redrawn.

Countries that were previously dependent on fossil fuel imports are now investing heavily in **solar**, **wind**, **hydropower**, and **nuclear energy** to reduce their reliance on foreign energy supplies. For example, **Germany's Energiewende** (energy transition) policy aims to phase out nuclear and coal power while ramping up investments in wind and solar energy. Similarly, **China** has become a global leader in **solar panel production** and **electric vehicle (EV) technologies**, positioning itself as a dominant player in the renewable energy market (Zhang et al., 2016).

The shift to renewable energy also raises important questions about the control of **critical minerals**. The production of wind turbines, solar panels, and EV batteries depends on materials like **lithium**, **cobalt**, and **rare earth elements**, which are concentrated in a small number of countries, including **China**, **Chile**, and the **Democratic Republic of Congo** (Nassar et al., 2020). This creates new geopolitical dependencies, as nations that dominate the extraction and processing of these minerals will wield significant influence over the future energy economy. Data science tools, such as **supply chain analysis** and **market simulations**, help track the global flow of these critical materials and predict potential supply bottlenecks.

The energy transition is also reshaping global trade routes and alliances. As countries reduce their dependence on oil and gas, traditional energy exporters like **Saudi Arabia** and **Russia** are facing significant economic and geopolitical challenges. To remain relevant, many of these nations are diversifying their energy portfolios by investing in **renewables** and **hydrogen** technologies (IRENA, 2020). The geopolitics of hydrogen, in particular, is emerging as a

key area of competition, with countries like **Japan** and **Germany** positioning themselves as leaders in hydrogen technology, while oil-exporting nations are exploring how to use their existing infrastructure to produce and export **green hydrogen**.

In addition to resource competition, the energy transition has sparked technological competition among nations. Countries that can innovate in **renewable energy technologies** and **energy storage** will have a strategic advantage in the global energy market. Data science techniques like **predictive analytics** and **technology adoption modeling** allow researchers to track the diffusion of renewable technologies and forecast which countries are likely to emerge as leaders in the energy transition.

The shift from fossil fuels to renewable energy will also have profound implications for **global security**. As nations move away from oil and gas, **petrostates**—countries whose economies are heavily reliant on fossil fuel exports—may face significant instability if they fail to diversify their economies. **Venezuela**, **Nigeria**, and **Saudi Arabia** are examples of countries that are vulnerable to the economic shocks caused by declining fossil fuel demand. Data-driven models can assess the risk of political unrest and economic collapse in these nations, providing early warnings to policymakers and international organizations.

Meanwhile, countries that are well-positioned to lead the energy transition, such as **China**, **Germany**, and **Denmark**, will gain geopolitical leverage by exporting renewable energy technologies and dominating global supply chains for critical materials. As the world moves toward a more decentralized energy system, with renewables being produced and consumed locally, the traditional geopolitical power of fossil fuel exporters will decline, while nations with the technological capacity to drive the energy transition will rise.

10.2 Conclusion

The twin challenges of **climate change** and the **energy transition** are reshaping the global geopolitical landscape in profound ways. Rising sea levels, extreme weather events, and resource scarcity are creating new sources of conflict, while the shift to renewable energy is altering traditional power dynamics in the energy market. Using **data science** tools like **predictive modeling**, **geospatial analysis**, and **supply chain tracking**, we can better understand how these environmental and energy trends are influencing international relations and geopolitical stability.

The countries that can adapt to these changes—by managing the risks of climate change and seizing the opportunities of the renewable energy transition—will be the ones that shape the future of global geopolitics. Whether through **cooperation** on climate mitigation efforts or **competition** for control of renewable energy technologies, the intersection of environmental stressors and energy dynamics will define the geopolitical battles of the 21st century.

11 Global Health: Pandemics and the Geopolitical Shifts in Public Health Policy

The COVID-19 pandemic revealed the profound interconnections between global health and geopolitics, demonstrating how pandemics and other global health threats can reshape international relations, public policy, and economic stability. **Pandemics** not only strain health systems but also disrupt global trade, expose political vulnerabilities, and force nations to reconsider their alliances and public health strategies. In an era of globalization, the health of one nation impacts the security and economic wellbeing of others, making public health policy a cornerstone of geopolitical strategy.

This chapter takes a **data-driven approach** to understanding how global health threats, particularly pandemics, influence geopolitics. By analyzing **health data**, **pandemic responses**, and the role of international health organizations, we explore how nations react to global health crises and how data informs public policy decisions. **COVID-19**, which has been one of the most disruptive global health crises of the 21st century, serves as a case study for understanding the geopolitical shifts that occur when nations face large-scale public health threats.

As countries scrambled to contain the virus, disparities in healthcare infrastructure, governance, and international cooperation became starkly visible. Data science, especially through **real-time tracking**, **predictive modeling**, and **epidemiological forecasting**, played a critical role in shaping government responses and informing public policy. This chapter will examine how nations leveraged **public health data** to inform their strategies, the emergence of new global health alliances, and the geopolitical consequences of vaccine diplomacy, supply chain disruptions, and pandemic preparedness.

11.1 The Geopolitical Impact of Pandemics: COVID-19 as a Case Study

Pandemics like **COVID-19** fundamentally alter geopolitical dynamics, forcing nations to shift their focus from traditional security threats to health crises that cross borders. The COVID-19 pandemic, in particular, exposed the limitations of existing international health infrastructures, such as the **World Health Organization (WHO)**, and led to the emergence of new alliances based on health diplomacy.

Countries responded to the pandemic in vastly different ways, with varying levels of success. Nations with robust public health systems, such as **New Zealand** and **South Korea**, managed to contain the virus relatively quickly by implementing aggressive testing, contact tracing, and quarantine measures (Baker et al., 2020). In contrast, countries with weaker healthcare infrastructure or delayed responses, such as **Brazil** and **India**, experienced overwhelming public health crises that strained their political systems and economies.

Data science tools like **real-time data dashboards**, **epidemiological models**, and **risk assessment frameworks** were crucial in guiding national responses. **Predictive models**—such as those developed by **Imperial College London** and **Johns Hopkins University**—used data on infection rates, mortality, and healthcare capacity to forecast the spread of the virus and recommend containment strategies (Ferguson et al., 2020). These models influenced policy decisions, including lockdown measures, vaccine distribution, and international travel restrictions.

The geopolitical ramifications of COVID-19 extended beyond immediate public health concerns. The pandemic disrupted global supply chains, particularly in **medical equipment** and **pharmaceuticals**, exposing the dependencies that many nations had on **China** and **India** for critical medical supplies (Evenett, 2020). As a result, countries began to reconsider their reliance on globalized supply chains and to prioritize domestic production of essential medical goods, leading to a reevaluation of trade relationships and economic dependencies.

11.2 Vaccine Diplomacy and International Cooperation

One of the most visible manifestations of the intersection between geopolitics and public health during the COVID-19 pandemic was the emergence of **vaccine diplomacy**. The development and distribution of vaccines became a critical arena for geopolitical competition, with countries leveraging their vaccine production capabilities to gain influence over others. **China**, **Russia**, and **India** used their domestically produced vaccines—**Sinopharm**, **Sputnik V**, and **Covaxin**, respectively—as tools of diplomacy, offering vaccines to countries in **Africa**, **Latin America**, and **South Asia** in exchange for political and economic favors (Hoen, 2021).

At the same time, the **European Union** and **the United States** engaged in vaccine diplomacy through the **COVAX initiative**, which aimed to ensure equitable global access to vaccines. However, the unequal distribution of vaccines, particularly between wealthy and developing countries, exacerbated existing global inequalities. **Data science** played a crucial role in tracking the distribution and administration of vaccines, using **geospatial analysis** to map vaccine availability and predict potential shortages (Wouters et al., 2021).

The geopolitical competition over vaccines also influenced international alliances. Countries that were early recipients of vaccines from **China** or **Russia** often aligned themselves politically with these powers, leading to new spheres of influence based on health diplomacy. **Latin American** and **African** nations, in particular, became focal points of vaccine diplomacy,

with China supplying millions of doses to gain economic and political influence in these regions. **Data analytics** of vaccine distribution patterns highlighted how health crises can shift global alliances and foster new dependencies.

11.3 Data-Driven Public Health Policies and Predictive Modeling

Data science has become an indispensable tool in public health policy, especially in the context of global health crises. Predictive modeling is used not only to track the spread of diseases but also to anticipate future outbreaks and optimize health system responses. During COVID-19, models like the **Institute for Health Metrics and Evaluation (IHME)** provided projections for infection rates, hospitalizations, and deaths based on various policy scenarios (Murray, 2020). These models helped governments determine when to impose or lift restrictions, allocate medical resources, and plan for vaccine rollouts.

Machine learning algorithms also played a significant role in **contact tracing** and **risk assessment**. Countries like **South Korea**, **Singapore**, and **Australia** developed mobile apps that used Bluetooth technology to track potential exposure to the virus, notifying individuals who had been in contact with confirmed cases. **Big data analytics** allowed health authorities to identify patterns in the spread of the virus, helping to target interventions in high-risk areas. By leveraging **real-time data**, governments were able to implement more precise and effective public health measures.

Beyond COVID-19, data-driven approaches are crucial for managing other global health threats. **Predictive modeling** of future pandemics can assess the likelihood of disease outbreaks based on factors such as **urbanization**, **climate change**, and **global travel patterns** (Jones et al., 2008). **Geospatial models** can identify regions where deforestation or wildlife trade increases the risk of zoonotic diseases spilling over into human populations, providing early warnings for potential outbreaks (Allen et al., 2017).

11.4 The Role of International Health Organizations

International health organizations, particularly the **World Health Organization (WHO)**, play a critical role in coordinating global responses to pandemics. However, the COVID-19 pandemic exposed the limitations of these institutions in managing a global crisis. The WHO faced criticism for its slow initial response to the outbreak, and tensions between major powers, particularly the **United States** and **China**, hindered international cooperation (Mazzucato & Kattel, 2020). The pandemic highlighted the need for stronger international health governance structures that can respond more quickly and effectively to global health emergencies.

At the same time, the COVID-19 crisis led to the emergence of new forms of **global health cooperation**, with countries forming ad hoc alliances to share information, resources, and

research. The **Global Alliance for Vaccines and Immunization (GAVI)** and **COVAX** are examples of how international cooperation can be fostered in response to global health threats, although challenges remain in ensuring equitable access to health resources. Data science can support these efforts by providing transparent, real-time data on health outcomes and resource allocation, ensuring that international health interventions are targeted where they are most needed.

11.5 Conclusion

Global health threats, particularly pandemics, are reshaping the geopolitical landscape, influencing alliances, trade relationships, and public policy decisions. The COVID-19 pandemic demonstrated how health crises can exacerbate global inequalities, disrupt economies, and foster new forms of international cooperation. **Data science** is a critical tool in managing these challenges, from tracking disease spread and vaccine distribution to informing public health policies through predictive modeling and real-time data analysis.

As the world becomes increasingly interconnected, the intersection of global health and geopolitics will continue to define international relations. Future pandemics and health crises will require even greater cooperation, transparency, and innovation in data-driven public health strategies. Nations that can harness the power of **data science** to respond to health threats will be better positioned to navigate the complex geopolitical shifts that accompany global health crises.

11.6 References

- Allen, T., Murray, K. A., Zambrana-Torrelio, C., Morse, S. S., Rondinini, C., Di Marco, M., … & Daszak, P. (2017). Global Hotspots and Correlates of Emerging Zoonotic Diseases. *Nature Communications, 8*(1), 1-10.
- Baker, M. G., Kvalsvig, A., & Verrall, A. J. (2020). New Zealand's Elimination Strategy for the COVID-19 Pandemic and What Is Required to Make It Work. *New Zealand Medical Journal, 133*(1512), 10-14.
- Evenett, S. J. (2020). Sicken Thy Neighbour: The Initial Trade Policy Response to COVID-19. *The World Economy, 43*(4), 828-839.
- Ferguson, N. M., Laydon, D., Nedjati-Gilani, G., Imai, N., Ainslie, K., Baguelin, M., … & Ghani, A. C. (202

0). Impact of Non-Pharmaceutical Interventions (NPIs) to Reduce COVID-19 Mortality and Healthcare Demand. *Imperial College COVID-19 Response Team.* - Hoen, E. 't (2021). Vaccine Diplomacy. *Journal of Health Diplomacy, 4*(1), 1-5. - Jones, K. E., Patel, N. G., Levy, M. A., Storeygard, A., Balk, D., Gittleman, J. L., & Daszak, P. (2008). Global Trends in Emerging Infectious Diseases. *Nature, 451*(7181), 990-993. - Mazzucato, M., & Kattel, R. (2020).

COVID-19 and Public Sector Capacity. *Oxford Review of Economic Policy, 36*(S1), S256-S269. - Murray, C. J. L. (2020). Forecasting COVID-19 Impact on Hospital Bed-Days, ICU-Days, Ventilator-Days and Deaths by US State in the Next 4 Months. *MedRxiv*. - Wouters, O. J., Shadlen, K. C., Salcher-Konrad, M., Pollard, A. J., Larson, H. J., Teerawattananon, Y., & Jit, M. (2021). Challenges in Ensuring Global Access to COVID-19 Vaccines: Production, Affordability, Allocation, and Deployment. *The Lancet, 397*(10278), 1023-1034.

12 Terrorism and Insurgencies: Non-State Violence, Geoeconomic Exposure, and Empirical Monitoring

Terrorism and insurgencies are best understood, in a geoeconomic register, as strategies of coercion and bargaining pursued by non-state actors under conditions of asymmetry. Their distinguishing feature is not only the use of violence, but the selective targeting of economic nodes, political legitimacy, and institutional capacity. Contemporary non-state actors operate across borders, exploit weak governance and porous corridors, and adapt rapidly to countermeasures. The resulting security challenge is simultaneously strategic and economic: episodes of violence alter investment incentives, disrupt logistics and tourism, raise insurance premia, shift public budgets toward security expenditures, and can reconfigure trade routes and supply chains. In that sense, terrorism is not merely a "security" phenomenon appended to international business; it is a driver of risk pricing and location decisions in an interdependent world.

The empirical study of terrorism has advanced substantially because many relevant outcomes are observable and can be monitored systematically. Event-level datasets have enabled analysts to document where violence occurs, how it evolves over time, and how it diffuses across space. These empirical approaches do not replace interpretive judgment; they discipline it by making patterns and regularities visible. The core analytical task is to connect violence to geoeconomic mechanisms: how non-state actors exploit corridor vulnerabilities, how states respond through security policies and border regimes, and how firms adapt through risk mitigation and reallocation of exposure.

12.1 The geography of non-state violence and the political economy of corridors

Non-state violence is geographically structured. It clusters in regions where state capacity is contested, where terrain and borders provide operational depth, and where illicit economies can finance organization. These are not merely tactical features; they are economic features. Borderlands, remote regions, and urban peripheries often combine low monitoring capacity with high opportunities for rent extraction, taxation of flows, and coercion of local populations. From a geoeconomic viewpoint, the relevant unit is frequently the corridor rather than the

country: road networks, ports, pipeline routes, and trade hubs that concentrate flows and therefore concentrate both opportunity and vulnerability.

Event datasets make these spatial patterns measurable. The Armed Conflict Location & Event Data Project (ACLED), introduced in the scholarly literature as a disaggregated dataset recording the location and timing of political violence and protest events, enables hotspot analysis and spatial diffusion models (Raleigh et al. (2010)). These tools are analytically useful because they make it possible to distinguish between persistent structural risk (areas with chronic violence) and episodic risk (spikes around political or military events), which is precisely the distinction that matters for investment horizons and supply chain design.

A complementary source for terrorism-specific incidents is the Global Terrorism Database, widely used in research to track terrorist attacks across countries over long time spans (National Consortium for the Study of Terrorism and Responses to Terrorism (START) (2023)). When combined with governance and development indicators, such datasets support empirical regularities that are policy-relevant: violence tends to concentrate where legitimacy is contested and where coercion is economically sustainable through control of flows, external funding, or illicit markets.

12.2 Networks of organization: finance, recruitment, and coalition structure

Insurgencies and terrorist organizations are commonly described as "decentralized networks," but the geoeconomic question is more specific: which nodes are essential for sustaining capacity over time? Recruitment pipelines, financing mechanisms, and logistics chains tend to exhibit bottlenecks even when violence is executed through distributed cells. This is why network thinking is helpful as an organizing metaphor and as an empirical approach, provided that one remains clear about the limits of inference and about the ethical constraints of analysis.

The financing dimension is particularly salient. Informal value transfer systems, including hawala-like mechanisms, have long been analyzed as channels through which funds can move across borders outside conventional banking oversight, raising regulatory and enforcement challenges (Passas (2003)). The geoeconomic relevance is not limited to counterterrorism policy; it extends to the integrity of trade finance, remittance channels, and the compliance costs borne by legitimate firms operating in high-risk regions.

Recruitment and propaganda dissemination increasingly rely on digital ecosystems, which interact with diaspora networks and grievance structures. Empirical work on extremist online presence has documented that platform affordances can facilitate community formation and amplification dynamics, even when conversion from exposure to mobilization remains contingent (Berger and Morgan (2015)). For geoeconomics, these findings matter because online

mobilization can shift the risk profile of societies without corresponding changes in conventional military indicators, thereby affecting perceptions of stability and the credibility of state commitments.

12.3 Predictive inference and early-warning logic

Empirical monitoring also supports early-warning analysis. The relevant objective is not deterministic prediction of specific attacks—an unrealistic and often conceptually misguided aim—but probabilistic identification of elevated risk across space and time. This logic is consistent with work in conflict studies that links violence to accessibility, state reach, and territorial conditions. For example, research on insurgency and inaccessibility emphasizes that geography conditions state control and insurgent survivability, shaping the spatial distribution of violence (Tollefsen and Buhaug (2015)). Such findings translate naturally into geoeconomic risk assessments: where accessibility constraints are binding, transport corridors become vulnerable, enforcement costs rise, and the shadow economy can expand.

A parallel literature in political economy evaluates whether policy instruments can reduce violence by altering incentives and information. Work on counterinsurgency in Iraq, for instance, analyzes how resource allocation affects violence through "hearts and minds" mechanisms and the strategic interaction between civilians, insurgents, and intervening forces (Berman, Shapiro, and Felter (2011)). For a geoeconomic argument, the contribution is conceptual: violence is not only a function of ideology; it is shaped by incentives, governance capacity, and the distribution of economic rents. This is precisely why terrorism is responsive to economic shocks, border regimes, and the structure of illicit markets.

12.4 Geoeconomic implications: investment, fragmentation, and resilience

The geoeconomic consequences of terrorism and insurgency are rarely confined to direct damages. They operate through risk premia, reallocation, and institutional adaptation. Investment tends to shift away from exposed locations unless offset by resource rents or state guarantees; tourism and services are especially sensitive to perceived insecurity; logistics networks become more redundant and therefore more costly; and public spending is reallocated toward security at the expense of infrastructure and social investment. In highly connected economies, localized violence can produce non-local effects by disrupting corridors and altering the expected reliability of supply chains. The result is a form of endogenous fragmentation: economic actors respond to insecurity by reducing exposure, which can weaken local economies and thereby expand the conditions under which non-state actors can recruit and extract rents.

These dynamics also clarify why "tracking" non-state actors is not merely an intelligence exercise. It is part of geoeconomic governance: states and firms seek to stabilize corridors, maintain credible commitments, and preserve the predictability required for trade, investment, and development. Event datasets and systematic monitoring contribute by making these vulnerabilities legible and by supporting the evaluation of interventions, but they do not substitute for political settlement and institutional legitimacy, which remain the central determinants of long-run stability.

12.5 Conclusion

Terrorism and insurgencies should be analyzed as forms of strategic violence that exploit economic connectivity, institutional weaknesses, and corridor vulnerabilities. Empirical monitoring—through event datasets and systematic measurement—helps document where violence concentrates, how it evolves, and which structural conditions correlate with persistence. Yet the core interpretive task for geoeconomics remains to connect these patterns to mechanisms: the pricing of risk, the restructuring of trade and investment, and the governance choices through which states and firms attempt to preserve resilience under insecurity. In a fragmented global landscape, non-state violence is therefore not only a security threat; it is a driver of economic reconfiguration and an enduring constraint on globalization's institutional foundations.

13 The New Geoeconomics of Internal Conflict in Western Democracies

In the contemporary international system, the analytical boundary between external rivalry and internal stability has become structurally porous. Western democracies, long treated as consolidated orders insulated from large-scale domestic violence, increasingly display vulnerabilities that were historically associated with fragile or transitional states. These vulnerabilities are not reducible to episodic political polarization or cultural contestation. They are embedded in the political economy of adjustment to globalization, technological change, and the strategic management of interdependence. From a geoeconomic perspective, internal conflict in advanced democracies is best understood not as an anomalous deviation from "normal politics," but as a possible endogenous outcome of economic transformation when distributional shocks, spatial divergence, and informational fragmentation erode legitimacy and reconfigure the incentives of political actors.

13.1 Changing risk factors

The classic civil war literature emphasizes low income, weak state capacity, and insurgency-friendly conditions as predictors of internal violence, particularly when governments lack the coercive reach to suppress rebellion and when conflict becomes self-sustaining through rural sanctuary and protracted war dynamics (Fearon and Laitin (2003)). By these criteria, Western democracies appeared structurally protected. Yet this inference relied on an implicit mapping between "fragility" and "poverty," and between "institutional maturity" and "immunity." More recent work argues that wealth and institutional longevity do not eliminate conflict risk; they can transform it by shifting conflict away from territorial secession and toward forms of asymmetric disruption, radicalization, and contestation over the legitimacy of the state itself (Walter (2022)). In post-industrial democracies, the relevant mechanisms often operate through perceived relative loss, asymmetric exposure to trade and automation, and the erosion of shared expectations about mobility, dignity, and fairness. These are fundamentally political-economic phenomena, and therefore geoeconomic in character.

A central feature of the contemporary transformation is the reorganization of opportunity across space and social groups. Advanced democracies have experienced durable concentration of growth and high-wage employment in metropolitan regions with dense human capital, while peripheral, industrial, and many rural areas have faced long-run stagnation or decline.

This spatial divergence becomes politically consequential when it aligns with identity cleavages and with narratives of recognition and status. In the "cultural backlash" account, economic marginalization interacts with status anxiety to produce durable opposition to liberal institutions perceived as serving cosmopolitan winners rather than national communities (Norris and Inglehart (2019)). The geoeconomic insight is that the political salience of distribution is amplified when the perceived losers of globalization do not merely lose income, but lose voice and future prospects, and when adjustment policies fail to preserve credible trajectories of inclusion.

Under these conditions, polarization and democratic erosion are better conceptualized as endogenous responses than as exogenous shocks. Polarization transforms distributive disputes into existential contests over identity and control of the state, weakening the informal norms that sustain democratic institutions. When political competition becomes zero-sum, constitutional constraints are reinterpreted as obstacles rather than as shared commitments, and actors face stronger incentives to bypass institutional procedures. The historical and comparative logic developed by Levitsky and Ziblatt (2018) emphasizes that democratic breakdown is often preceded by a gradual erosion of mutual toleration and institutional forbearance, rather than by sudden coups. A geoeconomic extension of this argument highlights that institutional forbearance is more difficult to sustain when a large share of the electorate believes that the prevailing economic order systematically excludes them, and when political entrepreneurs can credibly frame the status quo as both illegitimate and unresponsive.

The erosion of social capital deepens these vulnerabilities. Long-run declines in civic engagement, associational life, and interpersonal trust weaken the "bridging" connections that enable societies to absorb economic shocks without converting them into identity conflict. In Putnam's account, the decline of civic infrastructure reduces the capacity for cooperative problem-solving and increases the ease with which grievances become politicized in divisive terms (Putnam (2000)). Geoeconomically, this erosion matters because social trust functions as a coordination technology: it lowers transaction costs and supports compliance with institutional outcomes. When it weakens, the costs of compromise rise, and the returns to mobilization through antagonistic identity narratives increase.

13.2 The role of the informational environment

The informational environment further amplifies this dynamic. Digital platforms lower the coordination costs of mobilization, increase the speed at which grievance narratives diffuse, and often reward polarizing content. From a geoeconomic standpoint, the information ecosystem is not merely a cultural arena; it is a critical domestic infrastructure that conditions political stability and thereby shapes national power. Disinformation, whether generated domestically or injected by external actors, interacts with underlying economic grievances to weaken cohesion and to raise doubts about procedural legitimacy. In this sense, internal conflict becomes entangled with external rivalry: adversaries can exploit domestic fragmentation as a form of

indirect coercion, imposing strategic costs without conventional confrontation, a logic consistent with broader accounts of interdependence as leverage in the contemporary international system (Farrell and Newman (2019)).

The strategic form that internal conflict might take in advanced democracies is also changing. It is unlikely to resemble classical civil wars centered on territorial control and conventional battles. Instead, it is more plausibly expressed as protracted, low-intensity violence and intimidation, organized around disruption of critical infrastructures and symbolic targets rather than around conquest of territory. Betz's strategic argument explicitly frames prospective internal conflict in Western states as "systems disruption" targeting vulnerable critical infrastructure, with violence that may metastasize from low-grade disorder into broader internal conflict dynamics (Betz (2025)). Even when one disagrees with the forecasting horizon or the magnitude of the risk, the geoeconomic logic is coherent: in densely networked economies, attacks on energy grids, transport nodes, supply chains, and communication systems can generate outsize economic effects and political pressure because modern life is highly dependent on a small number of interconnected lifelines.

This reasoning also clarifies why urban–rural divides become operationally salient. Cities concentrate financial, political, and symbolic power, but depend on extended hinterlands for energy, food, water, and transport continuity. Peripheral regions often host critical infrastructure that sustains metropolitan systems. In an internal conflict scenario, this spatial asymmetry creates incentives for asymmetric strategies aimed at disruption of flows rather than seizure of centers. The implication is not that internal conflict is inevitable, but that the strategic logic of disruption is structurally available in advanced democracies precisely because their economies are highly interdependent and infrastructure-intensive.

The systemic implications would extend well beyond domestic politics. If internal instability were to become sustained in major democratic economies, global supply chains, financial markets, and institutional leadership would be disrupted. External projection of influence would be constrained by internal legitimacy crises and by the diversion of state capacity toward domestic security. Internal cohesion would thus become a geoeconomic asset: a determinant of international bargaining power, alliance credibility, and the capacity to sustain long-horizon industrial and technological strategies.

13.3 Policy implications

None of this implies fatalism. A geoeconomic framing also clarifies pathways to resilience. Policies that reduce extreme inequality, address spatial divergence through credible regional development strategies, strengthen social insurance against concentrated adjustment shocks, and improve the governance of the information ecosystem can reduce the incentives and opportunities for conflict entrepreneurship. In analytical terms, the central objective is to restore the credibility of inclusive growth and the legitimacy of institutional mediation. In strategic terms, the objective is to treat internal stability as part of national power—an asset that must

be maintained deliberately in an era when interdependence can be exploited externally and when distributional fractures can be weaponized domestically.

Part IV

To the New Frontiers

14 Resilience of Global Supply Chains in a Geopolitical Age

```
knitr::opts_chunk$set(
echo = FALSE,
message = FALSE,
warning = FALSE,
fig.width = 7,
fig.height = 5
)
```

The contemporary global economy is organized through dense, multi-tier supply networks that connect firms, logistics systems, standards regimes, and jurisdictions. For three decades, the dominant organizing logic favored lean, globally dispersed architectures that minimized buffers in order to exploit specialization, scale, and cost arbitrage. The succession of disruptions associated with the COVID-19 pandemic, the escalation of U.S.–China trade and technology frictions, and the Russia–Ukraine war has clarified that these architectures embed non-trivial tail risks whose consequences are magnified by concentration, limited substitutability, and information frictions across tiers. A fundamental lesson follows: resilience is not a property of a single firm or site, but an emergent property of a network embedded in legal and geopolitical regimes, where interdependencies, chokepoints, and coordination constraints shape both shock transmission and recovery trajectories (Acemoglu et al. (2012); Carvalho et al. (2021)).

This chapter develops a geoeconomic account of supply chain resilience under geopolitical risk. The argument integrates three complementary lenses. The first is the macroeconomics of production networks, which clarifies why idiosyncratic supplier shocks can generate aggregate outcomes and why the distribution of dependencies matters at least as much as their average level (Acemoglu et al. (2012); Carvalho et al. (2021)). The second is institutional political economy, which specifies how sanctions, export controls, and standards conflict operate as state-contingent constraints that can convert network centrality into leverage, thereby embedding geopolitical rivalry within the microstructure of global commerce (Farrell and Newman (2019)). The third is operations and strategy, which formalizes the efficiency–resilience trade-off and emphasizes that robust designs are typically portfolios combining redundancy, buffers, flexibility, and visibility rather than single levers (Tang (2006); Pettit, Fiksel, and Croxton (2010); Sheffi (2005); Chopra and Sodhi (2014)).

14.1 Conceptual foundations: networks, governance, and resilience metrics

In global supply chains, incomplete contracts and relationship-specific investments generate dependence on a limited number of suppliers, lanes, and certifying authorities. Such dependence is often invisible in normal times because it is masked by stable lead times and routinized compliance. Network theory makes dependence legible by representing supply chains as graphs with nodes (firms, facilities, ports, standards bodies) and edges (supplier relations, transport lanes, contractual interfaces). Two properties are central. Centrality identifies nodes whose failure disproportionately disrupts connectivity; modularity and redundancy determine whether disruptions remain local or cascade through the system. In production networks with skewed input shares and limited substitution, micro shocks can become macro shocks, particularly when they hit "granular" suppliers whose outputs are widely used (Acemoglu et al. (2012)).

Institutional context determines whether alternative paths are feasible. Trade rules, technical standards, licensing regimes, and sanctions compliance are not external parameters; they constitute the feasible set. In a world of geopolitical rivalry, the feasible set can change discontinuously. Export controls on advanced semiconductors, restrictions on dual-use items, and sanctions on shipping, insurance, and payments can make a technically possible reallocation legally infeasible. The framework of weaponized interdependence clarifies why such constraints are strategically potent: states positioned at nodal infrastructures can use jurisdiction and standard-setting capacity to influence flows across the network (Farrell and Newman (2019)).

Operationalizing resilience requires metrics that capture both resistance and recovery. Let (Q(t)) be a normalized performance index for a focal supply chain. A common area-based metric defines resilience over $[t_0, t_1]$ as $R = 1 - \frac{1}{t_1 - t_0} \int_{t_0}^{t_1} [1 - Q(t)], dt$. This measure rewards shallower performance drops and faster recovery, and it can be complemented by time-to-survive and time-to-recovery concepts widely used in practice. The following code computes a discrete approximation to the area-based index under simulated recovery paths.

```
# $resilience_index
# [1] 0.832
```

The conceptual point is not the specific functional form, but the mapping from network structure and governance constraints to (Q(t)). Identical shocks can yield different (Q(t)) trajectories across firms and sectors because substitutability, compliance constraints, and reconfiguration capacity differ.

14.2 Geopolitical risk as a structured shock process

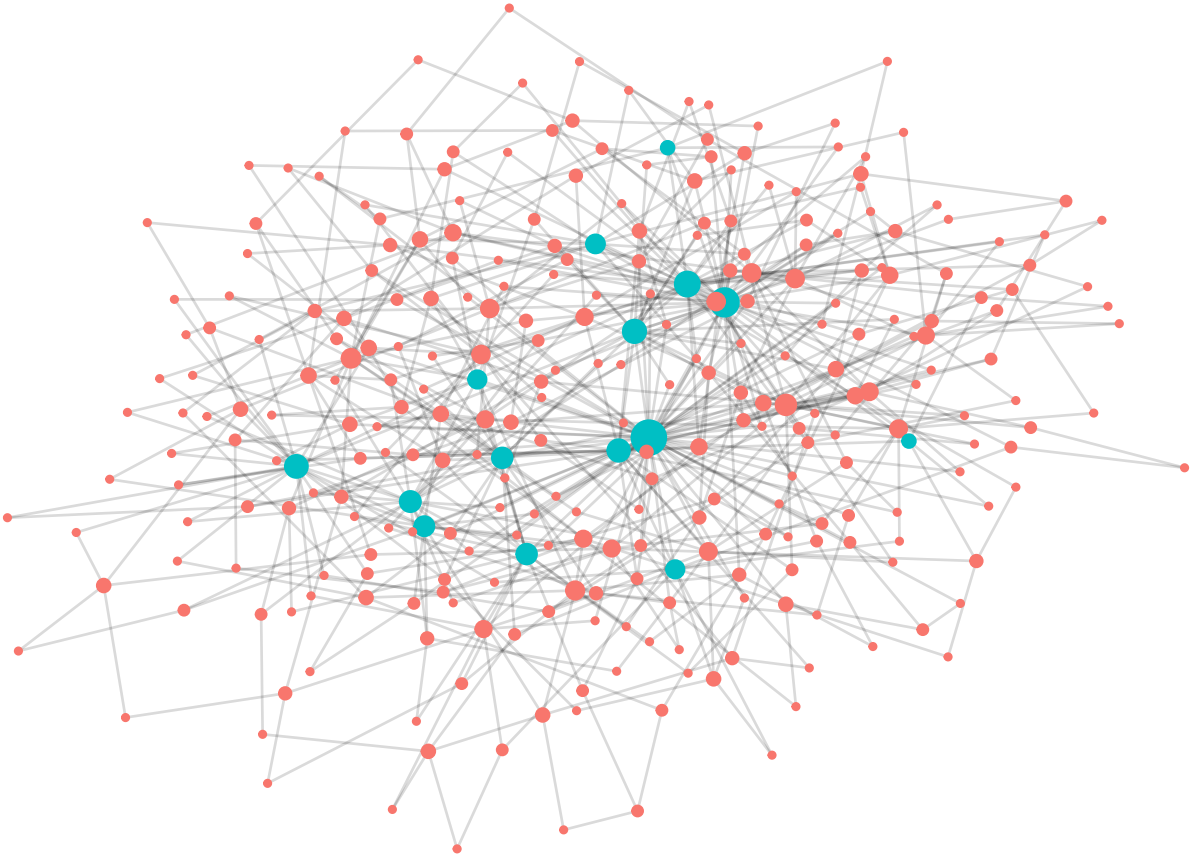
Geopolitical risk differs from ordinary operational risk in three respects. First, it is often discontinuous, changing the feasible set rather than incrementally changing costs. Second, it is frequently targeted, exploiting chokepoints and jurisdictional reach rather than arising randomly. Third, it is strategic, meaning that actors anticipate and respond to each other, so the environment is endogenously shaped by adaptation.

This motivates a shift from treating disruptions as independent failures toward treating them as scenario families. A useful empirical complement is the Geopolitical Risk (GPR) index, which measures time variation in geopolitical tensions using newspaper text and has been used to study macroeconomic effects of geopolitical events (Caldara and Iacoviello (2022)). In a supply chain context, such indices can be integrated as regime indicators: when geopolitical risk rises, correlations between supplier failures rise, and the value of redundant jurisdictions increases.

14.3 Targeted fragility and the logic of chokepoints

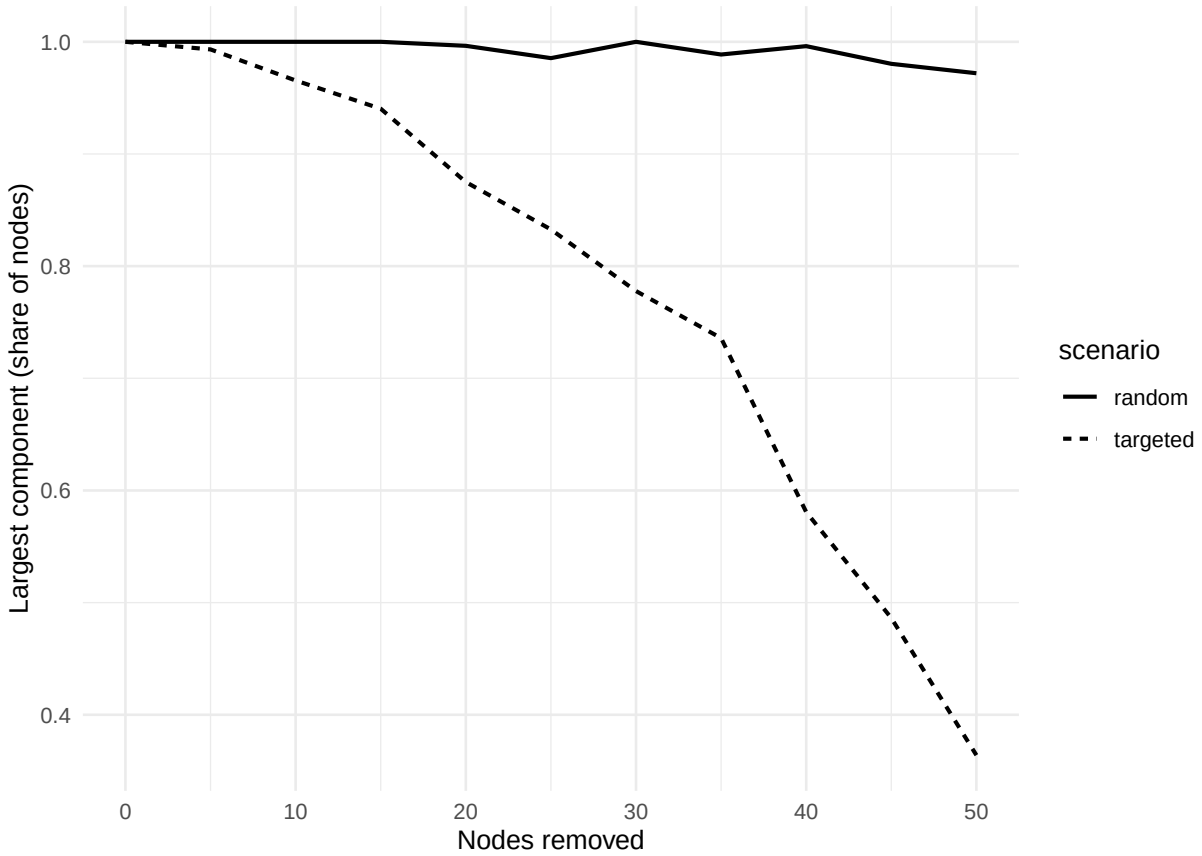
Recent disruptions highlight the difference between random fragility and targeted fragility. Random failures degrade performance through dispersed disruptions; targeted disruptions exploit centrality. Export controls, sanctions on dominant suppliers, closure of key ports, restrictions on payment infrastructures, and denial of insurance services are all targeted mechanisms that can induce discrete fragmentation rather than gradual degradation.

The following code constructs a stylized network and highlights potentially critical nodes by centrality. The network is synthetic, but the diagnostics mirror real supply mapping exercises.



A canonical experiment compares random removals with targeted removals of high-centrality nodes. In real-world terms, random removals approximate dispersed disruptions; targeted removals approximate the loss of a dominant supplier, a sanctioned intermediary, or a closed corridor. The following is kept as a dormant template to preserve readability.

```
# [1] 300
#  [1]  0  5 10 15 20 25 30 35 40 45 50
```



The geoeconomic implication is that resilience investments must be structured around specific chokepoints and jurisdictions. A firm can diversify suppliers but remain fragile if all suppliers depend on the same transit corridor, certification regime, or sanctions-exposed intermediary.

14.4 Measuring dependence: concentration, substitutability, and jurisdictional exposure

Concentration on a single supplier, partner, or corridor increases expected disruption loss. A parsimonious descriptive metric is the Herfindahl–Hirschman Index (HHI) computed over partner shares. The example below contrasts a baseline configuration with a simple reallocation that reduces dependence on a dominant partner.

```
# # A tibble: 2 x 2
#   configuration   HHI
#   <chr>         <dbl>
# 1 Baseline      0.375
# 2 Rebalanced    0.272
```

The HHI becomes strategically meaningful when linked to substitution. Substitution is not only technological; it is also legal and organizational. A supplier is not substitutable if switching requires recertification, redesign, or is blocked by export controls. In this sense, "jurisdictional exposure" is an additional dimension of dependence: suppliers embedded in the same compliance perimeter may fail jointly even if operationally independent.

The Monte Carlo illustration below clarifies why, absent perfect correlation, multi-sourcing reduces severe shortfall risk, even if the marginal supplier is not uniformly less risky.

```
# # A tibble: 2 x 2
#   configuration prob_shortfall_below_50pct
#   <chr>                              <dbl>
# 1 Concentrated                       0.121
# 2 Diversified                        0.119
```

In geopolitical shocks, correlations typically rise because multiple suppliers can be affected simultaneously by the same policy perimeter, by the same corridor disruption, or by the same financial restriction. This shifts the resilience problem away from simple supplier counts toward diversity of jurisdictions, lanes, and compliance regimes.

14.5 Sectoral archetypes: why semiconductors, pharmaceuticals, food, and energy behave differently

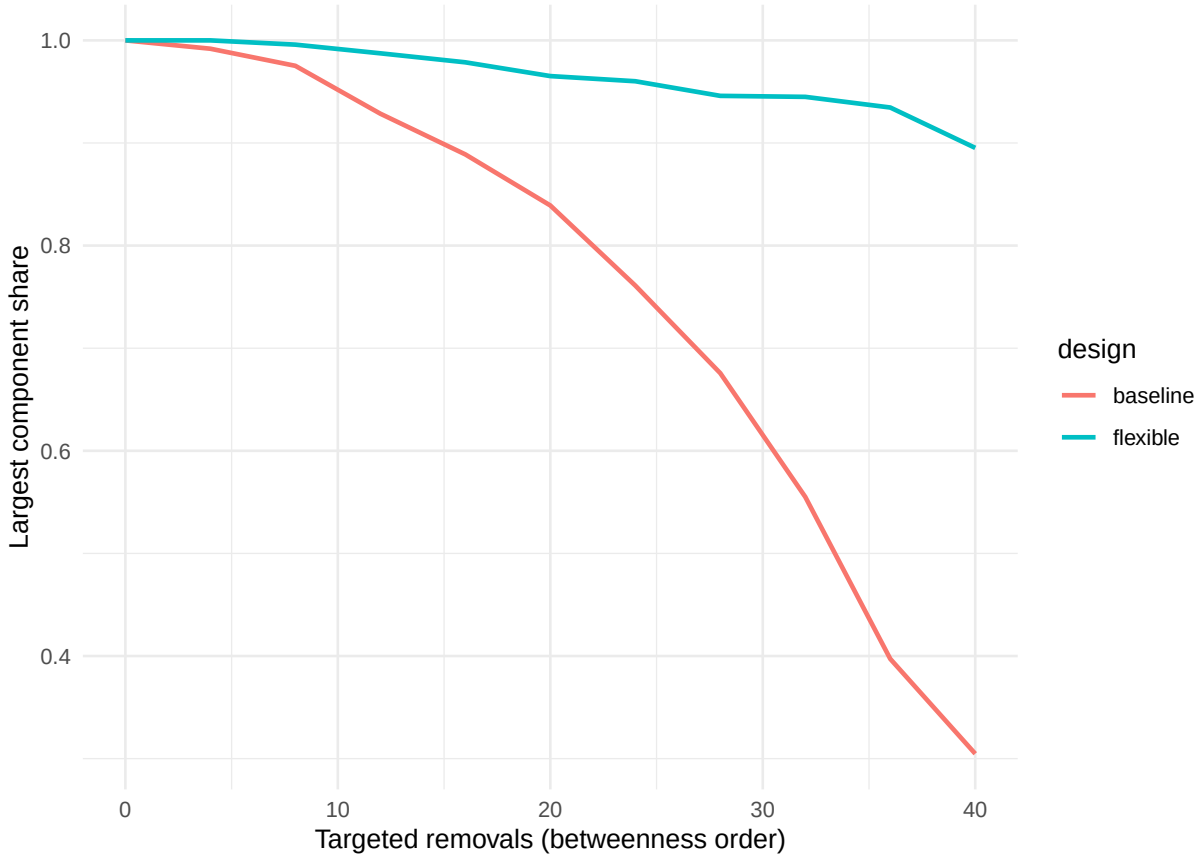
The mechanisms described above are cross-sectoral, but the resilience problem differs systematically by sector. Semiconductors illustrate extreme capital intensity, long lead times, and high concentration at specific stages of fabrication and equipment supply. Substitution is limited by design specificity and by the need for qualification and yield stabilization. Pharmaceuticals illustrate regulatory and quality constraints that can make "physical" substitution infeasible without time-consuming approval and validation, even when alternative capacity exists. Food systems illustrate a different structure in which logistics, storage, and seasonal constraints interact with climate shocks and export restrictions, often producing price spikes and political instability through distributional effects. Energy systems combine physical infrastructure lock-in with geopolitical constraints, where route dependence and long-lived assets produce persistent vulnerability, and where reconfiguration requires large-scale investment rather than short-run switching.

A geoeconomic reading treats these sectors as distinct regimes of substitutability and governance. The same policy instrument, such as export controls, will have different effects depending on how modular the production process is and how quickly certification and redesign can occur. This is why resilience policy is rarely "one size fits all" and why governments have increasingly treated certain sectors as strategic, engaging in industrial policy and stockpiling, even when such interventions reduce static efficiency.

14.6 The efficiency–resilience frontier and the logic of robust portfolios

Resilience investments impose costs in normal states and deliver benefits in rare states. This creates a classic problem of underinvestment when tail risks generate spillovers that private actors do not internalize. In practice, robust strategies tend to be portfolios rather than single instruments: limited redundancy for critical inputs, buffers calibrated to time-to-survive, flexible capacity, and contract structures that enable priority access under disruption (Tang (2006); Chopra and Sodhi (2014)). A complementary conceptualization frames resilience as the balance of vulnerabilities and capabilities, emphasizing that resilience is jointly determined by exposure and the capacity to respond (Pettit, Fiksel, and Croxton (2010)). The broader managerial literature underscores the importance of preparing for disruptions through flexible logistics and contingency planning, rather than attempting to forecast specific shocks precisely (Sheffi (2005)).

The following stylized simulation shows how modest structural flexibility, represented by a small number of latent backup links, can reduce fragmentation under targeted disruptions. The point is not realism of the network generation, but interpretability of the mechanism.



14.7 Regionalization, friend-shoring, and the governance of modularity

A salient organizational response to geopolitical risk is partial regionalization into semi-autonomous poles, characterized by tighter intra-regional coupling and looser inter-regional bridges. The underlying logic is modularity: if networks are structured into modules linked by limited bridges, disruptions can be contained, and governance can be stabilized within institutional zones. Friend-shoring is a related concept that emphasizes reducing exposure to adversarial policy shocks by concentrating reliance on lower-tension jurisdictions. These strategies are not equivalent to deglobalization. They represent a re-optimization of interdependence under higher variance and higher policy risk.

Institutional arrangements condition the feasibility and cost of modularity. Trade agreements, mutual recognition, customs facilitation, and credible dispute settlement expand the feasible set for diversification and rerouting; sanctions regimes and standards conflict shrink it. In this sense, resilience is jointly produced by firms and institutions. Where institutional capacity is high and rules are credible, the cost of reconfiguration falls; where governance is uncertain, private actors face higher option costs and a narrower set of feasible contingencies.

14.8 Visibility, coordination, and the political economy of information

Supply chain disruptions are frequently amplified by information frictions. Firms commonly lack visibility beyond first-tier suppliers; governments may lack timely information about inventories and bottlenecks; logistics systems may have delayed and noisy signals about congestion. Improving visibility changes the dynamics of recovery by enabling prioritization and coordinated rerouting. However, visibility is also political economy: information is a strategic asset, and incentives to share it are limited when it reveals bargaining positions or compliance vulnerabilities. As a result, public–private coordination becomes a governance problem. The state's role is not only to impose buffers but to create credible frameworks for information sharing, crisis coordination, and targeted support that reduce collective-action failures.

14.9 Conclusion

In a geopolitical age, supply chain design must internalize the possibility of targeted, policy-induced disruptions that exploit network structure. The production-network literature clarifies why localized shocks can produce aggregate outcomes through propagation and amplification mechanisms that depend on topology and substitutability (Acemoglu et al. (2012); Carvalho et al. (2021)). The institutional literature clarifies why geopolitical rivalry converts network

position into leverage and why legal-jurisdictional dependence is itself a resilience variable (Farrell and Newman (2019)). The operations literature clarifies why mitigation is best treated as a portfolio problem: calibrated redundancy, buffers, contingent capacity, and coordination capabilities shift the efficiency–resilience frontier in a cost-disciplined manner (Tang (2006); Pettit, Fiksel, and Croxton (2010); Chopra and Sodhi (2014); Sheffi (2005)).

Resilience, in this framework, is engineered substitutability under strategic rivalry. The objective is not autarky, but architectures and governance arrangements that reduce the probability that a small number of chokepoints—physical, organizational, or jurisdictional—can generate systemic disruption and that enable faster recovery when disruptions occur.

Appendix: minimal helper for an area-based resilience index

```
# [1] 0.75
```

15 Space: The New Geopolitical Frontier

Space has become the new frontier for geopolitical competition, as nations and private actors vie for dominance in both **exploration** and **militarization**. What was once the domain of a few superpowers is now a competitive arena where a growing number of countries and private companies are investing heavily in space technologies, satellite systems, and military capabilities. As space becomes increasingly critical for communications, navigation, and defense, it is also becoming an area where geopolitical tensions play out. This chapter explores how **data science** can be used to analyze the global race for space, focusing on **satellite data**, **space program investments**, and **national space policies** to highlight the growing importance of space in international relations.

The role of **satellites**, **space exploration**, and the militarization of space is transforming geopolitics. Satellites are essential for everything from **global communications** and **weather forecasting** to **surveillance** and **military operations**. The race to deploy satellite networks, invest in space programs, and develop space-based military capabilities reflects the shifting balance of power among major global players. As space becomes more congested, competitive, and contested, the need for **data-driven analysis** of satellite trajectories, space debris, and geopolitical strategies in space has never been greater.

This chapter will explore how nations are positioning themselves in the new space race, the role of private companies in transforming space competition, and the implications of space militarization for global security. **Data science tools**, such as **geospatial analysis**, **investment tracking**, and **policy modeling**, will be used to illustrate the ways in which space is emerging as the next major arena for geopolitical influence.

15.1 Satellite Data: Mapping the Race for Space

Satellites are the backbone of modern communication, navigation, and surveillance systems, making them a crucial element of geopolitical strategy. The ability to deploy and control satellite constellations has become a key measure of a nation's technological prowess and military power. **Data science** allows researchers to track and analyze the global deployment of satellites, providing insights into which nations and companies are leading the space race.

Using datasets such as the **Union of Concerned Scientists' Satellite Database** and **NORAD's satellite catalog**, data scientists can map the **orbital paths** and **capabilities** of satellites currently in operation. This includes distinguishing between **commercial**, **military**,

and **government** satellites, as well as identifying key trends in satellite deployment. For instance, as of 2021, the **United States** and **China** are the leading countries in terms of satellite deployment, with each controlling hundreds of satellites dedicated to communications, navigation, intelligence, and military operations (McDowell, 2021).

Private companies such as **SpaceX** and **Amazon** have also become major players in space, launching thousands of small satellites as part of massive constellations designed to provide **global internet coverage**. SpaceX's **Starlink project**, for example, aims to deploy more than **12,000 satellites**, significantly increasing global satellite congestion. This has raised concerns about **space debris**, the risk of **collisions**, and the militarization of these networks. **Predictive models** based on satellite data can forecast potential collisions and assess the risk of space debris, helping policymakers develop strategies to manage the growing number of objects in low Earth orbit (LEO).

The **geopolitical significance** of satellite networks extends beyond commercial interests. Military satellites play a critical role in modern warfare, providing **real-time intelligence**, **surveillance**, and **reconnaissance** capabilities. Nations that can control satellite networks hold a strategic advantage in any conflict, as they are able to monitor adversaries, guide precision weapons, and maintain secure communications. The recent development of **anti-satellite weapons (ASAT)** by countries like **Russia**, **China**, and **India** has further escalated concerns about space militarization (Weeden & Samson, 2020). Data science techniques, such as **trajectory modeling** and **satellite tracking**, are essential for monitoring these developments and predicting potential flashpoints in space-based conflicts.

15.2 Space Program Investments: Tracking National and Private Sector Ambitions

Space is not only the domain of governments but increasingly a focus of private companies and multinational collaborations. The investments in space programs, both public and private, are key indicators of a nation's or corporation's ambitions in the space race. **Data science** helps track the flow of investments into space exploration, satellite technologies, and military space initiatives, providing insights into which nations and companies are leading the charge.

The **United States** remains the largest spender on space programs, with **NASA** and the **Department of Defense (DoD)** investing billions of dollars annually into space exploration, satellite development, and space-based military systems. The establishment of the **U.S. Space Force** in 2019, a dedicated military branch focused on space operations, underscores the growing importance of space in national defense strategy (Gruss, 2019). Tracking U.S. defense contracts and budget allocations through public databases, such as the **Federal Procurement Data System**, provides a clear picture of the scale and scope of U.S. investments in space militarization.

China, with its rapidly advancing space program, is seen as a key competitor in the new space race. The **China National Space Administration (CNSA)** has launched ambitious initiatives, including its **Chang'e lunar exploration program** and plans for a **Chinese space station** by 2022. China's ability to rapidly develop space technologies and deploy satellites has shifted the geopolitical balance, prompting concerns about the potential for **space dominance** (Goswami, 2019). Using **investment tracking** and **geospatial analysis**, researchers can map China's growing influence in space and assess how its investments compare to those of other major powers.

Private companies are also shaping the future of space exploration. **Elon Musk's SpaceX** has become a dominant force in the industry, providing commercial launch services, developing reusable rockets, and planning for missions to **Mars**. **Jeff Bezos' Blue Origin** and **Richard Branson's Virgin Galactic** are similarly investing heavily in space tourism and exploration. The growing role of private companies in space challenges traditional notions of state control over space activities and raises questions about the governance of space resources.

Data science enables analysts to track space-related investments by parsing through **financial reports**, **public contracts**, and **investment data** from private companies. By analyzing trends in these investments, researchers can predict which countries and companies are most likely to lead the next phase of space exploration and identify areas where collaboration or competition is likely to emerge.

15.3 Space Militarization: The Next Frontier in Geopolitical Conflict

As space becomes increasingly militarized, the potential for conflict in this domain grows. The development of **anti-satellite weapons (ASATs)**, **space-based missile defense systems**, and **military satellite networks** has turned space into a potential battlefield. Countries such as the **United States**, **Russia**, **China**, and **India** are investing heavily in space-based military technologies, seeking to establish superiority in this new frontier.

Anti-satellite (ASAT) capabilities have become a focal point of space militarization. **China** demonstrated its ASAT capabilities in 2007 when it destroyed one of its defunct satellites in orbit, creating a massive cloud of debris that continues to pose a risk to other satellites. In 2019, **India** conducted a similar test, successfully intercepting one of its own satellites. These tests underscore the growing risk of **space warfare**, where the destruction of satellites could have catastrophic consequences for global communications, navigation, and defense systems (Weeden & Samson, 2020).

Data science is essential for monitoring the militarization of space. **Satellite tracking systems**, such as **NORAD's Space Surveillance Network (SSN)**, provide real-time data on the positions of thousands of objects in orbit, allowing analysts to detect unusual movements or the deployment of new military assets. By integrating data from multiple sources, including

satellite imagery and open-source intelligence, data scientists can identify potential threats, such as the deployment of ASAT systems or the testing of space-based weapons.

Predictive modeling can also be used to assess the likelihood of conflict in space. By analyzing historical trends in space militarization, geopolitical tensions, and military investments, researchers can forecast potential flashpoints and develop scenarios for how a conflict in space might unfold. This modeling is particularly important given the **dual-use nature** of many space technologies, which can serve both civilian and military purposes. For example, **global navigation systems** like **GPS** and **Beidou** are essential for both commercial applications and military operations, making them prime targets in any potential conflict (Dolman, 2002).

15.4 Conclusion

Space is rapidly becoming the new geopolitical frontier, with nations and private companies competing for dominance in exploration, satellite technologies, and military capabilities. **Data science** provides the tools necessary to track and analyze these developments, offering insights into how space is reshaping global power dynamics. Whether through the analysis of **satellite data**, **investment flows**, or **military capabilities**, data-driven approaches are essential for understanding the geopolitical implications of the new space race.

As the competition for space dominance intensifies, the potential for conflict in space increases. Nations that can leverage **data science** to monitor developments, predict risks, and assess opportunities in space will have a strategic advantage in this rapidly evolving domain. The future of space exploration and militarization will be shaped by the data-driven decisions made today, as countries and companies navigate the complexities of space governance, resource competition, and security.

15.5 References

- Dolman, E. C. (2002). *Astropolitik: Classical Geopolitics in the Space Age*. Frank Cass Publishers.
- Goswami, N. (2019). China's Space Program: A Geopolitical Force. *Strategic Studies Quarterly, 13*(3), 74-102.
- Gruss, M. (2019). U.S. Space Force: Here's What You Need to Know. *SpaceNews*.
- McDowell, J. C. (2021). The Global Space Age: How Satellites Have Changed the World. *Journal of Space Policy, 37*(2), 112-128.
- Weeden, B., & Samson, V. (2020). Global Counterspace Capabilities: An Open-Source Assessment. *Secure World Foundation*.

16 Geoeconomics of War

The geopolitics of war is a multifaceted domain that encompasses the interplay of power, territory, and conflict among nations. Unlike the geopolitics of peace, which emphasizes stability and cooperation, the geopolitics of war focuses on the underlying causes and consequences of armed conflict. This chapter delves into the factors that precipitate war, including geopolitical rivalries, resource scarcity, and the influence of international actors. The analysis draws on contemporary case studies, particularly the ongoing conflicts in Ukraine and Tigray, to illustrate how geopolitical dynamics shape warfare and its implications for global stability.

The global landscape of governance reveals stark contrasts:

- Total Sovereign States: 195
- Liberal Democracies: 97 (49%)
- Authoritarian Regimes: 59 (30%)
- Hybrid Regimes: 39 (20%)
- Full Democracies: Only 24 countries (12%) qualify as full democracies, showcasing the precariousness of robust democratic systems.

16.1 Geopolitical Rivalries and Armed Conflict

Geopolitical rivalries are a significant driver of armed conflict, often manifesting in territorial disputes and power struggles. The Russian-Ukrainian war exemplifies how historical grievances and national interests can escalate into full-scale conflict. As noted by Allison, Russia's military interventions in Ukraine challenge the post-Cold War European state system, revealing the complexities of national identity and territorial integrity in the context of geopolitical competition (Allison, 2014). The conflict has not only regional implications but also broader consequences for international relations, as it has prompted a reevaluation of security strategies among NATO members and other global powers.

Similarly, the war in Tigray highlights the intersection of local and international geopolitical interests. Gebrewahd discusses how the Tigray conflict reflects the geopolitical rivalries between superpowers, particularly the USA, China, and Russia, and how these dynamics influence the actions of regional actors (Gebrewahd, 2024). The involvement of international organizations and the response of key global players underscore the importance of understanding geopolitical contexts when analyzing the causes and trajectories of modern conflicts.

16.2 The Rise of Dictatorships

The resurgence of authoritarianism has been a notable trend in recent years, with populist leaders gaining traction in various countries. Moghaddam highlights that countries such as Brazil, India, the Philippines, Hungary, and Turkey have seen a rise in support for authoritarian strongmen, reflecting a broader global decline in democratic norms (Moghaddam, 2021). This trend is not limited to developing nations; even established democracies are experiencing pressures that threaten their liberal foundations.

As of the most recent data, there are approximately 59 authoritarian regimes worldwide, representing about 30% of the world's countries. These regimes vary in structure, ranging from military juntas and single-party states to personalist dictatorships. Concentrated in regions such as the Middle East, Sub-Saharan Africa, and parts of Asia, these regimes often operate through mechanisms that suppress political dissent and centralize power.

In the Middle East, the political landscape is particularly fluid, with Syria undergoing a notable leadership transition. The aftermath of the Syrian civil war and external geopolitical pressures have created a complex environment where the regime, now under a new leader, seeks to consolidate power amid fragile stability. Early indications suggest a continuation of authoritarian governance, with limited prospects for democratic reforms. The situation in Syria exemplifies the complexities of leadership transitions in authoritarian regimes. Following the civil war, Bashar al-Assad's regime has solidified its grip on power, with significant backing from Russia and Iran. Al-Fawwaz argues that the reconfiguration of political and economic structures in the region is essential for understanding the persistence of dictatorships like Assad's, which often suppress citizens' rights in favor of maintaining control (Al-Fawwaz, 2018). The Syrian case illustrates how external support can bolster authoritarian regimes, complicating efforts toward democratization.

16.3 Pressures on Liberal Democracies

Liberal democracies across Europe and the United States are facing unprecedented challenges.

Liberal democracies, numbering approximately 97 countries, or about 49% of all sovereign states, face increasing internal and external pressures. In Europe, liberal democracies are contending with rising populism, anti-immigration sentiment, and challenges to judicial independence in countries such as Hungary and Poland. The election of Donald Trump in 2016 marked a significant turning point, as it emboldened populist movements and anti-establishment sentiments. The rise of electoral autocracy, where democratic processes are manipulated to maintain authoritarian control, has become a pressing concern (Akinyetun, 2023). Meanwhile, in the United States, the recent re-election of Donald Trump has reinvigorated debates about the resilience of democratic institutions in the face of perceived executive overreach.

This broader trend has been reflected in indices such as the Democracy Index, which reported a decline in the global average democracy score in the past year. Western democracies face challenges such as polarization, voter disillusionment, and the erosion of trust in traditional institutions, exacerbated by economic uncertainty and the impact of global crises. In Europe, countries like Hungary and Poland have witnessed democratic backsliding, with governments undermining judicial independence and media freedom (Moghaddam, 2021).

According to the Freedom in the World Report 2020, the number of countries classified as "free" has been declining, with a notable increase in "partly free" and "not free" classifications (Taysum & Hysa, 2023). This decline is indicative of a broader trend of democratic erosion, where the foundational principles of liberal democracy—such as the rule of law, separation of powers, and protection of civil liberties—are increasingly under threat. The erosion of democratic norms poses a significant challenge to global stability, as it weakens the institutions that underpin peace and security.

The global landscape of governance is marked by a stark contrast between the persistence of dictatorships and the pressures faced by liberal democracies. The rise of authoritarian regimes, exemplified by the situation in Syria, highlights the challenges of democratization in the face of external support for autocratic leaders. Meanwhile, the pressures on liberal democracies, particularly in the wake of populist movements and the election of leaders like Donald Trump, underscore the fragility of democratic institutions. As the world grapples with these dynamics, the future of governance remains uncertain, necessitating a concerted effort to uphold democratic values and resist the tide of authoritarianism.

16.4 Resource Scarcity and Environmental Factors

Resource scarcity is another critical factor that can lead to armed conflict. The competition for limited resources, such as water and arable land, often exacerbates tensions, particularly in regions already facing economic and political instability. The environmental conflict theory posits that population growth and environmental degradation can lead to violent conflict over dwindling resources (Masara, 2021). This theory is supported by research indicating that climate change increases the risk of conflict, particularly in vulnerable regions (Koubi et al., 2012). For instance, Koubi et al. demonstrate a clear correlation between climate variability and civil conflict, emphasizing the need for policymakers to consider environmental factors in conflict prevention strategies (Koubi et al., 2012).

The ongoing impacts of climate change, coupled with geopolitical tensions, create a volatile environment where conflicts can easily ignite. As noted by Gebrewahd, the interplay between climate-induced resource scarcity and geopolitical rivalries necessitates a comprehensive understanding of how environmental factors can influence warfare and international relations (Gebrewahd, 2024).

16.5 The Role of International Organizations and Corporations

International organizations and corporations play a crucial role in shaping the geopolitical landscape of war. Their responses to conflicts can either mitigate or exacerbate tensions. For example, the United Nations and other international bodies often intervene in conflicts to promote peace and stability, yet their effectiveness can be hindered by geopolitical rivalries among member states (Gebrewahd, 2024). The Uppsala Conflict Data Program (UCDP) provides valuable data that informs conflict prediction models, helping organizations allocate resources effectively in conflict zones (Billon & Duffy, 2018).

Corporations, particularly multinational enterprises, also assess geopolitical risks to safeguard their operations. The analysis of geopolitical risks, as highlighted by Caldara and Iacoviello, shows that heightened geopolitical tensions can lead to economic instability, affecting investment and employment (Caldara & Iacoviello, 2022). Companies must navigate these risks carefully, as conflicts can disrupt supply chains and alter market dynamics, further complicating the geopolitical landscape.

16.6 Conclusion

The geopolitics of war is characterized by a complex interplay of rivalries, resource scarcity, and the influence of international actors. Understanding these dynamics is essential for comprehending the causes of armed conflict and its implications for global stability. As geopolitical tensions continue to rise, particularly in regions like Ukraine and Tigray, the need for effective conflict resolution strategies becomes increasingly urgent. Policymakers must consider the multifaceted nature of warfare, incorporating insights from geopolitical analysis, environmental studies, and international relations to foster a more stable global environment.

16.7 References

Akinyetun, T. (2023). The rise of autocracy in the Sahel of Africa: Insights from resource curse theory. Research in Social Change, 15(1), 27–39. https://doi.org/10.2478/rsc-2023-0002

Al-Fawwaz, A. (2018). Reconfiguration of Arab and Middle Eastern regions beyond political and economic threats. Journal of Politics and Law, 11(4), 164. https://doi.org/10.5539/jpl.v11n4p164

Allison, R. (2014). Russian 'deniable' intervention in Ukraine: How and why Russia broke the rules. International Affairs, 90(6), 1255–1297. https://doi.org/10.1111/1468-2346.12170

Billon, P., & Duffy, R. (2018). Conflict ecologies: Connecting political ecology and peace and conflict studies. Journal of Political Ecology, 25(1). https://doi.org/10.2458/v25i1.22704

Caldara, D., & Iacoviello, M. (2022). Measuring geopolitical risk. American Economic Review, 112(4), 1194–1225. https://doi.org/10.1257/aer.20191823

Gebrewahd, M. (2024). The war on Tigray: Geopolitics and the struggle for self-determination. Hungarian Journal of African Studies / Afrika Tanulmányok, 17(3), 5–21. https://doi.org/10.15170/at.2023.17.3.1

Koubi, V., Bernauer, T., Kalbhenn, A., & Spilker, G. (2012). Climate variability, economic growth, and civil conflict. Journal of Peace Research, 49(1), 113–127. https://doi.org/10.1177/0022343311427173

Masara, W. (2021). Environment-conflict nexus: The relevance of Thomas Homer-Dixon's environmental conflict theory in Africa. African Journal of Empirical Research, 2(1–2), 170–175. https://doi.org/10.51867/ajer.v2i2.42

Moghaddam, F. (2021). Peace psychology and the deadly competition between democracy and dictatorship. Peace and Conflict Journal of Peace Psychology, 27(3), 337–338. https://doi.org/10.1037/pac0000577

Taysum, A., & Hysa, F. (2023). Typology of epistemologies for democratising knowledge and policy benefits for all mainstreamed by doctoral-study. European Journal of Educational Research, 12(2), 623–637. https://doi.org/10.12973/eu-jer.12.2.623

17 Geoeconomics of Peace

In the modern geopolitical landscape, peace is not merely the absence of conflict but a complex and dynamic balance shaped by political, economic, environmental, and social factors. Understanding the forces that contribute to peace and stability—or the lack thereof—requires a multidimensional analysis. **Data science** has become a pivotal tool in this endeavor, empowering governments, international organizations, and corporations to assess risks and predict the impacts of global events on societies, economies, and political systems. This chapter explores the use of **predictive analytics** and **risk modeling** to forecast geopolitical risks, such as political instability, natural disasters, and the cascading effects of pandemics and climate change. By leveraging vast datasets and sophisticated algorithms, these models help decision-makers formulate strategies to mitigate conflict, foster stability, and plan for a more peaceful future.

17.1 Risk Modeling and Predictive Analytics for Geopolitical Stability

The ability to predict and mitigate risks is central to maintaining global peace and security. **Predictive analytics**, using tools such as **machine learning** and **statistical modeling**, allows for the early identification of geopolitical risks that could destabilize regions. **Risk modeling** focuses on identifying factors that contribute to conflict, such as economic inequality, political corruption, environmental stress, and resource scarcity. For example, **political instability** can often be predicted by monitoring indicators such as government corruption, public discontent, and economic mismanagement. **Hegre et al. (2019)** demonstrate that models incorporating these variables can forecast conflicts with significant accuracy, particularly in fragile states where economic and political vulnerabilities are most pronounced.

Data science tools like **social media analytics** also play a crucial role in detecting early signs of unrest. By analyzing sentiment on platforms such as **Twitter** and **Facebook**, data scientists can identify trends in public opinion and potential flashpoints for social conflict. During the Arab Spring, for instance, social media activity was a key indicator of growing unrest, and retrospective studies have shown how **data mining** could have been used to predict the uprisings (Howard & Hussain, 2013). Predictive models that include both traditional economic and political data, as well as **real-time social media trends**, offer a more comprehensive view of potential conflict zones.

17.2 Predicting the Impact of Pandemics and Climate Change

Pandemics and **climate change** are increasingly recognized as critical geopolitical factors, with the potential to disrupt global stability. The **COVID-19 pandemic** highlighted how health crises can trigger widespread social, political, and economic consequences. By using **epidemiological data** and **economic indicators**, data scientists can model the potential impacts of pandemics on global supply chains, national economies, and public health infrastructure. **Warin (2022)** discusses how **predictive models** could have been better utilized during the pandemic to forecast economic disruptions and to coordinate international responses. Such models can also anticipate how pandemics may exacerbate existing geopolitical tensions, particularly in regions already facing **political instability** or **resource scarcity**.

Similarly, **climate change** presents a growing geopolitical risk, with the potential to trigger mass migrations, conflict over resources, and economic destabilization. By integrating **climate data**, such as rising temperatures and extreme weather events, with **demographic** and **economic models**, data scientists can predict how environmental stressors will impact geopolitical stability. Research by **Burke et al. (2015)** has shown that **climate change** increases the risk of conflict, particularly in regions where **natural resources** such as water and arable land are already scarce. The use of **geospatial analysis** and **climate models** allows policymakers to anticipate where future conflicts might arise as a result of **climate-induced displacement** or **resource shortages**.

17.3 The Role of Corporations and International Organizations

Corporations and international organizations also rely on **data science** to assess geopolitical risks. Multinational corporations, in particular, use **predictive analytics** to evaluate the potential impact of political instability or environmental changes on their supply chains and operations. For example, **supply chain risk models** incorporating real-time data on trade flows, geopolitical events, and economic conditions can help companies forecast disruptions and adjust their strategies accordingly (Warin, 2022). **International organizations**, such as the **United Nations** and the **World Bank**, use similar models to plan interventions and to allocate resources in response to emerging crises.

Risk modeling is also used in peacebuilding efforts, where international organizations employ **conflict prediction models** to identify regions at risk of escalating violence. By combining **economic indicators**, **political data**, and **social variables**, these models can guide the allocation of resources for **conflict prevention** and **post-conflict reconstruction**. For example, the **Uppsala Conflict Data Program (UCDP)** has developed extensive datasets that are used in predictive models to forecast conflicts and inform peacebuilding strategies (Sundberg & Melander, 2013).

17.4 Conclusion

The **geopolitics of peace** is increasingly shaped by data-driven insights, with **predictive analytics** and **risk modeling** offering powerful tools to anticipate and mitigate the forces that destabilize regions and threaten global security. From **climate change** and **pandemics** to **political instability** and **resource conflicts**, the ability to predict and respond to these challenges is essential for building a more peaceful and stable world. As data science continues to advance, its role in **geopolitical strategy** will only grow, providing governments, corporations, and international organizations with the tools they need to navigate an increasingly complex global landscape.

17.5 References

- Burke, M., Hsiang, S. M., & Miguel, E. (2015). Climate and conflict. *Annual Review of Economics*, 7(1), 577-617.
- Hegre, H., Karlsen, J., Nygård, H. M., Strand, H., & Urdal, H. (2019). Predicting armed conflict, 2018–2023. *International Studies Quarterly*, 63(3), 807-819.
- Howard, P. N., & Hussain, M. M. (2013). Democracy's Fourth Wave? Digital Media and the Arab Spring. *Oxford University Press*.
- Sundberg, R., & Melander, E. (2013). Introducing the UCDP Georeferenced Event Dataset. *Journal of Peace Research*, 50(4), 523-532.
- Warin, T. (2022). Supply chains under pressure: How can data science help? *CIRANO Working Paper Series*.

18 The WTO and Regional Trade Agreements (RTAs)

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This chapter develops a conceptually grounded account of the long-run relationship between the multilateral trading system—first organized around the General Agreement on Tariffs and Trade (GATT) and subsequently institutionalized through the World Trade Organization (WTO)—and the persistent proliferation of regional trade agreements (RTAs). The central claim is that regionalism is not an exogenous deviation from multilateralism but an endogenous response to the political economy of trade governance under heterogeneous preferences, sectoral distributional conflicts, and the increasing salience of "behind-the-border" policy domains. RTAs are legally permitted, politically demanded, and economically consequential precisely because the WTO's foundational principles generate both stability and constraint: stability through non-discrimination and binding commitments, constraint through the difficulty of negotiating deep disciplines among an increasingly diverse membership.

The argument proceeds in five movements. The first reconstructs the legal and institutional logic of the GATT/WTO system, emphasizing the non-discrimination architecture—most-favored-nation (MFN) treatment and national treatment—and the tightly delimited conditions under which preferential arrangements are allowed. The second documents the historical growth and changing content of RTAs since 1948 and interprets this trajectory through canonical International Political Economy mechanisms, including domino dynamics, the shift from shallow to deep integration, and the political economy of rule design (R. Baldwin (2011); Dür, Baccini, and Elsig (2014); Horn, Mavroidis, and Sapir (2010)). The third revisits the "building blocks versus stumbling blocks" debate by linking Vinerian trade creation and diversion to endogenous protection incentives and to the prospects for multilateralization, while synthesizing the associated empirical record (Viner (1950); Bhagwati (1993); Freund and Ornelas (2010); Subramanian and Wei (2007)). The fourth examines the firm-level consequences of deep integration, with particular attention to how behind-the-border provisions affect multinational enterprises (MNEs), global value chains (GVCs), and foreign direct investment (FDI) (Antràs and Staiger (2012); Mattoo, Rocha, and Ruta (2020); Osnago, Rocha, and Ruta (2018)). The fifth develops regional case interpretations—North America, Europe, Latin America, Africa, and Asia—connecting legal form, economic outcomes, and governance constraints, and concludes by specifying conditions under which RTAs can complement, rather than fragment, multilateral cooperation (R. Baldwin and Low (2009); Hoekman and Mavroidis (2015)).

18.1 The GATT/WTO Architecture: Non-Discrimination and Conditional Exceptions

The multilateral trading system rests on two non-discrimination principles that jointly aim to reduce opportunistic discrimination and stabilize expectations. MFN treatment requires that any advantage granted by a member to the goods or services of another member be extended immediately and unconditionally to the like goods or services of all members. National treatment complements MFN by requiring that, once goods or services have entered a market, they be treated no less favorably than domestic counterparts. These principles are not merely legal abstractions. They serve as governance technologies that reduce strategic uncertainty for firms and constrain cycles of retaliation—functions that are central to the credibility of market access commitments in a world of repeated interaction (Jackson (1997); Hoekman and Kostecki (2009)).

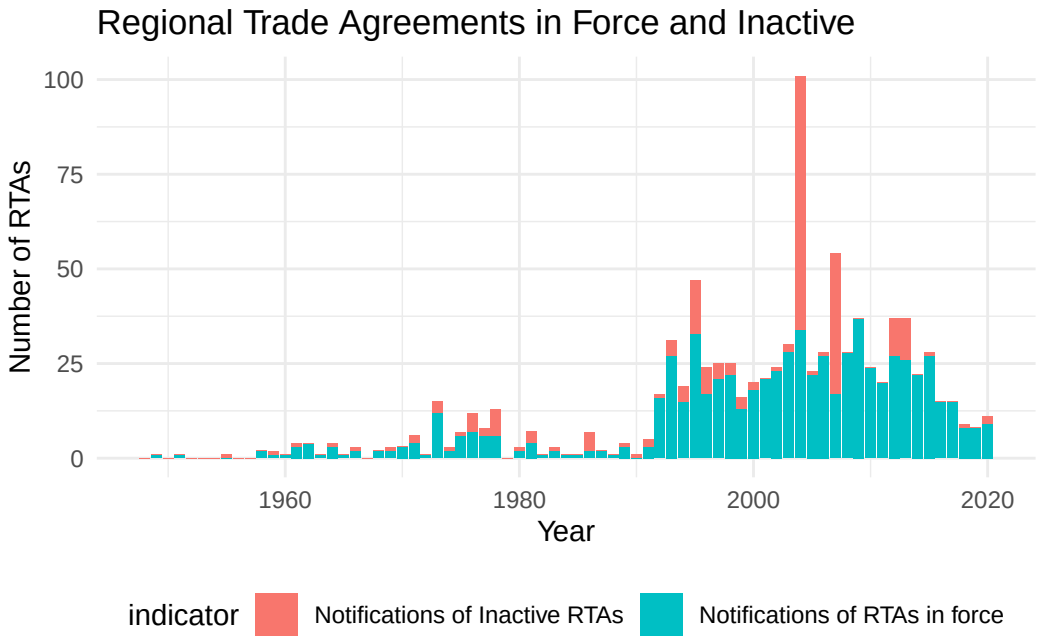
MFN, however, is not absolute. The GATT embedded a controlled exception for customs unions and free-trade areas, conditional on liberalizing "substantially all the trade" among members and not raising barriers "on the whole" against outsiders, a legal compromise designed to reconcile preferential deepening with multilateral discipline. The 1979 "Enabling Clause" further codified a development-oriented permissiveness for preferential arrangements among developing economies and for generalized preference schemes. In services, the GATS permits economic integration agreements under conditions of substantial sectoral coverage and elimination of "substantially all" discrimination. Taken together, these provisions reflect a nesting logic: preferential liberalization is permitted, but it is normatively contained within a multilateral framework that remains anchored in non-discrimination (Hoekman and Mavroidis (2015)).

The WTO also developed surveillance tools aimed at disciplining regionalism through notification and peer review. The 2006 Transparency Mechanism, later reflected in WTO reporting practice, operationalizes this approach by requiring notification, enabling factual presentations, and providing a forum for discussion. The governance intention is explicit: preferentialism is tolerated insofar as it remains legible, reviewable, and broadly compatible with multilateral commitments.

18.2 The Proliferation and Transformation of RTAs since 1948

The expansion of RTAs is one of the most robust stylized facts of postwar trade governance. While early regional initiatives were concentrated in Europe, the late 1980s and 1990s witnessed a sharp acceleration of agreements, overlapping with the Uruguay Round and the creation of the WTO. The political economy logic of this acceleration has been articulated through "domino regionalism," where preferential liberalization creates incentives for excluded actors to seek inclusion or negotiate parallel arrangements, generating cascades of agreement formation (R. Baldwin (1997); R. Baldwin (2011); Ethier (1998)).

Three transformations are particularly salient. First, participation became global, producing dense overlaps across memberships and obligations and giving empirical substance to the "spaghetti bowl" metaphor (Bhagwati (1995)). Second, the modal agreement shifted from tariff-centered liberalization to deeper governance packages incorporating services, investment, intellectual property, procurement, competition, and regulatory cooperation (Horn, Mavroidis, and Sapir (2010); Hofmann, Osnago, and Ruta (2017)). Third, the rise of GVCs increased the economic relevance of regulatory compatibility and services inputs, thereby making behind-the-border provisions central determinants of effective trade costs and of the location decisions of firms (Mattoo, Rocha, and Ruta (2020)).



18.3 Economic Logic: Building Blocks, Stumbling Blocks, and Endogenous Protection

Preferential agreements alter welfare through trade creation and trade diversion, the canonical mechanisms formalized by Viner (1950). Trade creation increases efficiency when preferences shift sourcing toward lower-cost suppliers inside the bloc. Trade diversion generates inefficiency when preferences redirect sourcing away from more efficient external suppliers. In contemporary settings, these channels interact with administrative frictions that are central to the practical meaning of preferentialism, notably rules of origin (ROOs), exemptions, and sectoral carve-outs. ROOs can either facilitate value-chain compatible cumulation or function as protectionist devices that neutralize preferences and impose compliance costs (Cadot and Melo (2008); Estevadeordal and Suominen (2008); Freund and Ornelas (2010)).

The systemic question is whether RTAs complement multilateralism or undermine it. The "building blocks" view emphasizes that RTAs can deliver liberalization and rules that are politically infeasible at the multilateral level and may trigger competitive liberalization dynamics consistent with multilateralization over time (Bhagwati (1993); R. Baldwin (2011)). The "stumbling blocks" view stresses the political economy risk that insiders develop vested interests in maintaining discrimination and that overlapping obligations increase complexity and weaken multilateral discipline (Bhagwati (1995); Limão (2006)). A more design-centered synthesis recognizes heterogeneity: depth, transparency, enforceability, and external orientation vary, so systemic effects cannot be inferred from a single archetype (Dür, Baccini, and Elsig (2014); Hofmann, Osnago, and Ruta (2017)).

The empirical record reinforces conditionality. On the WTO itself, the literature moved from skepticism to evidence that the GATT/WTO increased trade substantially but unevenly, depending on bindings and participation patterns (Rose (2004); Subramanian and Wei (2007)). On RTAs, average effects on intra-bloc trade are commonly positive, with stronger effects where agreements include deeper provisions, although restrictive ROOs and carve-outs can attenuate gains and shape the organization of production and sourcing (Hofmann, Osnago, and Ruta (2017); Mattoo, Rocha, and Ruta (2020)).

18.4 From Shallow to Deep Integration: Rule Design and Regulatory Governance

The evolution from shallow to deep integration is central to the contemporary meaning of RTAs. Deep RTAs increasingly regulate policies that shape effective trade costs: investment regimes, services market access, technical barriers to trade, SPS measures, procurement, and regulatory cooperation. This shift reflects both economic structure and political strategy. Economically, task fragmentation and GVCs make the trade costs embedded in domestic regulation more important than border tariffs. Politically, RTAs function as venues for rule-making when multilateral negotiations are slow or blocked (Horn, Mavroidis, and Sapir (2010); Mattoo, Rocha, and Ruta (2020)).

ROOs are pivotal because they connect legal preferences to firm-level sourcing decisions. Cumulation provisions, by contrast, can align legal design with the geography of value chains and reduce the distortionary impact of overlapping agreements. In this sense, cumulation is not a technical detail but a governance instrument that influences whether regionalism remains exclusive or becomes diffusible.

18.5 Multinationals, GVCs, and FDI: How RTAs Rewire Production

Deep RTAs matter because firms internalize governance conditions when organizing production across borders. When agreements reduce policy uncertainty, standardize regulatory interfaces,

and improve services market access, they alter the relative cost of exporting versus investing and thus affect both trade and FDI. The logic linking offshoring, contracts, and agreement design is formalized in the theory of trade agreements under fragmentation and cross-border production (Antràs and Staiger (2012)) and is empirically consistent with findings that deep provisions correlate with greater vertical FDI and more complex sourcing patterns (Osnago, Rocha, and Ruta (2018); Mattoo, Rocha, and Ruta (2020)). The distributional consequences are equally geoeconomic: deep agreements can anchor regional production hubs, induce preference erosion for outsiders, and generate incentives for accession or parallel negotiations, thereby shaping the spatial organization of global production.

18.6 Regional Interpretations

North America remains a canonical illustration of how regional integration reorganizes trade and production. The Canada–United States Free Trade Agreement and NAFTA contributed to the expansion of regional value chains, with documented productivity and wage effects in Canada associated with tariff reductions (Trefler (2004)) and broader evidence on integration dynamics in North America and beyond (Lederman, Maloney, and Servén (2005)). The USMCA illustrates the contemporary shift toward deeper governance domains, including digital trade and revised ROOs, and it provides a case in which legal design explicitly aims to shape firm behavior by tightening origin requirements.

18.7 Europe: From Customs Union to Regulatory Power

Europe constitutes the most institutionally dense experiment in regionalism, and therefore the clearest illustration of how RTAs can become an internal market project rather than a tariff bargain. The European Union's distinctive feature is the combination of deep negative integration (removal of internal barriers) with positive integration (the creation of common rules, enforcement mechanisms, and supranational adjudication). In geoeconomic terms, this architecture matters because it reduces not only border frictions but also regulatory uncertainty, thereby enabling firms to organize production and distribution as if operating within a quasi-domestic market.

A simple descriptive indicator captures the resulting degree of internalization: for most EU member states, intra-EU exports represent the majority of total exports. Eurostat reports that, in 2024, most EU countries recorded intra-EU export shares between 50% and 75%, with several economies above 75% (for instance Luxembourg at 81% and Czechia at 79%), while only a small number, such as Cyprus and Ireland, had intra-EU export shares below 50% (Eurostat (2025)). This pattern is not merely an outcome of proximity; it reflects a governance achievement. By stabilizing rules across a large jurisdiction, the EU effectively

converts geographic closeness into routinized market integration, producing high levels of intra-regional trade intensity that resemble those of a continental economy rather than a loose preferential area.

Externally, the EU's common commercial policy and its network of preferential agreements extend this governance capacity beyond its borders. The geoeconomic significance lies in the EU's role as a rule-maker: the ability to diffuse standards through market size and regulatory conditionality. In this sense, Europe exemplifies a path in which regionalism is not primarily a substitute for multilateralism, but a mechanism for generating enforceable rules that can be projected outward, sometimes complementing WTO disciplines and sometimes substituting for stalled multilateral negotiations. The systemic consequence is ambiguous: EU rule export can raise global baselines when adopted widely, but it can also contribute to fragmentation when external partners face competing rule systems and compliance costs.

18.8 Latin America: MERCOSUR, Partial-Scope Regionalism, and Implementation Constraints

Latin American regionalism has historically been characterized by ambitious legal design confronting binding constraints of implementation capacity, macroeconomic volatility, and heterogeneous national development strategies. Early projects such as LAFTA and its successor LAIA institutionalized flexible, partial-scope arrangements, often prioritizing political symbolism and gradualism over enforceable integration. MERCOSUR, created in 1991, marked a shift toward more formal commitments among a subset of countries, but its trajectory illustrates

why regionalism's economic effects are design- and context-dependent rather than automatic (Devlin and Estevadeordal (2001)).

A descriptive indicator illustrates MERCOSUR's persistent challenge: intra-bloc trade has remained comparatively low and has trended downward relative to extra-bloc trade. A recent official presentation based on MERCOSUR Secretariat and national statistical sources reports that intra-zone exports in early 2024 were only slightly above 10% of total MERCOSUR exports, described as among the lowest shares since the bloc's creation (Ministerio de Relaciones Exteriores, Comercio Internacional y Culto (Argentina) (2024)). This contrasts sharply with the European pattern and highlights a central geoeconomic point: preferential tariff commitments do not necessarily translate into dense regional production networks unless they are complemented by stable macroeconomic conditions, predictable rules, trade facilitation, and sufficient infrastructure connectivity. Where these complements are weak, firms continue to organize supply and sales around extra-regional markets, and regional agreements become less about internal production integration and more about external bargaining positions and selective sectoral protections.

Latin America thus offers an instructive case for the "stumbling blocks" concern: when regional agreements do not generate deep market integration, they can nonetheless generate complex obligations and distributional conflicts without producing the network densification that would otherwise encourage rule diffusion and multilateralization. The appropriate conclusion is not that Latin American regionalism is futile, but that its geoeconomic payoff is conditional on implementation quality and on whether agreement design targets the practical frictions that matter for firms, notably logistics, border administration, and regulatory predictability.

18.9 Asia and the Pacific: ASEAN Centrality, Open Regionalism, and Value-Chain Governance

Asian regionalism has evolved through layered architectures rather than a single institutional center. ASEAN has functioned as a hub around which multiple "ASEAN+1" arrangements have developed, while broader frameworks have sought to reconcile preferential integration with outward orientation. The geoeconomic logic is the management of connectivity: Asia's growth model has been deeply associated with GVC participation, and the region's agreements have increasingly aimed to stabilize the governance of cross-border production, particularly by reducing policy uncertainty in services, investment, and trade facilitation (Ravenhill (2010); R. Baldwin (2011)).

Descriptive trade data illustrate both the region's integration and its limits. ASEAN statistical reporting indicates that intra-ASEAN trade accounted for about 22.3% of total ASEAN trade in 2022, and that the intra-ASEAN share remained around that magnitude despite fluctuations in overall trade volumes (ASEANstats (2023)). This share is substantial in absolute value but also reveals the continued importance of extra-regional demand and production linkages,

especially with China, the United States, and the European Union. Geoeconomically, the implication is that Asian regionalism has often been "production-network compatible" without being fully "inward integrating" in the European sense: the goal has not been to replace global markets with a regional market, but to stabilize and diversify the terms under which production networks operate, especially under conditions of strategic rivalry and supply-chain risk.

This pattern also clarifies why Asia has been a key laboratory for deep provisions linked to value chains. When intermediate goods cross borders multiple times, the economic relevance of tariffs is often secondary to the relevance of customs administration, standards, services inputs, and investment regimes. Regional agreements become instruments for reducing the effective thickness of borders, rather than instruments for constructing a closed bloc.

18.10 Africa: Overlapping Regionalism, AfCFTA, and the Political Economy of Connectivity

Africa's regionalism has long been characterized by multiple, overlapping regional economic communities, varying depth of commitments, and substantial infrastructure and capacity constraints. In geoeconomic terms, the central issue is not the existence of tariff preferences but the high fixed costs of cross-border exchange: transport costs, border delays, fragmented standards, and limited trade finance. These frictions weaken the capacity of preferential agreements to generate the cumulative effects observed in regions where logistics and administrative systems are more integrated.

A basic empirical regularity captures the challenge. ECA reporting indicates that intra-African trade remains low by global standards and that its share declined from 14.5% in 2021 to 13.7% in 2022 (United Nations Economic Commission for Africa (2024)). Such figures signal structural dependence on extra-continental markets and exposure to external shocks—precisely the vulnerability that continental integration initiatives aim to reduce. The African Continental Free Trade Area (AfCFTA) is therefore best interpreted as a strategic attempt to reconfigure economic geography: expanding market size, improving bargaining leverage, and creating conditions for regional value chain development by reducing fragmentation.

Yet the political economy constraints are binding. Overlapping memberships create complex obligations, and implementation capacity varies widely. Moreover, infrastructure deficits and border administration costs can exceed tariff barriers in economic significance. As a result, the geoeconomic promise of AfCFTA depends critically on whether integration efforts prioritize trade facilitation, corridor development, and credible enforcement mechanisms, rather than relying primarily on preferential tariffs. UNECA's integration assessments emphasize precisely these constraints and the centrality of competitiveness and innovation for translating legal commitments into effective market integration (United Nations Economic Commission for Africa (2016)).

The African case thereby sharpens the chapter's broader conclusion: regionalism complements multilateralism and produces welfare-enhancing densification of trade networks when it reduces the frictions that matter for firms and when its design supports outward orientation, transparency, and feasible implementation. Where these conditions fail, agreements may remain thin legal layers over persistent structural barriers, with limited capacity to alter production geographies.

18.11 Conclusion

The WTO's MFN and national treatment obligations remain the normative core of the trading system, yet the proliferation of RTAs has transformed the channels through which liberalization and rule-making proceed. WTO law is permissive but conditional: preferential arrangements are allowed as deviations from MFN, but they are expected to liberalize comprehensively and to avoid raising barriers against outsiders on the whole. The empirical record indicates that regionalism is extensive, heterogeneous, and increasingly deep. Its welfare and systemic effects are design-dependent, shaped by breadth, ROOs, cumulation, transparency, and enforcement, and conditioned by domestic political economy constraints that determine implementation.

Two implications follow. When RTAs adopt outward-oriented designs, align ROOs with value-chain realities, and provide transparent and enforceable disciplines, they are more likely to complement multilateralism and facilitate diffusion of rules. When they generate rents through restrictive ROOs, carve-outs, and opaque governance, they heighten diversionary risks and contribute to fragmentation. The multilateral and regional logics are not inherently antagonistic;

their relationship is mediated by institutional design and by the political economy of compliance and enforcement (Freund and Ornelas (2010); Hoekman and Mavroidis (2015); Mattoo, Rocha, and Ruta (2020)).

Part V

Country Analysis

19 The United States of America

The United States of America, often referred to as the U.S. or simply America, is a diverse and influential nation with a rich history and complex geopolitical landscape. From its founding as a colony to its emergence as a global superpower, the U.S. has played a significant role in shaping world events and international relations. This chapter will explore key aspects of U.S. foreign policy, territorial evolution, and the dynamics of isolationism and exceptionalism in American politics.

19.1 Territory

The territorial evolution of the United States since its Declaration of Independence in 1776 reflects a complex interplay of political, social, and economic factors that have shaped its boundaries and governance. This transformation can be categorized into significant land territorial changes, which include acquisitions, cessions, and annexations that have contributed to the expansion of U.S. territory.

One of the earliest territorial changes occurred with the Louisiana Purchase in 1803, where the U.S. acquired approximately 828,000 square miles from France, effectively doubling the size of the nation. This acquisition was driven by the desire for westward expansion and the economic potential of the land, which was seen as vital for agriculture and settlement (Raustiala, 2009). The subsequent Lewis and Clark expedition further emphasized the importance of this territory for exploration and resource utilization (Sparrow, 2017). Following this, the annexation of Texas in 1845 added another significant area, which was fueled by the ideology of Manifest Destiny, a belief that the U.S. was destined to expand across the continent (Sparrow, 2017).

The mid-19th century was marked by the Mexican-American War (1846-1848), resulting in the Treaty of Guadalupe Hidalgo, which ceded vast territories including present-day California, Arizona, New Mexico, and parts of Colorado, Nevada, and Utah to the United States. This war and its outcomes were heavily influenced by the U.S. desire for land and resources, as well as the political dynamics surrounding slavery and statehood (Raustiala, 2009; Sparrow, 2017). The Gadsden Purchase in 1853 further expanded U.S. territory by acquiring land from Mexico to facilitate a southern transcontinental railroad (Raustiala, 2009).

The 19th century also saw the acquisition of Alaska from Russia in 1867, which was initially criticized as “Seward’s Folly” but later recognized for its vast natural resources (Sparrow, 2017). The annexation of Hawaii in 1898 marked another critical territorial change, driven by

economic interests, particularly in sugar production, and strategic military considerations in the Pacific (Raustiala, 2009; Sparrow, 2017). In the 20th century, the U.S. continued to expand its territorial reach through various means, including the acquisition of territories following the Spanish-American War in 1898, which resulted in the U.S. gaining control over Puerto Rico, Guam, and the Philippines. This marked a significant shift towards imperialism, as the U.S. began to exert its influence beyond continental borders (Raustiala, 2009; Sparrow, 2017). The subsequent establishment of the Commonwealth of Puerto Rico in 1952 exemplified the ongoing complexities of U.S. territorial governance and the relationship between the U.S. and its territories (Raustiala, 2009).

The territorial evolution of the United States reflects a complex history of expansion, acquisition, and governance that has shaped the nation's identity and geopolitical influence. The interplay of political, economic, and social factors has driven territorial changes, with each acquisition reflecting broader strategic interests and historical contexts. The U.S. territorial experience offers valuable insights into the complexities of governance, sovereignty, and territoriality in the context of global geopolitics.

19.2 Isolationism or exceptionalism?

The isolationist doctrine in U.S. foreign policy has been a recurring theme throughout American history, characterized by a reluctance to engage in international conflicts and a preference for focusing on domestic issues. This doctrine has evolved over time, influenced by various political, social, and economic factors. Isolationism is often viewed through the lens of historical events, particularly during the interwar period of the 1920s and 1930s, when the U.S. adopted a more insular approach to foreign affairs following the devastation of World War I (Urbatsch, 2010; Braumoeller, 2010). The sentiment was rooted in a desire to avoid entanglements that could lead to further conflict, reflecting a broader public opinion that favored non-interventionism (Dodson & Brooks, 2021).

However, the notion of isolationism is complex and multifaceted. It is essential to recognize that isolationism does not imply a complete withdrawal from international affairs; rather, it signifies a selective engagement based on national interests. Scholars argue that American foreign policy has oscillated between isolationism and interventionism, with periods of retreat often followed by renewed involvement in global affairs (Dunn, 2005). This oscillation suggests that isolationism is not merely a static doctrine but a responsive strategy shaped by changing geopolitical dynamics and domestic political pressures.

The hypothesis that the U.S. supports multilateralism for others while perceiving itself as above such frameworks is particularly relevant in this context. American exceptionalism—the belief that the U.S. holds a unique place in the world—often informs this perspective. This ideology can lead to a paradox where the U.S. advocates for multilateral cooperation among other nations while simultaneously prioritizing unilateral action when it aligns with its interests (Ikenberry, 2003; Patman & Southgate, 2016). For instance, during the Obama administration,

there was a notable emphasis on multilateralism and diplomacy, yet this approach was often tempered by the underlying belief in American leadership and exceptionalism (Schmitz, 2020; Djurdjevic-Lukic, 2009). This duality reflects a broader tension within U.S. foreign policy, where multilateralism is embraced selectively, depending on the perceived benefits to American interests.

Moreover, the resurgence of isolationist sentiments during the Trump administration highlighted this dichotomy. Trump's foreign policy was characterized by a retreat from multilateral agreements and a focus on "America First," which resonated with isolationist voters who felt disillusioned by previous international commitments (Dodson & Brooks, 2021; Xue, 2023). This shift underscored the notion that while the U.S. may advocate for multilateralism in principle, its actions often reveal a preference for unilateralism when it serves national interests, thereby reinforcing the perception of American exceptionalism (Bass, 2009).

19.3 The Future of U.S. Foreign Policy

The question of whether the United States is becoming imperialistic, particularly in light of its interests in territories like Panama and Greenland, invites a critical examination of its foreign policy trajectory and the underlying doctrines that have shaped its approach to international relations. Historically, the U.S. has oscillated between isolationism and interventionism, often influenced by domestic public opinion and strategic interests. This duality raises the hypothesis that while the U.S. may advocate for multilateralism in principle, it often acts unilaterally when it perceives its interests at stake, reflecting an imperialistic inclination.

The case of Panama is illustrative of this trend. The construction of the Panama Canal was a monumental project that not only facilitated maritime trade but also exemplified U.S. interventionist policies in Central America. The U.S. supported Panama's independence from Colombia in 1903, subsequently securing control over the canal zone. This intervention was justified under the guise of promoting stability and progress in the region, yet it also served U.S. strategic and economic interests, highlighting a pattern of behavior that aligns with imperialistic tendencies Baum (2004)Urbatsch, 2010). The U.S. maintained control over the canal until 1999, which further underscores the long-term implications of its actions in Panama.

Similarly, the interest in Greenland, particularly during the Trump administration's proposal to purchase the territory from Denmark, reflects a contemporary manifestation of U.S. imperialism. The strategic significance of Greenland, especially in the context of Arctic geopolitics and resource access, has led to renewed U.S. interest in the region. This interest can be seen as part of a broader strategy to assert U.S. influence in the Arctic, a region increasingly contested by global powers (Robinson et al., 2018; Dodson & Brooks, 2021). The rhetoric surrounding the acquisition of Greenland, framed as a move to enhance national security and economic opportunity, resonates with historical patterns of U.S. expansionism.

The hypothesis that the U.S. prefers multilateralism for others while positioning itself above such frameworks is supported by its historical behavior. The U.S. often champions international cooperation and multilateral agreements, yet it frequently reserves the right to act unilaterally when it perceives a threat to its national interests. This selective engagement can be interpreted as a form of exceptionalism, where the U.S. sees itself as a leader entitled to dictate terms in international relations while advocating for collective action among other nations (Blouet, 2004; Quinn, 2007). The Trump administration's foreign policy, characterized by a retreat from multilateral agreements and a focus on "America First," exemplifies this trend, as it prioritized unilateral actions that aligned with perceived national interests over collaborative efforts (Irkhin & Moskalenko, 2022; Dueck, 2004).

Moreover, the historical context of American foreign policy reveals a persistent tension between isolationism and interventionism. While isolationist sentiments have periodically influenced public opinion, particularly during the interwar period and in recent years, the U.S. has consistently found ways to engage in international affairs when it aligns with its strategic goals (Lakishyk, 2016; MacMaster, 2004). This suggests that the U.S. may not fully embrace isolationism but rather oscillates between it and a form of imperialism that allows for selective intervention based on national interests.

The U.S. engagement with territories like Panama and Greenland can be interpreted through the lens of imperialism, reflecting a historical pattern of interventionism driven by strategic and economic interests. The hypothesis that the U.S. supports multilateralism for others while considering itself above such frameworks is reinforced by its actions and rhetoric, which often prioritize unilateralism when it serves national objectives. This complex interplay of isolationism, interventionism, and exceptionalism continues to shape U.S. foreign policy in the contemporary geopolitical landscape.

19.4 Differences Between U.S. Actions and Those of Less Democratic Countries

The dynamics of U.S. foreign policy, particularly its interventions in regions like Cuba and its responses to authoritarian regimes globally, raise critical questions about the nature of its actions and the implications for international relations. The U.S. often engages in actions that can be perceived as imperialistic, particularly in the context of its historical interventions and current geopolitical strategies. This section will explore the differences between U.S. actions and those of less democratic countries, the influence of global dictatorships on U.S. behavior, and the role of liberal democracies in addressing these challenges collectively.

The United States, as a self-proclaimed liberal democracy, often justifies its interventions in other nations through the lens of promoting democracy, human rights, and stability. In contrast, less democratic countries typically pursue their interests through coercive means without the same rhetorical commitment to democratic ideals. For instance, while the U.S.

may impose sanctions or engage in military interventions under the guise of humanitarianism or democracy promotion, authoritarian regimes may resort to repression and violence to maintain control and suppress dissent (Escribà-Folch, 2011; Escribà-Folch & Wright, 2010).

The motivations behind U.S. actions often include strategic interests, economic benefits, and the desire to counter perceived threats from authoritarian regimes. In contrast, authoritarian states may act primarily to consolidate power, suppress opposition, or expand territorial claims without the same justification of promoting democratic values. This distinction highlights a fundamental difference in the underlying ideologies that drive state behavior, even if the outcomes of their actions can sometimes appear similar (Conrad et al., 2014; Xu, 2020).

19.5 The Influence of Global Dictatorships on U.S. Behavior

The presence of dictatorships around the world undoubtedly influences U.S. foreign policy decisions. The U.S. often finds itself in a reactive position, responding to the actions of authoritarian regimes that threaten stability or U.S. interests. For example, the rise of China as an authoritarian power has prompted the U.S. to adopt a more assertive foreign policy in the Asia-Pacific region, viewing China's expansionism as a direct challenge to its influence (Escribà-Folch & Wright, 2010).

Moreover, the dynamics of authoritarian regimes can shape U.S. strategies, particularly regarding sanctions and diplomatic engagement. Research indicates that sanctions are often less effective against dictatorships, as these regimes may develop strategies to withstand external pressures, such as co-optation or repression (Escribà-Folch, 2011; Escribà-Folch & Wright, 2010). This reality forces the U.S. to reconsider its approach, often leading to a reliance on military intervention or support for opposition movements in authoritarian states.

19.6 The Role of Liberal Democracies in Addressing Authoritarianism

The question of whether the U.S. should act alone in confronting authoritarian regimes or collaborate with other liberal democracies is a contentious one. While the U.S. possesses significant military and economic power, the complexities of global politics suggest that a multilateral approach may yield more sustainable outcomes. Engaging with other liberal democracies can enhance legitimacy, share the burden of intervention, and create a more unified front against authoritarianism (Codera & Masdeu, 2022; Kim & Kroeger, 2017).

For instance, coordinated sanctions or diplomatic efforts among liberal democracies can exert greater pressure on authoritarian regimes than unilateral actions. Additionally, multilateral engagement can help address the criticisms that often accompany U.S. interventions, such as accusations of imperialism or hypocrisy. By working collectively, liberal democracies can

present a more coherent strategy that emphasizes shared values and mutual interests, potentially leading to more effective outcomes in promoting democracy and human rights globally (Kim, 2017; Gershenson & Grossman, 2001).

To conclude, the actions of the United States in the context of global authoritarianism reflect a complex interplay of strategic interests, ideological commitments, and the realities of international relations. While the U.S. often positions itself as a champion of democracy, its interventions can sometimes mirror the coercive tactics of less democratic countries. The influence of global dictatorships shapes U.S. behavior, compelling it to respond to threats in ways that may not always align with its democratic ideals. Ultimately, a collaborative approach with other liberal democracies may offer a more effective and legitimate means of addressing the challenges posed by authoritarian regimes worldwide.

19.7 From Isolationism to New Exceptionalism

The trajectory from historical isolationism to what might be called a "new exceptionalism" in U.S. policy reflects a reorientation in how America engages with global economic norms. Traditional American isolationism emphasized non-involvement in foreign entanglements, but American exceptionalism has often meant the U.S. sets its own rules. In the 2020s, this exceptionalism is taking on a new form in the economic realm. The conventional capitalist model—focused on GDP growth and profit—has long been critiqued for failing to account for **negative externalities** such as environmental damage and resource depletion. In economic terms, many social costs of production (pollution, carbon emissions, etc.) are **"external" to market pricing**, meaning producers and consumers do not pay these costs, which leads to overproduction of harmful goods and market inefficiency. Economists like *Arthur Pigou* argued decades ago for taxes or regulations to internalize such external costs, precisely because pure market metrics do not optimize societal welfare. With climate change as a prime example of an unpriced externality, many advanced economies have tried to adjust the capitalist model—through carbon taxes, emissions trading systems, or Green New Deal-style investments—to better reflect social and environmental impacts in economic decisions. These *"new metrics"* of progress, which go beyond GDP to include sustainability, would indeed have led to different policies and outcomes than the status quo.

In the summer of 2025, however, the United States charted a starkly different course – one that underscores a new exceptionalism. A budget reconciliation law passed by the Republican-led Congress (and strongly backed by President Donald Trump) effectively **dismantled the core of President Biden's climate agenda**, often colloquially referred to by critics as a "New Green Deal." This legislation, passed in July 2025, slashed or terminated dozens of programs aimed at clean energy and carbon reduction. It sharply cut short the 30% federal tax credits for solar and wind power (originally set to run until 2032), undermining investments in renewables. At the same time, it expanded support for fossil fuels – mandating new oil and gas leasing on federal lands and waters, preserving tax breaks for drilling and even granting coal

producers new tax advantages. Fossil fuel lobbyists praised the bill for furthering an "energy dominance agenda" focused on maximizing oil and gas output. In effect, the U.S. has chosen to **"play the global game" by the old rules of unfettered capitalism**, doubling down on growth and resource extraction without fully pricing in environmental costs. The U.S. also signaled its retreat from collective climate efforts: the Trump administration began formally withdrawing from the Paris Agreement again, leaving the United States as one of only four nations in the world – and the **only OECD country** – not party to the accord (the others being Iran, Libya, and Yemen). This stark divergence means the U.S. is now an outlier among advanced economies in foregoing robust climate commitments. It is American exceptionalism in a new guise, with the U.S. asserting that it will prosper on its own terms, even if that means flouting emergent global norms on sustainability.

Critics note that this approach is **not optimized for long-term sustainability**, yet it may yield America certain short-term strategic advantages. By refusing to internalize environmental externalities (like carbon emissions) in the cost of doing business, U.S. industries enjoy lower immediate costs and fewer regulatory burdens compared to their counterparts in Europe or other developed nations with strict climate policies. This can induce **carbon leakage**, wherein businesses shift production from countries with high environmental standards to jurisdictions with weaker or no carbon constraints. In other words, factories that might face expensive carbon taxes or regulations in the EU, Japan, or Canada could relocate operations to the United States to benefit from its looser regime. Financial capital, too, may flow toward the more laissez-faire environment of the U.S. — indeed, the country has already been the world's largest recipient of foreign direct investment, thanks to its huge market and open, innovation-friendly climate. America's renewed emphasis on traditional energy and industry is expected to reinforce this trend, potentially **"sucking in" financial resources** from abroad as investors seek to capitalize on U.S. growth opportunities unhampered by carbon costs. Likewise, the United States could become an even stronger magnet for global talent. It already ranks among the top nations in the world for its ability to attract and retain skilled workers, and a booming, deregulated economy may intensify the brain drain from countries where industries are contracting under green transitions. This prospect of regained economic dynamism and innovation capacity is central to the new exceptionalism narrative: the U.S. positions itself as a lone winner in a system of "kinked" capitalism, extracting maximum short-run advantage by adhering to the old metrics of success while others readjust their economies for sustainability.

Of course, this path carries risks and contradictions. America's go-it-alone strategy on the economy echoes its historical isolationism, yet it also undermines global collective action on issues like climate change — potentially to the detriment of all, including the U.S. in the long run. The "new exceptionalism" may prove unsustainable if climate impacts worsen or if other nations impose carbon border taxes on U.S. goods. Still, in the immediate term, the United States is leveraging its unique stance to pull in wealth and talent, exemplifying an updated form of exceptionalism. It stands virtually alone among industrialized democracies in so fully embracing the uncompromised capitalist playbook, betting that it can reap the benefits of growth-as-usual while others hesitate. In sum, the United States has transitioned from a reluctant world actor to a self-declared **exceptional player** in the global economy's

latest chapter – one who abides by its own rules in a game where most others are trying to change the rules for the common good. Time will tell whether this bold assertion of economic exceptionalism restores American primacy or simply isolates the U.S. from the next evolution of global capitalism.

19.8 References

Baum, M. (2004). Circling the wagons: Soft news and isolationism in American public opinion. *International Studies Quarterly, 48*(2), 313–338. https://doi.org/10.1111/j.0020-8833.2004.00303.x

Benincasa, E., Carradori, O., Ferreira, M., & Garcia-Appendini, E. (2024). Rewiring supply chains through uncoordinated climate policy. *VoxEU (CEPR)*, November 2.

Blouet, B. (2004). The imperial vision of Halford Mackinder. *Geographical Journal, 170*(4), 322–329. https://doi.org/10.1111/j.0016-7398.2004.00133.x

Braumoeller, B. (2010). The myth of American isolationism. *Foreign Policy Analysis, 6*(4), 349–371. https://doi.org/10.1111/j.1743-8594.2010.00117.x

Codera, M., & Masdeu, P. (2022). The influenza pandemic of 1918–19 in Spain: From the epidemic to the crisis of liberalism. *Contemporary European History, 33*(3), 927–941. https://doi.org/10.1017/s0960777322000893

Conrad, C., Conrad, J., & Young, J. (2014). Tyrants and terrorism: Why some autocrats are terrorized while others are not. *International Studies Quarterly, 58*(3), 539–549. https://doi.org/10.1111/isqu.12120

Djurdjevic-Lukic, S. (2009). Foreign policy of the Barak Obama administration: A new rhetoric or a new course? *Medjunarodni Problemi, 61*(4), 455–494. https://doi.org/10.2298/medjp0904455d

Dodson, K., & Brooks, C. (2021). All by himself? Trump, isolationism, and the American electorate. *Sociological Quarterly, 63*(4), 780–803. https://doi.org/10.1080/00380253.2021.1966348

Dueck, C. (2004). Ideas and alternatives in American grand strategy, 2000–2004. *Review of International Studies, 30*(4), 511–535. https://doi.org/10.1017/s0260210504006205

Dunn, D. (2005). Isolationism revisited: Seven persistent myths in the contemporary American foreign policy debate. *Review of International Studies, 31*(2), 237–261. https://doi.org/10.1017/s0260210505006431

Escribà-Folch, A. (2011). Authoritarian responses to foreign pressure. *Comparative Political Studies, 45*(6), 683–713. https://doi.org/10.1177/0010414011427883

Escribà-Folch, A., & Wright, J. (2010). Dealing with tyranny: International sanctions and the survival of authoritarian rulers. *International Studies Quarterly, 54*(2), 335–359. https://doi.org/10.1111/j.1468-2478.2010.00590.x

Gardner, T., & Volcovici, V. (2025). Clean-energy backers blast US budget bill as a setback. *Reuters*, July 3.

Gershenson, D., & Grossman, H. (2001). Cooption and repression in the Soviet Union. *Economics and Politics, 13*(1), 31–47. https://doi.org/10.1111/1468-0343.00082

Global Business Alliance. (2024). *Foreign Direct Investment in the United States 2024* (Report). Global Business Alliance (GBA).

Helbling, T. (2017). Externalities: Prices do not capture all costs. *Finance & Development*, March. International Monetary Fund.

Ikenberry, G. (2003). Is American multilateralism in decline? *Perspectives on Politics, 1*(3), 533–550. https://doi.org/10.1017/s1537592703000380

INSEAD. (2023). 2023 Global Talent Competitiveness Index celebrates a decade of pioneering talent insights. INSEAD Press Release, November 7.

Irkhin, A., & Moskalenko, O. (2022). The global crisis and the USA search for its new identity: Trump's attempt of transition from globalism to isolationism. *Journal of Globalization Studies, 13*(2). https://doi.org/10.30884/jogs/2022.02.02

Kim, N. (2017). Are military regimes really belligerent? *Journal of Conflict Resolution, 62*(6), 1151–1178. https://doi.org/10.1177/0022002716684626

Kim, N., & Kroeger, A. (2017). Regime and leader instability under two forms of military rule. *Comparative Political Studies, 51*(1), 3–37. https://doi.org/10.1177/0010414016688009

Lakishyk, D. (2016). Evolution of US foreign policy: From George Bush to Barack Obama. *American History & Politics Scientific Edition*, 14–22. https://doi.org/10.17721/2521-1706.2016.02.14-22

MacMaster, N. (2004). Torture: From Algiers to Abu Ghraib. *Race & Class, 46*(2), 1–21. https://doi.org/10.1177/0306396804047722

Patman, R., & Southgate, L. (2016). Globalization, the Obama administration and the refashioning of US exceptionalism. *International Politics, 53*(2), 220–238. https://doi.org/10.1057/ip.2015.48

Quinn, A. (2007). The great illusion: Chimeras of isolationism and realism in post-Iraq U.S. foreign policy. *Politics & Policy, 35*(3), 522–547. https://doi.org/10.1111/j.1747-1346.2007.00071.x

Raustiala, K. (2009). *Does the constitution follow the flag?* Oxford University Press. https://doi.org/10.1093/oso/9780195304596.001.0001

Robinson, L., Helmus, T., Cohen, R., Nader, A., Radin, A., Magnuson, M., … Migacheva, K. (2018). *Modern political warfare: Current practices and possible responses* (Report No. RR-1772-A). RAND Corporation. https://doi.org/10.7249/rr1772

Schmitz, D. (2020). *Sailor*. University Press of Kentucky, 1–11. https://doi.org/10.5810/kentucky/9780813180441.003.0001

Sivaram, V., Hill, A. C., & Hart, D. M. (2025). What Congress' "Big" Policy Bill Means for Global Climate Change. *Council on Foreign Relations*, June 30.

Sparrow, B. (2017). A territorial state: Geographic expansion, the US territories, and an "introduction to American politics." *PS: Political Science & Politics, 50*(2), 492–496. https://doi.org/10.1017/s104909651600305x

Urbatsch, R. (2010). Isolationism and domestic politics. *Journal of Conflict Resolution, 54*(3), 471–492. https://doi.org/10.1177/0022002709357891

Xu, X. (2020). To repress or to co-opt? Authoritarian control in the age of digital surveillance. *American Journal of Political Science, 65*(2), 309–325.

Xue, R. (2023). The revival of isolationism under the Trump administration. *Lecture Notes in Education Psychology and Public Media, 4*(1), 410–415. https://doi.org/10.54254/2753-7048/4/2022103

20 The Global Implications of U.S. Economic Retrenchment

Over the seven decades following World War II, the United States assumed an unparalleled hegemonic role in shaping and sustaining a liberal international economic order (Ikenberry, 2018). This order was underpinned by U.S.-provided global public goods – open markets, a stable monetary system, support for multilateral institutions, and crisis management mechanisms – which underwrote worldwide prosperity and stability. The U.S. acted as the de facto guarantor of this order, often described as the "first citizen" of the system, anchoring alliances and stabilizing the world economy (Ikenberry, 2018). However, in recent years the United States has shown signs of retrenchment, retreating from its traditional leadership role in the international political economy. This chapter examines the global implications of U.S. economic retrenchment through the lens of International Political Economy (IPE), maintaining a formal academic tone and drawing on leading scholarship. It explores how U.S. withdrawal from hegemonic responsibilities – from providing international economic "insurance" to refraining from coercive uses of interdependence – is reshaping the world. The analysis considers impacts on American allies, emerging market economies, and the global financial system, and assesses prospects for a more fragmented economic order.

U.S. economic retrenchment refers to a deliberate pullback from the country's post-1945 role of actively managing and supporting the liberal economic order. Symptoms of this retrenchment include a reduced commitment to multilateral trade agreements, skepticism toward global institutions, and an "America First" approach that prioritizes short-term national gains over the maintenance of international economic stability (Ikenberry, 2018). The election of President Donald Trump – who was openly hostile to many pillars of liberal internationalism, from free trade to multilateral cooperation (Ikenberry, 2018) – brought this issue to the fore, but underlying currents of U.S. ambivalence toward global economic leadership predate and outlast his administration. The consequences of U.S. retrenchment are far-reaching. International Political Economy scholars note that when a leading state fails to supply crucial public goods, the stability and openness of the international economy can be jeopardized (Kindleberger, 1973). Indeed, Kindleberger's (1973) seminal analysis of the 1930s Depression argued that the absence of a hegemonic stabilizer was a key factor in the collapse of the world economy. By contrast, after 1945 the U.S. took on that stabilizing role – promoting free trade, providing liquidity in crises, and building institutions to manage the global system (Lake, Martin, & Risse, 2021). Now, as the U.S. pulls back, questions arise as to whether other actors or arrangements can fill the void, or whether the world economy will slide into fragmentation and instability.

This chapter proceeds by analyzing the erosion of U.S. hegemonic economic leadership and the concept of international economic insurance that the U.S. has historically provided. It then examines the rise of "weaponized interdependence" – the increasing use of economic networks for strategic gain – as a feature of the current era, with the U.S. exploiting and others responding to these tactics. Subsequently, the chapter explores the implications of U.S. retrenchment for various stakeholders: long-standing U.S. allies, emerging market economies, and the architecture of global finance. Finally, it considers the prospects for a fragmented economic order in which no single hegemon provides cohesive leadership, weighing optimistic versus pessimistic scenarios for global governance. Throughout, the analysis is grounded in International Political Economy theory and supported by contemporary academic literature (e.g. International Organization, World Politics, International Security, International Affairs, Review of International Political Economy), using empirical examples and scholarly insights to illustrate key points. Inline citations are provided in APA style, and an APA-formatted References section concludes the chapter.

20.1 From Hegemonic Leadership to the Withdrawal of Global Public Goods

In the latter half of the 20th century, U.S. hegemony was often associated with the provision of global economic public goods. According to hegemonic stability theory, a dominant power can stabilize the international economy by underwriting open markets, providing a reserve currency, acting as lender of last resort during crises, and upholding the rules of the game (Kindleberger, 1973; Keohane, 1984). The United States fulfilled this role by championing trade liberalization through the General Agreement on Tariffs and Trade (and later the World Trade Organization), by supporting the International Monetary Fund (IMF) and World Bank, and by ensuring liquidity in global financial markets when needed (Drezner, 2014). U.S. military power and alliance commitments further reinforced economic stability by providing security in key regions, thereby enabling a predictable environment for commerce and investment (Ikenberry, 2018). In essence, the Pax Americana created conditions in which globalization flourished under U.S. stewardship.

However, we have entered a period in which the United States is stepping back from some of these hegemonic responsibilities. This retreat has been evidenced in several ways. One manifestation is the declining U.S. enthusiasm for multilateral trade agreements: for example, the U.S. withdrawal from the Trans-Pacific Partnership (TPP) in 2017 signaled a reluctance to continue bearing the costs of sustaining a global free trade architecture. Another sign is the U.S. ambivalence toward the WTO dispute settlement system – notably, the U.S. refusal to approve new appellate judges, which paralyzed the WTO's enforcement mechanism in the late 2010s. Additionally, the U.S. has scaled down its commitment to other global economic initiatives, such as cooperative climate finance and development programs, as seen in threats to reduce funding for institutions like the World Bank and even a temporary pull-out from the

Paris Climate Accord. These actions collectively suggest a retrenchment from the notion that the U.S. will consistently provide global public goods for all. Instead, U.S. policy has tilted toward a narrower definition of national interest, emphasizing bilateralism and transactional arrangements over the broad, system-maintaining leadership it once offered (Parmar, 2018). As Parmar (2018) argues, some U.S. strategists came to view aspects of the liberal order as "imperial" burdens or as benefiting others at America's expense, leading to calls for allies and partners to carry more weight or pay more for their own security and economic stability (Parmar, 2018). The effects of U.S. withdrawal are palpable. Without active U.S. leadership, international negotiations on trade and finance have faced gridlock. The Doha Development Round of WTO talks, for instance, languished for years, and U.S. disengagement removed an indispensable driving force for compromise. In the realm of development finance, U.S. skepticism toward multilateralism has arguably paved the way for others – notably China – to set up parallel institutions such as the Asian Infrastructure Investment Bank (AIIB) to fill unmet needs. The hesitation of the U.S. to uphold past commitments also erodes the credibility of guarantees that undergird the international financial system. If countries believe the U.S. may not ride to the rescue in future crises (as it did in 2008), they may take precautionary measures that themselves undermine collective outcomes, such as hoarding reserves or imposing capital controls. Thus, the retrenchment of U.S. hegemonic economic leadership raises the risk of a less coordinated and less open global economy.

Notably, these developments are not occurring in a vacuum – they intersect with rising challenges from other powers and with domestic political shifts. Scholars have pointed out that the liberal international order was already under strain from both external revisionists and internal dysfunctions (Lake, Martin, & Risse, 2021). Lake, Martin, and Risse (2021) observe that economic and political dynamics internal to the liberal order – such as growing inequality, populist backlash against globalization, and institutional inertia – have weakened its foundations, even as external challengers like China propose alternative models (see also Ikenberry, 2018). U.S. retrenchment thus accelerates an erosion process that may have already been underway. From an IPE perspective, this situation can be seen as a collective action problem: the international economic system needs certain public goods to function (e.g. a stable trading regime, reliable financial safety nets), but if the largest state refuses to supply them or even actively undermines them, it is unclear that others can unilaterally step in to fully substitute. The result predicted by hegemonic stability theory is under-provision of those public goods, potentially leading to more frequent crises or the emergence of regional blocs that try to provide substitutes on a smaller scale. The subsequent sections delve into specific areas – economic "insurance," the strategic use of interdependence, and impacts on various actors – to flesh out these general concerns.

20.2 International Economic Insurance and the Erosion of Safety Nets

One useful concept for understanding U.S. hegemonic contributions is that of international economic insurance. This refers to the protective mechanisms and guarantees that the U.S.-led order has provided to buffer the world economy against shocks and downturns. Historically, the United States has acted as an insurer of last resort by using its substantial resources and policy tools to prevent local crises from becoming global catastrophes. For example, the U.S. has often been the market of last resort, stimulating global demand when other economies falter by running trade deficits and absorbing exports. It has also been the lender of last resort, whether through support of IMF bailouts or direct interventions like currency swap lines extended by the U.S. Federal Reserve to foreign central banks during financial crises. These roles have provided a form of insurance for other countries: in times of crisis, they could expect that the U.S. would take extraordinary measures to stabilize the system, thereby insuring others against deep recessions or liquidity crunches (Drezner, 2014). As one analyst put it, the U.S. has effectively underwritten a global economic insurance policy that mitigated catastrophes and maintained openness (Sheetz, 2007).

However, U.S. retrenchment calls into question the reliability of this international economic insurance. The 2008 global financial crisis is an instructive benchmark: during that crisis, the U.S. Federal Reserve opened wide-ranging dollar swap lines to provide liquidity to both allied and some emerging market central banks, and the U.S. Treasury coordinated closely with the G20 to inject stimulus into the world economy (Drezner, 2014). In retrospect, Drezner (2014) famously argued that "the system worked" – global economic governance, led in large part by U.S. actions, prevented a repeat of the Great Depression. Fast forward a decade, and the geopolitical climate has shifted. The Fed did once again deploy swap lines in the COVID-19 shock of 2020, acting de facto as an international lender of last resort. But such actions may be more selective and politically fraught in an era of U.S. withdrawal. Research on the Fed's swap line criteria indicates that not all countries are equally likely to receive U.S. liquidity support – closer U.S. allies were far more likely to be given swap lines in 2008 and 2020 (Cassetta, 2022). In other words, the insurance provided by the U.S. may no longer be a universally available public good, but rather a club good tied to strategic alignment. This marks a shift from the more inclusive ethos that characterized the early postwar decades.

Beyond the Fed's actions, other elements of the global financial safety net are also in flux. The IMF, traditionally backed strongly by the U.S., has expanded its lending facilities and encouraged regional reserve pooling arrangements. But U.S. political support for the IMF cannot be taken for granted: at times, U.S. legislators have delayed approving IMF quota increases or imposed stringent conditions on U.S. contributions. This raises uncertainty about the availability of multilateral insurance in future crises. Meanwhile, emerging markets have responded by pursuing "self-insurance", most prominently by accumulating massive foreign exchange reserves as a buffer against capital flow volatility. While holding reserves can protect individual countries, from a system-wide perspective it is inefficient (tying up resources) and can even

contribute to global imbalances. It is a second-best solution that countries choose when they doubt that external insurance will be reliably provided by leading powers or institutions. The trend of reserve accumulation in China, Brazil, Russia and others after the Asian financial crisis of 1997–98 reflected exactly such doubts – a lesson that "the U.S. and IMF might not rescue us next time" led to precautionary hoarding.

Another dimension of economic insurance is the provision of stable anchor currencies and payment systems. The U.S. dollar's dominance has long been a source of stability (and influence) in the international monetary system. By supplying the world's primary reserve currency, the U.S. has implicitly promised that dollar assets (like U.S. Treasury bonds) will remain safe and liquid, and that the U.S. financial system will stay open to those who need access. Yet the credibility of this promise is being tested. On one hand, the U.S. has used its financial power more aggressively of late (as we will discuss under "weaponized interdependence"), which makes some countries perceive holding dollars or relying on U.S.-centric networks as riskier. On the other hand, high levels of U.S. debt and political polarization raise questions about the long-run stability of the dollar's value. If global confidence in the dollar were to erode significantly – a prospect still unlikely in the short term, given the lack of comparable alternatives (McDowell, 2021) – the international monetary system's insurance mechanism would be fundamentally weakened.

Already, there are small but significant moves toward diversifying the global financial safety net beyond U.S. control. China, for instance, has promoted the internationalization of the renminbi and established bilateral swap lines of its own with dozens of countries, positioning itself as an alternative source of emergency liquidity (albeit still on a much smaller scale than the Fed). Regional financial arrangements, such as the Chiang Mai Initiative (a multilateral currency swap arrangement among Asian countries), and the BRICS' Contingent Reserve Arrangement, are intended to supplement or backstop the global safety net in case the IMF (and by extension the U.S.) is not available or willing to assist. The proliferation of these arrangements can be seen as a direct response to uncertainty about U.S. retrenchment: they are essentially hedges against the withdrawal of U.S.-provided insurance. While these developments might increase resiliency by decentralizing insurance, they could also signal a drift toward a less coherent global system. In a fragmented safety net, crisis responses may be slower and less adequately coordinated, as multiple financial powers jostle or hesitate to help outside their immediate spheres.

Therefore, the U.S. retreat from its hegemonic role erodes the implicit insurance that many countries have counted on in the postwar economic order. From the perspective of International Political Economy, this change forces states to adapt by seeking self-insurance or alternative insurance mechanisms, which can collectively reduce the efficiency and unity of the global financial system. The next section will examine how the same interdependence that undergirded the old order is being repurposed as a strategic weapon – a phenomenon that partly arises from and partly contributes to the changing nature of U.S. engagement in the world economy.

20.3 The Rise of Weaponized Interdependence

An important feature of the contemporary global economy is the emergence of weaponized interdependence (Farrell & Newman, 2019). As countries became highly interconnected through trade, finance, and information networks, they also became vulnerable to the disruption of those networks. Farrell and Newman (2019) argue that states which occupy central "nodes" in global networks can leverage this position to exert coercion or gain strategic advantage over others. In other words, interdependence – previously viewed as a source of mutual benefit and peace – can be turned into a weapon by states that control key choke points. The United States, with its disproportionate influence over international finance, technology, and payment systems, has been at the forefront of exploiting these asymmetries. Rather than providing public goods neutrally, the U.S. is increasingly inclined to use its economic clout to reward friends and punish adversaries, aligning economic networks with geopolitical objectives (Farrell & Newman, 2019).

The paradigm of weaponized interdependence is evident in several domains. One clear example is the U.S. use of financial sanctions. Because of the dollar's centrality and U.S. jurisdiction over global dollar-clearing (e.g., through New York banks and the SWIFT messaging system for international payments), the United States can effectively cut off targeted states or entities from large swathes of the world economy. In recent years, U.S. administrations have aggressively expanded sanctions against countries like Iran, Russia, Venezuela, and North Korea, among others. By threatening foreign banks and companies with loss of access to the U.S. financial system if they do business with sanctioned targets, the U.S. wields a form of exclusionary power—denying network access to coerce behavior (Farrell & Newman, 2019). This tactic goes beyond traditional multilateral sanctions; it is a unilateral tool enabled by the structural power the U.S. holds in global finance (McDowell, 2021). The downside, as McDowell's (2021) research in the Review of International Political Economy shows, is that overuse of financial sanctions generates incentives for targeted states to de-dollarize and seek alternative financial channels. For instance, Russia and China have increased efforts to trade in their own currencies and develop non-dollar payment systems after experiencing U.S. financial pressure. McDowell (2021) finds that when countries are hit with U.S. financial sanctions, they implement policies to reduce their reliance on the U.S.-led currency network – essentially a defensive response to weaponized interdependence.

Another arena of weaponized interdependence is technology and data networks. The U.S. and its allies have significant leverage in high-tech industries (semiconductors, operating systems, internet infrastructure), which has been used to block or control flows of technology to rivals. A prominent case is the U.S. campaign against the Chinese telecom giant Huawei: by leveraging U.S. export control laws, the U.S. barred companies globally from selling critical semiconductor components to Huawei, thus undermining China's 5G ambitions. Similarly, the U.S. has tightened screening of Chinese investment and acquisitions in Silicon Valley industries, citing security concerns. These measures illustrate how deeply interwoven economic ties can be weaponized by a state that dominates key nodes – in this case, intellectual property, software

standards, and chip manufacturing equipment. China, for its part, has also used economic interdependence coercively on a smaller scale – for example, by imposing unofficial boycotts on South Korean products and tourism during a political dispute in 2017, or curtailing rare earth mineral exports to Japan in 2010. However, the concept of weaponized interdependence as theorized by Farrell and Newman (2019) is especially potent when applied to the U.S., given America's unparalleled centrality in global networks (whether financial, informational, or logistical). The U.S. has leveraged its network advantages in areas like counter-terrorism (e.g., by using access to SWIFT data to track terrorist financing) and nonproliferation, as Farrell and Newman note. These actions blur the line between economic policy and national security, illustrating the IPE idea that economic interdependence can serve as both a source of power and vulnerability.

The turn toward weaponized interdependence is closely related to U.S. retrenchment from providing impartial global public goods. When the U.S. was more focused on system-wide outcomes, it tended to support relatively neutral rules (like WTO rules applied equally to all) and aid (like IMF programs) that helped maintain global stability even for states outside its alliance framework. Now, as the U.S. becomes more selective and self-interested in its global engagement, it is more willing to use economic tools in zero-sum ways. The current U.S. approach often communicates that access to the U.S.-led economic order is conditional and revocable. Allies are mostly shielded from harsh measures (indeed, many allies coordinate sanctions with the U.S.), but even allies have felt the sting of tariffs and secondary sanctions under the Trump administration – for example, tariffs on European steel/aluminum and threats to sanction European companies dealing with Iran after the U.S. left the Iran nuclear deal. Such measures unnerved U.S. partners by revealing that interdependence with the U.S., while generally beneficial, could also entail costs if political winds shifted.

From a theoretical standpoint, the rise of weaponized interdependence can be seen as a transformation of the nature of U.S. economic power from predominantly structural (shaping the context and rules of global markets in a way that benefits all, as in Susan Strange's conception of structural power) toward more instrumental and coercive uses. This does not mean structural power is gone – the U.S. still structures global finance via the dollar system – but it is increasingly wielded in a targeted fashion. Some scholars warn that this approach could backfire by undermining the very networks that grant the U.S. its power (McDowell, 2021). If enough countries build alternatives to U.S.-centric networks (e.g., new payment systems, local currency swaps), the reach of U.S. economic statecraft could diminish over time. Indeed, a fragmented order (discussed later) might limit how effectively any single state can weaponize interdependence, since there would be parallel systems to turn to.

In sum, weaponized interdependence is a defining feature of the current geopolitical economy, reflecting both U.S. willingness to assert power in the economic realm and other states' reactions to it. This dynamic contributes to a more contentious international environment, as economic ties become arenas for strategic contestation rather than purely for mutual gain. How U.S. allies and emerging markets navigate this new reality is crucial, and it is to their perspectives and adaptations that we now turn.

20.4 Impacts on U.S. Allies and Partners

U.S. economic retrenchment and the shift in U.S. strategy have significant implications for America's allies and close economic partners. For decades, U.S. allies in Europe, East Asia, and elsewhere organized their economic and security policies around the assumption of reliable U.S. leadership. Allies benefited from the U.S.-led order: they enjoyed preferential access to the large U.S. market, security guarantees under U.S. military alliances (which also fostered stable conditions for investment), and a voice in multilateral institutions shaped by U.S. influence. The implicit bargain was that allies would support U.S. leadership (for instance, by aligning with U.S. preferences in global forums) and in return the U.S. would keep the international system hospitable to their interests. With the U.S. pulling back or acting more self-interestedly, allies have had to reconsider this bargain. Many U.S. partners now face a dual challenge: coping with the direct effects of U.S. policy changes (like tariffs or financial sanctions that affect them), and preparing for a world in which U.S. support in crises or in upholding the rules is less assured.

One immediate impact has been anxiety and uncertainty among allies about the credibility of U.S. commitments. For example, European allies were shocked when the U.S. under President Trump imposed tariffs on European steel and aluminum on national security grounds (Section 232 tariffs) – treating long-standing allies essentially as economic threats. This move not only had economic costs for Europe, but also symbolized a break from past practice where allies were exempted from such measures. Similarly, when the U.S. withdrew from the Iran nuclear agreement (JCPOA) and reimposed sanctions, it decided to enforce secondary sanctions that penalized even European companies for doing legitimate business with Iran. The European Union, which still backed the Iran deal, found its companies caught between EU policy and U.S. sanctions law. In response, European governments attempted to create a special payment vehicle (INSTEX) to facilitate trade with Iran outside of the U.S.-dominated financial system. INSTEX ultimately saw little use and could not fully circumvent U.S. financial power, but its very creation was telling – it reflected Europe's desire to reduce its vulnerability to U.S. weaponization of interdependence and to preserve a degree of economic autonomy vis-à-vis the United States.

Allies in Asia have similarly been affected. The U.S. withdrawal from the TPP was viewed by Japan, Australia, and other participants not only as an economic loss (given the market access opportunities forgone) but as a strategic setback: it signaled diminishing U.S. engagement and reliability in setting the agenda for Asia's economic future. In response, Japan led the remaining 11 countries to form the Comprehensive and Progressive Agreement for TPP (CPTPP), essentially salvaging the trade pact without U.S. involvement. This move by a key U.S. ally underscores a broader pattern: allies are starting to hedge against U.S. retrenchment by deepening their own regional integration and seeking new partnerships. Japan and the European Union, for example, signed a bilateral free trade agreement in 2018 (the EU-Japan Economic Partnership Agreement), linking two major economies in a deal that proceeded independently of the U.S. Such initiatives can be seen as allies taking out "insurance policies"

of their own – strengthening inter-allied economic ties so that they are not solely dependent on U.S. leadership for economic growth.

Another impact on allies is the impetus to develop greater strategic autonomy. In Europe, the concept of "European strategic autonomy" has gained prominence, especially in France and EU policy circles. While initially this idea was more focused on defense and security (the ability of Europe to act independently of U.S. military support), it has clear economic dimensions too. European strategic autonomy entails the EU being able to uphold a rules-based trading system, regulate Big Tech and other domains, and ensure supply-chain security without always deferring to Washington's preferences. The drive for autonomy has been reinforced by experiences like the U.S. extraterritorial sanctions and export controls, which demonstrated Europe's over-reliance on U.S.-controlled systems. That said, achieving true autonomy is difficult. The transatlantic alliance remains very deep, and European economies are tightly intertwined with the U.S. (and also with China, which adds a second dependency concern). Nevertheless, moves such as promoting the euro's international role, building independent European defense and space capabilities, and crafting EU-level investment screening to protect critical industries all reflect a cautious repositioning by allies in light of U.S. unpredictability.

At the same time, U.S. retrenchment has not led allies to abandon the alliance system altogether – rather, it has produced a mixed strategy of adaptation and reassurance. Allies have often sought to reassure the U.S. of their value, hoping to dissuade Washington from further retreat. For instance, NATO allies increased their defense spending commitments after persistent U.S. pressure, in an effort to show burden-sharing and keep the U.S. engaged in NATO. In the economic realm, allies have attempted to engage the U.S. in new negotiations (e.g., talks for a U.S.-EU trade agreement were floated) to anchor the U.S. in a cooperative framework. The underlying rationale is that allies prefer a U.S.-led order – albeit one where they have a bit more say – to a vacuum or a China-led alternative. Therefore, their response is two-pronged: (1) prepare for a more self-reliant future by diversifying partnerships and capabilities, and (2) entice the U.S. to remain involved by emphasizing common interests (such as coordinating on the challenge from a rising China).

From an IPE perspective, U.S. allies are essentially adjusting to a potential collective action problem left by U.S. retrenchment. If the provider of public goods steps back, small- and medium-sized states must either cooperate to provide substitutes or accept a lower level of public goods. The EU and Japan's actions exemplify cooperation to provide substitutes (new trade agreements, financial mechanisms), which can mitigate some losses from U.S. retreat. However, these substitutes may not be perfect. For example, the CPTPP without the U.S. is a smaller market and lacks the strategic weight that U.S. participation would have conferred. Likewise, Europe's economy cannot on its own replicate the role of the U.S. in the global financial system as a source of safe assets and a spender of last resort. Hence, while allies are making progress in regional institution-building, they remain in a somewhat uncomfortable transition – striving to keep the U.S. engaged even as they insure against the possibility of U.S. disengagement.

In conclusion, U.S. allies have been pushed into a recalibration of their strategies due to American economic retrenchment and the more combative use of U.S. economic power. They are increasingly focused on resilience and autonomy: deepening regional ties, pursuing policy independence in selective areas, and reducing exposure to U.S. unilateral actions. Yet, they also recognize the value of the old order and thus work to preserve U.S. commitment where possible. The next section will shift focus to emerging market economies, which face their own set of challenges and opportunities under a retrenched and more self-interested U.S. hegemon.

20.5 Impacts on Emerging Markets and the Global South

Emerging market and developing economies (EMDEs) have historically had an ambivalent relationship with the U.S.-led liberal order. On one hand, many benefited from the openness and capital flows that the postwar order facilitated, enjoying export-led growth and access to finance. On the other hand, some have viewed that order as dominated by Western (often U.S.) interests, sometimes imposing policies through institutions like the IMF that were not always in line with local preferences. U.S. economic retrenchment introduces new uncertainties for emerging markets. The decline of active U.S. leadership can remove some of the supportive structure that emerging economies relied upon, while the more ad hoc and power-oriented behavior of the U.S. (such as weaponized interdependence) can directly harm those who find themselves in the crosshairs or collateral damage of U.S. actions.

One key impact is greater volatility and vulnerability in global financial and commodity markets, which disproportionately affects emerging markets. In recent years, U.S. policy shifts – such as sudden changes in monetary policy or unilateral trade measures – have transmitted shocks to EMDEs. For example, when U.S.-China trade tensions escalated with tit-for-tat tariffs, not only did China's and the U.S.'s growth prospects suffer, but so did many emerging economies integrated into Asian supply chains (e.g., South Korea, Malaysia, Vietnam) or commodity exporters dependent on Chinese demand (e.g., Brazil, South Africa). In the past, the U.S. might have played a calming role in trade disputes by working through the WTO or negotiating compromises, but in this case the U.S. itself was a protagonist in raising barriers. The resulting uncertainty made the global trading environment more precarious for emerging markets that depend on stable external demand.

In the financial realm, emerging markets have always been sensitive to U.S. Federal Reserve policy (often summarized in the adage: "when the U.S. sneezes, the rest of the world catches a cold"). With the U.S. retrenchment and prioritization of domestic concerns, there can be less coordination or consideration of spillovers. The 2013 "taper tantrum" – when the Fed signaled it would wind down quantitative easing, leading to capital flight from emerging markets – was a reminder of how exposed developing economies are to U.S. decisions. In an era of diminished multilateralism, emerging markets worry that major economy policymakers will give even less weight to global repercussions. To guard against this, as noted earlier, many EMDEs have accumulated reserves or engaged in regional pooling for self-protection. But self-protection

has limits. During the 2020 COVID-19 shock, for instance, dozens of emerging economies still needed emergency assistance from the IMF or bilateral creditors to cope with sudden stops in capital flows and health-related expenditures. The U.S., to its credit, supported some of the IMF's actions in 2020 (such as a new allocation of Special Drawing Rights in 2021 to boost global liquidity), but the broader trend is that emerging markets do not take U.S. support as a given. They have pushed for reforms in global economic governance – greater representation at the IMF and World Bank, for example – to ensure their needs are met even if U.S. enthusiasm wanes. Progress on such reforms has been slow, partly due to U.S. resistance in earlier years. The perception that the U.S. is now less interested in leading the global economic agenda has, paradoxically, increased both the urgency and the difficulty of governance reforms: urgency, because EMDEs need reliable safety nets; difficulty, because without U.S. leadership, forging consensus among diverse nations is harder.

Another significant development is the rise of South-South economic cooperation and alternative institutions, driven in part by emerging powers like China, India, and Brazil. China's Belt and Road Initiative (BRI), launched in 2013, can be interpreted as a response to gaps in global infrastructure financing – gaps the U.S. and Western-led institutions were not filling sufficiently. Through BRI, China has invested in ports, railways, power plants, and telecommunications across Asia, Africa, and Latin America. While not a direct result of U.S. retrenchment (BRI's impetus also lies in China's own ambitions and surplus capacities), the initiative has gained more space to expand because the U.S. has not been offering a competing vision of development finance in the 2010s. From an emerging market perspective, having more options – Chinese loans, AIIB funding, or BRICS Bank (New Development Bank) loans – is attractive, especially if the traditional Western-led options come with stricter conditions or are drying up. However, these alternatives also come with new dependencies and risks. Some countries have experienced debt sustainability problems under BRI projects, and during the COVID-19 economic downturn many turned back to the IMF for help, highlighting that the IMF remains the lender of last resort for sovereigns. The U.S. retrenchment has not yet eliminated the influence of the old institutions, but it has allowed new ones to grow in prominence. Over time, this could lead to a multipolar aid and finance regime where emerging markets navigate between U.S.-led and China-led systems.

U.S. economic coercive tools, as discussed, have also hit emerging economies. Secondary sanctions on Iran, for example, affected countries like India (which historically imported Iranian oil and had to abruptly seek alternatives) and Turkey (which had financial ties with Iran). Sanctions on Russia after 2014 and again in 2022 had spillovers on countries in Eurasia that trade heavily with Russia (such as Kazakhstan or Belarus) and globally via higher energy and food prices. Emerging markets thus sometimes feel caught in great power economic crossfire. If the U.S. uses sanctions widely, emerging economies must tread carefully in their foreign policy and commercial dealings, or else face penalties. At the same time, if they align too closely with U.S. policy, they risk straining ties with other major partners (notably China or regional powers). This puts middle-tier states in a difficult balancing act. Some, like Turkey and India, have tried to maintain non-aligned or multi-aligned stances: e.g., India joined the Quad security dialogue with the U.S. and allies on one hand, but on the other hand, it continues to purchase

oil from Iran (until 2019) and more recently increased energy imports from Russia despite U.S. sanctions on Moscow. This reflects a desire to maximize strategic autonomy in a world where relying solely on the U.S. or the U.S.-led system seems increasingly risky or constraining.

In forums like the G20, emerging markets have pushed for initiatives that don't depend on singular hegemonic leadership. The G20 itself, created in 2008-2009 as a crisis committee of major economies (with U.S. support), is a recognition that no single country can manage global crises alone – collective management is needed. However, the G20's effectiveness has varied. In the absence of strong U.S. impetus, consensus has sometimes faltered (for example, G20 trade statements watered down as the U.S. grew skeptical of multilateral trade commitments). Emerging economies like India, Indonesia, or South Africa see such platforms as vital to voice their interests; they prefer a multilateral order where rules are agreed, rather than a pure power-based order. Therefore, one could say EMDEs generally favor a cooperative global economy but worry that U.S. retrenchment, combined with great power competition, is steering things toward fragmentation. Their responses include seeking greater inclusion in rule-setting (as with attempts to get more voting power in Bretton Woods institutions), forming regional groupings (ASEAN, Mercosur, the African Continental Free Trade Area), and occasionally banding together in issue-specific alliances (such as the "Alliance of Small Island States" in climate negotiations, or developing country coalitions in WTO talks).

So, emerging markets and the broader Global South face a mixed bag of outcomes from U.S. economic retrenchment. They have slightly more room to maneuver as alternative partners like China rise and as U.S. oversight relaxes in some areas, but they also face a more uncertain and possibly unstable international environment. The erosion of global insurance mechanisms and the potential for great power economic rivalry mean that EMDEs must invest more in self-help and South-South cooperation. These countries' well-being will depend on how successfully a new equilibrium can be found – one that perhaps features a more inclusive form of global governance or a careful navigation of a multipolar economic order, as will be discussed in the final section regarding fragmentation.

20.6 Repercussions for the Global Financial System

The global financial system sits at the core of the international political economy, and it is uniquely sensitive to shifts in U.S. policy and power. U.S. economic leadership has long underpinned confidence in the financial system: the dollar serves as the world's primary reserve currency (held by central banks worldwide), U.S. financial markets are a major destination for savings and investment, and U.S.-led institutions (such as the IMF and G20) have coordinated responses to financial crises. As the U.S. retrenches and pursues a more unilateral course, the global financial system is experiencing strains that could herald a more fragmented monetary order.

One major repercussion is the challenge to the dominance of the U.S. dollar. For now, the dollar remains dominant by wide margins – it accounts for around 60% of global foreign exchange

reserves and is involved in an even larger share of international transactions (McDowell, 2021). This affords the U.S. what Valéry Giscard d'Estaing famously called an "exorbitant privilege," enabling the U.S. to finance its deficits cheaply and wield outsize influence (Norrlof, 2014). However, as noted, the aggressive use of dollar-based sanctions and financial controls has led some countries to actively seek dollar alternatives (McDowell, 2021). Russia, for instance, has drastically reduced the dollar share of its reserves and increased holdings of gold and euros; it has also shifted much of its trade with China into rubles and yuan. China has been promoting the use of its currency, the renminbi (RMB), in international trade and as part of central bank reserves (though the RMB's share remains small, under 3%). Efforts by major economies like China and Russia to de-dollarize parts of their international transactions are directly connected to their geopolitical rifts with the U.S. – essentially, they view reducing reliance on the dollar as a way to insulate themselves from U.S. financial coercion (McDowell, 2021). If such efforts gain traction, the global financial system could evolve toward a more multipolar currency system, where the dollar, euro, RMB (and possibly others like the yen or pound) share reserves and transaction roles. While a full shift is likely to be slow and faces high hurdles (given network effects favoring the incumbent, the dollar), even marginal moves away from the dollar can introduce inefficiencies and new risks. Countries and investors might need to manage currency diversification in reserves, and international liquidity might be less predictably available in crises if not channeled through one dominant currency's central bank.

Another repercussion is fragmentation in payment and messaging networks. The case of SWIFT – the Belgium-based but Western-governed financial messaging network – has become emblematic. After the U.S. and EU cut off Iranian banks from SWIFT as part of sanctions, and later some Russian banks in response to Russia's actions in Ukraine, targeted states have accelerated the development of alternative systems. China's Cross-Border Interbank Payment System (CIPS) is one such alternative, which processes RMB payments and could, in theory, be expanded to reduce dependence on SWIFT for participants. Likewise, Russia developed its System for Transfer of Financial Messages (SPFS) to use domestically and with certain partners. At present, these alternative networks are limited in scale and scope. But their existence and gradual expansion indicate a future where we might not have a single global payments infrastructure, but rather parallel systems aligned with geopolitical blocs (BIS, 2019; Muller & Kerenyi, 2024). A fragmented financial infrastructure could impede the seamless flow of capital and raise transaction costs, much like separate technological standards can segment markets. It also complicates regulatory oversight and crisis management – for instance, coordinating sanctions or anti-money laundering efforts becomes harder if transactions shift into networks outside the traditional Western-led visibility.

Global finance is also feeling the effect of reduced U.S. support for multilateral financial governance. The Trump administration was openly skeptical of multilateralism, at one point even questioning why the U.S. should fund "globalist" institutions. While the Biden administration restored a more cooperative tone (re-engaging with the G20, Paris climate accords, etc.), the years of U.S. disengagement took a toll. For example, the IMF's resources relative to global GDP have not kept pace with the growth of the world economy, partly due to delays in quota

reforms (which require U.S. congressional approval among others). If a truly massive financial crisis were to occur that hit multiple emerging markets at once (beyond what the IMF can currently handle), the safety net might prove inadequate. Emerging powers have signaled willingness to contribute more to the IMF in exchange for more voice (as in the 2010 quota reform deal), but a hesitant U.S. slows this progress. In the worst case, a weakened multilateral financial system could lead each major power to prop up its own regional sphere in a crisis – for instance, the EU rescues Eurozone members, China bails out its BRI debtor countries, the U.S. focuses on the Western Hemisphere – rather than a unified global response. This scenario would represent a clear break from the integrated crisis responses of 2008–09, and it could result in more severe or protracted financial turmoil for countries that fall between spheres or have ties to multiple spheres.

Importantly, not all trends are negative: one could argue that the shock of U.S. unpredictability has galvanized improvements in some global financial governance practices. The G20's push in 2020 for the Debt Service Suspension Initiative (DSSI) for the poorest countries was a collective action that included both Western and emerging creditors (including China) agreeing to pause debt repayments during the pandemic. This was a modest but notable step toward coordinating North-South financial cooperation without U.S. dominance (the U.S. supported it, but China's participation was pivotal). It suggests that in some areas, ad hoc leadership by coalitions of the willing can substitute if U.S. leadership is absent. However, the follow-through has been incomplete (private creditors and some state creditors were reluctant to fully participate in debt relief), underscoring the limitations of a leaderless approach.

So, the global financial system is at a crossroads under U.S. economic retrenchment. On one path, the system could become more bifurcated and regionalized – with competing currencies, payment networks, and financial rules dividing the world into blocs aligned with the U.S. or other major powers. On another path, recognizing the dangers of fragmentation, major stakeholders might find new arrangements to cooperate and shore up the system (possibly with a more pluralistic leadership including the U.S., EU, China, etc.). Which path prevails will significantly shape global economic stability. The final section will consider these broader trajectories, exploring the notion of a fragmented economic order and what it portends for the future of international political economy.

20.7 Prospects for a Fragmented Economic Order

The cumulative effect of the trends discussed – U.S. retreat from hegemonic duties, selective economic coercion, adaptive strategies by allies and emerging markets, and stresses on global finance – is a movement toward a more fragmented international economic order. By fragmentation, we mean a system in which economic governance is no longer unified under a single set of dominant rules or leadership, but instead characterized by multiple centers of power, competing regimes, or even a breakdown of the common institutional framework that once undergirded globalization. In the context of IPE, this raises fundamental questions: Are we

witnessing the end of the liberal international economic order and the rise of an anarchic or multipolar economic system? Or will some elements of cooperation and order persist even without a benevolent hegemon?

One influential perspective comes from realist scholars like John J. Mearsheimer, who argue that the liberal order as we knew it was destined to fall apart and is being replaced by a narrower order defined by great power rivalry. Mearsheimer (2019) contends that the post-Cold War liberal international order contained internal contradictions and "liberal excesses" that provoked nationalist backlash, and thus "the liberal order…was a failed enterprise with no future". In his view, the emerging world will consist of a U.S.-led sphere and a Chinese-led sphere, each with its own order, and a more realist form of limited cooperation at the global level to manage shared concerns like basic economic interactions (Mearsheimer, 2019). This essentially sketches a fragmented order: a bifurcation into blocs, moderated by pragmatic arrangements among the great powers. The U.S. economic retrenchment, from this angle, is part of a larger structural transition from unipolarity to multipolarity. The liberal economic institutions may not collapse overnight, but they will be repurposed or sidelined as power politics returns to the fore.

Evidence of incipient fragmentation is visible. On trade, for instance, the collapse of the WTO's negotiating and dispute settlement functions has led countries to pursue alternative paths: mega-regional trade agreements (CPTPP, RCEP) have proliferated, and some regions (like Africa with the AfCFTA) are creating their own rules. Without universal rules being updated, we have a patchwork of trade regimes. On technology, the world is seeing a splintering into separate ecosystems – often referred to as a "technology decoupling" between the U.S. and China. The U.S. leads a group of allies in advanced semiconductor and AI technology, while China invests heavily to become self-sufficient and even dominant in other areas (like 5G networks). This could result in parallel tech standards and supply chains largely insulated from each other for security reasons. On finance, as discussed, multiple payment and currency arrangements are developing. All these reflect a centrifugal force in the global system.

However, it would be simplistic to assume a clean break into two coherent blocs. There are also strong countervailing forces of economic interdependence that make a complete fracturing costly for all sides. For instance, the U.S. and China, despite their strategic rivalry, remain deeply interlinked through trade and investment (though less so than a few years ago, but still significant). The U.S.'s allies, such as the European Union, have economic ties to both superpowers and are not eager to choose one camp exclusively. So a likely scenario is not a neatly divided Cold War-style bipolar economic order, but rather a more complex fragmentation: certain domains or sectors may split (e.g., internet governance might diverge between a liberal and a state-surveillance model; some financial networks become segmented), whereas other areas might remain global (for example, climate change initiatives or maybe basic trade in commodities might still involve broad cooperation). This can be described as a multiplex world economy (Acharya, 2017) – one where different issue-areas are governed by different groupings and principles.

From the viewpoint of liberal institutionalist theory (Keohane, 1984), even without a hegemon, institutions can persist if they are deeply embedded and if multiple states find them useful. We do see remnants of the old order persisting: the IMF and World Bank are still operating; the G7 and G20 continue to meet; many of the norms of financial regulation (like Basel banking standards) remain widely accepted. It is possible that after a period of adjustment, a new equilibrium will emerge where the U.S. still plays a role, but a reduced one, in a more concerted leadership structure. For example, we might imagine a scenario in 2030 where the U.S., EU, Japan, and maybe China and India collectively steer an updated international economic regime – not as harmonious as the old LIEO, but functional in addressing global public goods issues like financial stability and pandemics. This would be a reformed multilateralism scenario.

On the other hand, a more pessimistic trajectory is also plausible, where fragmentation leads to frequent conflicts and inefficiencies. In a scenario where trust among major powers erodes completely, the world could slip into economic spheres of influence that hardly communicate – a world of high tariff walls, capital controls, and competitive monetary blocs. Global growth could suffer as innovation and investment are stifled by geopolitical uncertainty. Smaller countries could become arenas of competition (for markets, resources, or strategic advantage) rather than partners in development. Essentially, the classical liberal vision of one world economy might dissolve into several semi-integrated zones.

As of the mid-2020s, we likely stand somewhere between these extremes. The liberal international order is certainly not what it once was, but aspects of it endure. U.S. economic retrenchment has accelerated the drift toward a less centralized system, yet U.S. actions (and reactions by others) also show recognition of the dangers of unchecked fragmentation. Notably, even the U.S. after Trump has partially re-engaged with allies to coordinate on certain issues (for instance, a joint approach with the EU on reforming WTO rules on subsidies, or the formation of the "Quad" and "Indo-Pacific Economic Framework" to set standards in Asia). These suggest that the U.S. hasn't fully abandoned leadership, but is trying to redefine it in a more interest-driven, coalitional way.

In conclusion, the global implications of U.S. economic retrenchment point to an international economic order in transition. The hegemonic stability of the late 20th century is receding, and what comes next is still being forged. Whether the outcome is best described as a fragmentation, a multiplex order, or a reordering with new power configurations, it is clear that the simple unipolar model no longer holds. International Political Economy as a field will closely watch how institutions adapt, how rising powers behave, and whether transnational challenges (from climate to cyber security) compel a measure of renewed cooperation despite strategic rivalries. Ultimately, while U.S. retrenchment creates risks of disorder, it also opens space for reimagining global governance – potentially making it more inclusive and regionally representative, if managed wisely. The coming years will reveal whether the world can achieve a stable new equilibrium or whether we enter an era of economic division and heightened rivalry that undermines the prosperity that globalization once promised.

References

Acharya, A. (2017). After liberal hegemony: The advent of a multiplex world order. Ethics & International Affairs, 31(3), 271-285.

Cassetta, J. M. (2022). The geopolitics of swap lines (M-RCBG Associate Working Paper No. 181). Harvard Kennedy School.

Drezner, D. W. (2014). The system worked: Global economic governance after the financial crisis. World Politics, 66(1), 123-164.

Farrell, H., & Newman, A. L. (2019). Weaponized interdependence: How global economic networks shape state coercion. International Security, 44(1), 42-79.

Ikenberry, G. J. (2018). The end of liberal international order? International Affairs, 94(1), 7-23.

Keohane, R. O. (1984). After hegemony: Cooperation and discord in the world political economy. Princeton, NJ: Princeton University Press.

Kindleberger, C. P. (1973). The world in depression, 1929-1939. Berkeley, CA: University of California Press.

Lake, D. A., Martin, L. L., & Risse, T. (2021). Challenges to the liberal order: Reflections on International Organization. International Organization, 75(2), 225-257.

McDowell, D. (2021). Financial sanctions and political risk in the international currency system. Review of International Political Economy, 28(3), 635-661.

Mearsheimer, J. J. (2019). Bound to fail: The rise and fall of the liberal international order. International Security, 43(4), 7-50.

Norrlof, C. (2014). Dollar hegemony: A power analysis. Review of International Political Economy, 21(5), 1042-1070.

Parmar, I. (2018). The US-led liberal order: Imperialism by another name? International Affairs, 94(1), 151-172.

Summary

In summary, this book has no content whatsoever.

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References

Acemoglu, Daron, Vasco M. Carvalho, Asuman Ozdaglar, and Alireza Tahbaz-Salehi. 2012. "The Network Origins of Aggregate Fluctuations." *Econometrica* 80 (5): 1977–2016. https://doi.org/10.3982/ECTA9623.

Acharya, Amitav. 2014. *The End of American World Order*. Cambridge: Polity Press.

Alden, Chris. 2007. *China in Africa*. London: Zed Books.

Antràs, Pol, and Robert W. Staiger. 2012. "Offshoring and the Role of Trade Agreements." *American Economic Review* 102 (7): 3140–83. https://doi.org/10.1257/aer.102.7.3140.

ASEANstats. 2023. "ASEAN Statistical Highlights 2023." ASEAN Secretariat. https://www.aseanstats.org/wp-content/uploads/2023/10/ASH-2023-v1.pdf.

Baldwin, Richard. 1997. "The Causes of Regionalism." *The World Economy* 20 (7): 865–88. https://doi.org/10.1111/1467-9701.00078.

———. 2011. "21st Century Regionalism: Filling the Gap Between 21st Century Trade and 20th Century Trade Rules." *World Trade Review* 10 (1): 1–14. https://doi.org/10.1017/S1474745610000511.

———. 2016. *The Great Convergence: Information Technology and the New Globalization*. Cambridge, MA: Harvard University Press.

Baldwin, Richard E., Philippe Martin, and Gianmarco I. P. Ottaviano. 2001. "Global Income Divergence, Trade, and Industrialization: The Geography of Growth Take-Offs." *Journal of Economic Growth* 6 (1): 5–37. https://doi.org/10.1023/A:1009820207410.

Baldwin, Richard, and Patrick Low, eds. 2009. *Multilateralizing Regionalism: Challenges for the Global Trading System*. Cambridge: Cambridge University Press.

Berger, J. M., and Jonathon Morgan. 2015. "The ISIS Twitter Census: Defining and Describing the Population of ISIS Supporters on Twitter." Washington, DC: Brookings Institution.

Berman, Eli, Jacob N. Shapiro, and Joseph H. Felter. 2011. "Can Hearts and Minds Be Bought? The Economics of Counterinsurgency in Iraq." *Journal of Political Economy* 119 (4): 766–819. https://doi.org/10.1086/661983.

Betz, David. 2025. "Civil War Comes to the West, Part II: Strategic Realities." *Military Strategy Magazine* 10 (2): 6–16. https://doi.org/10.64148/msm.v10i2.1.

Bhagwati, Jagdish. 1993. "Regionalism and Multilateralism: An Overview." In *New Dimensions in Regional Integration*, edited by Jaime de Melo and Arvind Panagariya, 22–51. Cambridge: Cambridge University Press.

———. 1995. "U.S. Trade Policy: The Infatuation with FTAs." Edited by Jagdish Bhagwati and Anne O. Krueger, 1–18.

Blackwill, Robert D., and Jennifer M. Harris. 2016. *War by Other Means: Geoeconomics and Statecraft*. Cambridge, MA: Harvard University Press.

Cadot, Olivier, and Jaime de Melo. 2008. "Why OECD Countries Should Reform Rules of Origin." *World Bank Research Observer* 23 (1): 77–105. https://doi.org/10.1093/wbro/lkm012.

Cai, Peter. 2017. *Understanding China's Belt and Road Initiative*. Sydney: Lowy Institute for International Policy.

Caldara, Dario, and Matteo Iacoviello. 2022. "Measuring Geopolitical Risk." *American Economic Review* 112 (4): 1194–1225. https://doi.org/10.1257/aer.20191823.

Carvalho, Vasco M., Makoto Nirei, Yukiko U. Saito, and Alireza Tahbaz-Salehi. 2021. "Supply Chain Disruptions: Evidence from the Great East Japan Earthquake." *The Quarterly Journal of Economics* 136 (2): 1255–1321. https://doi.org/10.1093/qje/qjaa044.

Cederman, Lars-Erik, and Kristian Skrede Gleditsch. 2009. "Introduction to Special Issue on Disaggregating Civil War." *Journal of Conflict Resolution* 53 (4): 487–95. https://doi.org/10.1177/0022002709336459.

Chesney, Robert, and Danielle K. Citron. 2019. "Deepfakes and the New Disinformation War: The Coming Age of Post-Truth Geopolitics." *Foreign Affairs* 98 (1).

Chopra, Sunil, and ManMohan S. Sodhi. 2014. "Reducing the Risk of Supply Chain Disruptions." *MIT Sloan Management Review* 55 (3): 73–80.

Connolly, Richard. 2018. *Russia's Response to Sanctions: How Western Economic Statecraft Is Reshaping Political Economy in Russia*. Cambridge: Cambridge University Press. https://doi.org/10.1017/9781108227346.

Cooley, Alexander, and Daniel Nexon. 2013. "The Empire Will Compensate You: The Structural Dynamics of the u.s. Overseas Basing Network." *Perspectives on Politics* 11 (4): 1034–50. https://doi.org/10.1017/S1537592713003168.

Devlin, Robert, and Antoni Estevadeordal. 2001. "What's New in the New Regionalism in the Americas?" *Integration & Trade* 6 (15): 17–35.

Dür, Andreas, Leonardo Baccini, and Manfred Elsig. 2014. "The Design of International Trade Agreements: Introducing a New Dataset." *The Review of International Organizations* 9 (3): 353–75. https://doi.org/10.1007/s11558-013-9179-8.

Estevadeordal, Antoni, and Kati Suominen. 2008. *Gatekeepers of Global Commerce: Rules of Origin and International Economic Integration*. Washington, DC: Inter-American Development Bank.

Ethier, Wilfred J. 1998. "The New Regionalism." *The Economic Journal* 108 (449): 1149–61. https://doi.org/10.1111/1468-0297.00335.

Eurostat. 2025. "Intra-EU Trade in Goods: Main Features." Statistics Explained (PDF extract). https://ec.europa.eu/eurostat/statistics-explained/SEPDF/cache/26044.pdf.

Farrell, Henry, and Abraham L. Newman. 2019. "Weaponized Interdependence: How Global Economic Networks Shape State Coercion." *International Security* 44 (1): 42–79. https://doi.org/10.1162/isec_a_00351.

Fearon, James D., and David D. Laitin. 2003. "Ethnicity, Insurgency, and Civil War." *American Political Science Review* 97 (1): 75–90. https://doi.org/10.1017/S0003055403000534.

Fortna, Virginia Page. 2008. *Does Peacekeeping Work? Shaping Belligerents' Choices After Civil War*. Princeton, NJ: Princeton University Press.

Freund, Caroline, and Emanuel Ornelas. 2010. "Regional Trade Agreements." *Annual Review*

of Economics 2 (1): 139–66. https://doi.org/10.1146/annurev.economics.102308.124455.

Giles, Keir. 2019. *Moscow Rules: What Drives Russia to Confront the West*. Washington, DC: Brookings Institution Press.

Helleiner, Eric. 2014. *The Status Quo Crisis: Global Financial Governance After the 2008 Meltdown*. Oxford: Oxford University Press.

Hirschman, Albert O. 1945. *National Power and the Structure of Foreign Trade*. Berkeley, CA: University of California Press.

Hoekman, Bernard, and Michel Kostecki. 2009. *The Political Economy of the World Trading System*. 3rd ed. Oxford: Oxford University Press.

Hoekman, Bernard, and Petros C. Mavroidis. 2015. "WTO 'à La Carte' or 'Menu Du Jour'? Assessing the Case for Plurilateral Agreements." *European Journal of International Law* 26 (2): 319–43. https://doi.org/10.1093/ejil/chv024.

Höffler, Anke, John Heisey, and Måns Söderbom. 2011. "Peacekeeping and the Duration of Peace After Civil War." *World Development* 39 (10): 1830–43. https://doi.org/10.1016/j.worlddev.2011.03.005.

Hofmann, Claudia, Alberto Osnago, and Michele Ruta. 2017. "Horizontal Depth: A New Database on the Content of Preferential Trade Agreements." Policy Research Working Paper. World Bank.

Horn, Henrik, Petros C. Mavroidis, and André Sapir. 2010. "Beyond the WTO? An Anatomy of EU and US Preferential Trade Agreements." *The World Economy* 33 (11): 1565–88. https://doi.org/10.1111/j.1467-9701.2010.01273.x.

Howard, Philip N., Bharath Ganesh, Dimitra Liotsiou, John Kelly, and Camille François. 2018. "The IRA, Social Media and Political Polarization in the United States, 2012–2018." Oxford, UK: Project on Computational Propaganda, Oxford Internet Institute.

Huang, Yiping. 2016. "Understanding China's Belt and Road Initiative: Motivation, Framework and Assessment." *China Economic Review* 40: 314–21. https://doi.org/10.1016/j.chieco.2016.07.007.

Hurrell, Andrew. 2006. "Hegemony, Liberalism and Global Order: What Space for Would-Be Great Powers?" *International Affairs* 82 (1): 1–19. https://doi.org/10.1111/j.1468-2346.2006.00512.x.

Jackson, John H. 1997. *The World Trading System: Law and Policy of International Economic Relations*. 2nd ed. Cambridge, MA: MIT Press.

Jaffrelot, Christophe. 2019. *Modi's India: Hindu Nationalism and the Rise of Ethnic Democracy*. Princeton, NJ: Princeton University Press.

Jones, Erik. 2019. *The Economic Crisis and the European Union*. Oxford: Oxford University Press.

Kalkman, Jeroen. 2020. "Military Spending and Democracy: A Review." *Defence and Peace Economics* 31 (4): 389–408. https://doi.org/10.1080/10242694.2019.1632575.

Kharraz, Amin, Sajjad Arshad, Collin Mulliner, William Robertson, and Engin Kirda. 2016. "UNVEIL: A Large-Scale, Automated Approach to Detecting Ransomware." In *Proceedings of the 25th USENIX Security Symposium*, 757–72. Austin, TX: USENIX Association.

Lederman, Daniel, William F. Maloney, and Luis Servén. 2005. *Lessons from NAFTA for Latin America and the Caribbean*. Washington, DC: World Bank.

Levitsky, Steven, and Daniel Ziblatt. 2018. *How Democracies Die*. New York, NY: Crown.
Limão, Nuno. 2006. "Preferential Trade Agreements as Stumbling Blocks for Multilateral Trade Liberalization: Evidence for the United States." *American Economic Review* 96 (3): 896–914. https://doi.org/10.1257/aer.96.3.896.
Luttwak, Edward N. 1990. "From Geopolitics to Geo-Economics: Logic of Conflict, Grammar of Commerce." *The National Interest*, no. 20: 17–23.
Mattoo, Aaditya, Nadia Rocha, and Michele Ruta, eds. 2020. *Handbook of Deep Trade Agreements*. Washington, DC: World Bank.
McIntosh, Tyler, Byungkyu Chae, Brian Jaeger, and William H. Hsu. 2021. "Ransomware Mitigation in the Modern Era: A Comprehensive Review, Research Challenges, and Future Directions." *ACM Computing Surveys* 54 (9): 1–36. https://doi.org/10.1145/3479393.
Ministerio de Relaciones Exteriores, Comercio Internacional y Culto (Argentina). 2024. "Mercosur Total Trade." Presentation. https://cancilleria.gob.ar/userfiles/ut/ppt_mercosur-_270624_english_.pdf.
Nasr, Vali. 2007. *The Shia Revival: How Conflicts Within Islam Will Shape the Future*. New York: W. W. Norton & Company.
National Consortium for the Study of Terrorism and Responses to Terrorism (START). 2023. "Global Terrorism Database (GTD)." College Park, MD: Dataset.
Nayyar, Deepak, and Gaurav Nayyar. 2024. "Made in India: Industrial Policy in a Changing World." *Journal of Industry, Competition and Trade* 24 (1): 1–27. https://doi.org/10.1007/s10842-024-00417-6.
Norris, Pippa, and Ronald Inglehart. 2019. *Cultural Backlash: Trump, Brexit, and Authoritarian Populism*. Cambridge: Cambridge University Press. https://doi.org/10.1017/9781108595841.
Nye, Joseph S. 2004. *Soft Power: The Means to Success in World Politics*. New York: PublicAffairs.
Organisation of Islamic Cooperation. n.d. "Member States." Official website. https://www.oic-oci.org/states/?lan=en.
Osnago, Alberto, Nadia Rocha, and Michele Ruta. 2018. "Deep Trade Agreements and Vertical FDI: The Devil Is in the Details." *Canadian Journal of Economics* 51 (4): 1513–42. https://doi.org/10.1111/caje.12367.
Passas, Nikos. 2003. "Informal Value Transfer Systems, Terrorism and Money Laundering." Washington, DC: National Institute of Justice, U.S. Department of Justice.
Pettit, Timothy J., Joseph Fiksel, and Keely L. Croxton. 2010. "Ensuring Supply Chain Resilience: Development of a Conceptual Framework." *Journal of Business Logistics* 31 (1): 1–21. https://doi.org/10.1002/j.2158-1592.2010.tb00125.x.
Pew Research Center. 2015. "The Future of World Religions: Population Growth Projections, 2010–2050." Washington, DC: Pew Research Center. https://assets.pewresearch.org/wp-content/uploads/sites/11/2015/03/PF_15.04.02_ProjectionsFullReport.pdf.
Putnam, Robert D. 2000. *Bowling Alone: The Collapse and Revival of American Community*. New York, NY: Simon & Schuster.
Raleigh, Clionadh, Andrew Linke, Håvard Hegre, and Joakim Karlsen. 2010. "Introducing ACLED: An Armed Conflict Location and Event Dataset." *Journal of Peace Research* 47

(5): 651–60. https://doi.org/10.1177/0022343310378914.
Ravenhill, John. 2010. "The 'New East Asian Regionalism': A Political Domino Effect." *Review of International Political Economy* 17 (2): 178–208. https://doi.org/10.1080/09692290903426849.
Rose, Andrew K. 2004. "Do We Really Know That the WTO Increases Trade?" *American Economic Review* 94 (1): 98–114. https://doi.org/10.1257/000282804322970724.
Ruggie, John Gerard. 1982. "International Regimes, Transactions, and Change: Embedded Liberalism in the Postwar Economic Order." *International Organization* 36 (2): 379–415.
Segal, Adam. 2016. *The Hacked World Order: How Nations Fight, Trade, Maneuver, and Manipulate in the Digital Age*. New York, NY: PublicAffairs.
Shambaugh, David. 2013. *China Goes Global: The Partial Power*. Oxford: Oxford University Press.
Sheffi, Yossi. 2005. *The Resilient Enterprise: Overcoming Vulnerability for Competitive Advantage*. Cambridge, MA: MIT Press.
Subramanian, Arvind, and Shang-Jin Wei. 2007. "The WTO Promotes Trade, Strongly but Unevenly." *Journal of International Economics* 72 (1): 151–75. https://doi.org/10.1016/j.jinteco.2006.07.007.
Tang, Christopher S. 2006. "Perspectives in Supply Chain Risk Management." *International Journal of Production Economics* 103 (2): 451–88. https://doi.org/10.1016/j.ijpe.2005.12.006.
Toft, Monica Duffy. 2007. "Getting Religion? The Puzzling Case of Islam and Civil War." *International Security* 31 (4): 97–131. https://doi.org/10.1162/isec.2007.31.4.97.
Tollefsen, Andreas Forø, and Halvard Buhaug. 2015. "Insurgency and Inaccessibility." *International Studies Review* 17 (1): 6–25. https://doi.org/10.1111/misr.12215.
Trefler, Daniel. 2004. "The Long and Short of the Canada–U.S. Free Trade Agreement." *American Economic Review* 94 (4): 870–95. https://doi.org/10.1257/0002828042002633.
United Nations Economic Commission for Africa. 2016. "Assessing Regional Integration in Africa VII: Innovation, Competitiveness and Regional Integration." Addis Ababa: UNECA.
———. 2024. "African Countries Trading More Outside the Continent Than Amongst Themselves, ECA Report." ECA story. https://www.uneca.org/stories/african-countries-trading-more-outside-the-continent-than-amongst-themselves%2C-eca-report.
Viner, Jacob. 1950. *The Customs Union Issue*. New York: Carnegie Endowment for International Peace.
Voeten, Erik, Anton Strezhnev, and Michael Bailey. 2009. "Voting in the United Nations General Assembly." *Harvard Dataverse*. https://doi.org/10.7910/DVN/LEJUQZ.
Walker, Christopher. 2018. "What Is 'Sharp Power'?" *Journal of Democracy* 29 (3): 9–23. https://doi.org/10.1353/jod.2018.0041.
Walker, Christopher, and Jessica Ludwig. 2017. "The Meaning of Sharp Power: How Authoritarian States Project Influence." *Foreign Affairs*.
Walter, Barbara F. 2022. *How Civil Wars Start: And How to Stop Them*. New York, NY: Crown.
Warin, Thierry. 2024. "Disinformation in the Digital Age: Impacts on Democracy and Strategies for Mitigation." CIRANO Papers 2024PR-03. Montréal, QC: CIRANO. https:

//doi.org/10.54932/GQWB1497.