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THE ROLE OF CROSS-COUNTRY TRADE PARTNERSHIPS IN STRENGTHENING GLOBAL MARKET COMPETITIVENESS

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Abstract

This study examines the role of cross-country trade partnerships in strengthening global market competitiveness through an empirical and theoretical analysis covering the period 2016–2021. Using a quantitative research design that integrates static fixed-effects and dynamic autoregressive distributed lag (ARDL) error correction models, the study evaluates how the depth of trade partnerships, institutional quality, foreign direct investment (FDI) inflows, and trade openness collectively influence the Global Competitiveness Index (GCI). The results demonstrate that trade partnership depth has a significant and positive impact on competitiveness ($\beta = 0.312$, $p < 0.01$), indicating that economies with deeper, rule-based trade frameworks achieve greater productivity, innovation, and efficiency gains. Institutional quality is found to amplify this relationship by reinforcing regulatory stability, transparency, and enforcement capacity, thereby facilitating the effective transmission of trade-related benefits. The dynamic estimations reveal that while short-run effects are positive but modest, long-run relationships remain stable and substantial, confirming the delayed yet enduring impact of policy-driven trade integration. Furthermore, FDI inflows and export diversification are identified as key mediating variables that strengthen competitiveness by promoting technological diffusion and economic resilience. Regional analysis indicates that the European Union (EU) and ASEAN exhibit the strongest trade–competitiveness linkages due to institutional maturity and integrated governance, whereas the African Continental Free Trade Area (AfCFTA) shows emerging but moderate effects constrained by infrastructural and regulatory limitations. The study concludes that deep, inclusive, and institutionally anchored trade partnerships serve as the cornerstone of sustainable global competitiveness. It recommends that policymakers pursue comprehensive trade frameworks complemented by institutional reforms, innovation policies, and investment facilitation strategies to maximize the economic benefits of global integration. This research contributes to existing literature by providing empirical validation for the synergistic role of trade depth, institutional quality, and investment in shaping competitiveness, offering a replicable analytical model for future policy and academic applications.

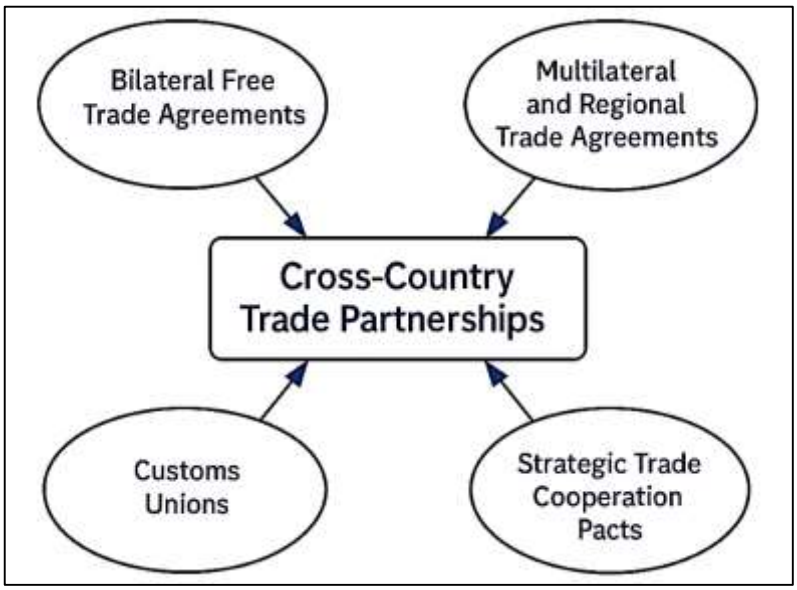
Keywords

International Trade Cooperation; Global Market Competitiveness; Economic Integration; Trade Policy and Governance; Strategic Partnerships;

INTRODUCTION

International trade partnerships refer to formal or informal agreements, alliances, or frameworks through which two or more sovereign states coordinate aspects of their trade relations, such as tariff schedules, regulatory harmonization, investment provisions, and dispute-settlement mechanisms to reduce barriers to cross-border exchange and foster deeper economic cooperation (Auboin & Ruta, 2013). In broader sense, cross-country trade partnerships include bilateral free trade agreements (FTAs), multilateral and regional trade agreements (RTAs), customs unions, and strategic trade cooperation pacts. The fundamental rationale is to reduce friction in trade flows, stabilize expectations, and enable more efficient allocation of comparative advantage among partners. Because trade partnerships often embed not only tariff concessions but also rules on services, intellectual property, standards, and investment, they serve as platforms for deeper economic integration (Rose, 1991). At the international scale, such partnerships do not merely facilitate one-to-one trade gains; they reconfigure global trade networks and competitiveness hierarchies. For instance, preferential trade agreements contribute to reorganization of trade flows not only among signatories but also influencing third-country dynamics (Frontiers, 2018). Thus, understanding how cross-country trade partnerships shape market competitiveness is central to grasping the architecture of the contemporary global economy (Serrano & Boguñá, 2003).

Figure 1: International Trade Partnerships



The international significance of trade partnerships lies in their capacity to support specialization, scale economies, and dynamic comparative advantage. Classical trade theory emphasizes how countries gain from trade by specializing in goods for which they hold a comparative cost advantage, reaping higher aggregate welfare. However, modern trade frameworks stress that trade partnerships amplify these gains through dynamic effects: knowledge diffusion, investment flows, and productivity spillovers (Pentecôte et al., 2014). In particular, trade agreements can reduce trade costs (tariffs, non-tariff barriers, regulatory divergence), thereby enabling firms to access larger markets and exploit economies of scale. Moreover, embedding rules for intellectual property, service liberalization, and harmonized standards allows deeper integration of value chains. Empirical studies show that tariff cuts under trade agreements exert pro-competitive effects: they stimulate new entrants, lower markups, and drive competition among exporters (Pentecôte et al., 2014). In effect, trade partnerships catalyze structural transformation and institutional upgrading, thereby reinforcing national competitiveness in a global context (Shrawan & Dubey, 2021).

While theory posits multiple channels through which trade partnerships enhance competitiveness, the empirical evidence spans firm-level, regional, and global scales. At firm level, data from low- and middle-income countries show that exporters operating under tariff reductions in trade agreements

experience lower price-cost markups and higher entry rates, indicating more intense competition and productive reallocation. Furthermore, regional trade agreements have third-party spillover effects: non-member exporters can benefit when deep RTAs enhance connectivity and reduce overall trade costs in the region (Azcona, 2021). In the domain of value chains, studies demonstrate that preferential trade agreements have to be designed with global value chain (GVC) considerations in mind firms embedded in GVCs tend to push for "deep" integration within agreements (Potluri et al., 2020). The depth of agreements—extent of regulatory alignment and provisions beyond tariffsoften correlates with stronger outcomes in competitiveness (Önder & Yilmazkuday, 2016). Additionally, assessments of business expansion under FTAs such as those of the EU show that trade agreements correlate with increased foreign direct investment and cross-border business growth (Liao & Santacreu, 2015). The mosaic of empirical findings thus affirms that trade partnerships matter—not only through tariff liberalization but through structural, competitive, and value chain mechanisms.

Figure 2: Trade Realignment Trends

Notwithstanding their potential, trade partnerships operate within a complex global environment, shaped by geopolitical shifts, fragmentation pressures, and institutional constraints. The resurgence of geopolitical rivalry, de-risking strategies, and re-shoring trends have led to reconfiguration of trade toward geopolitically closer partners (Önder & Yilmazkuday, 2016). In many cases, countries prioritize trade partnerships with strategic allies, giving rise to a fragmented architecture of trade blocs (Kollmann, 2018). Simultaneously, erosion of multilateral norms and challenges to the WTO's dispute resolution system push states to lean more heavily on bilateral and regional agreements (Azcona, 2021; Rezaul, 2021). The fragmentation of world trade may thus reduce the benefits of more inclusive trade regimes, challenging smaller economies and raising coordination costs. Moreover, as trade and production become more digital, the costs of regulatory divergence in e-commerce, data flows, and cross-border services provision grow (Danish & Zafor, 2022; Shrawan & Dubey, 2021). In such a context, trade partnerships must contend with balancing sovereignty, strategic alignment, and efficient market integration—factors that influence how effectively they can bolster competitiveness.

In the interplay of competitiveness, trade partnerships act as instruments of strategic alignment and network formation. From the viewpoint of network economics, trade partnerships help countries embed into desirable clusters of high-competitiveness, creating positive network externalities. Studies on international trade networks show that clusters of trade communities often correlate with regional trade agreements and preferential ties. When countries join trade partnerships, they may transition into more connected trade communities, thereby gaining access to central nodes, reducing isolation, and capturing spillover advantages (Azcona, 2021; Danish & Kamrul, 2022). In effect, trade partnerships help rewire the topology of global trade, enabling member states to benefit from collective strength,

shared standardization, and integrated value chains. From a strategic perspective, nations negotiate trade partnerships not merely for static gains but to leverage positioning in global value chains, access networks of innovation, and signal credibility to investors. The resulting alignment strengthens global market competitiveness not just of individual firms but of national systems of production and trade.

Trade partnerships rest on institutional and policy foundations that determine their efficacy. Well-crafted rules, dispute-settlement mechanisms, regulatory harmonization, and enforcement institutions strengthen the credibility and predictability of partnerships (Roy, 2016). The design of agreements whether "shallow" (focusing on tariffs) or "deep" (including investment, standards, services, regulatory cooperation)—affects their capacity to deliver competitive gains. Also, complementary domestic policies such as infrastructure investment, capacity building for SMEs, institutional quality, and human capital development mediate how much a country can extract competitive gains from partnerships. The empirical record shows that SMEs benefit disproportionately through capacity-building provisions embedded in trade agreements, as such measures reduce the fixed costs of entering international markets. Moreover, effective institutions ensure that trade rules are enforced, that dispute mechanisms function, and that regulatory dialogues are sustained over time, which underpins the stability necessary for competitiveness.

The primary objective of this quantitative analysis is to empirically measure the influence of cross-country trade partnerships on global market competitiveness through the systematic use of statistical and econometric methods applied to measurable economic indicators. This study aims to quantify the extent to which bilateral, regional, and multilateral trade agreements contribute to enhancing a nation's competitive performance by examining relationships between variables such as trade volume, export diversification, foreign direct investment inflows, industrial productivity, and global competitiveness index rankings. By employing correlation and multiple regression analyses, the research seeks to determine the strength, direction, and magnitude of the impact that trade partnership intensity exerts on competitiveness outcomes. The analysis will incorporate both cross-sectional and longitudinal data collected from credible global institutions, including the World Bank, International Monetary Fund, and World Trade Organization, ensuring that findings are grounded in robust empirical evidence. Furthermore, the study intends to differentiate between shallow trade agreements focused primarily on tariff reduction and deep partnerships encompassing broader dimensions such as investment protection, intellectual property rights, digital trade, and services liberalization, to evaluate which structural features produce greater quantitative gains in competitiveness. Control variables such as economic size, governance efficiency, infrastructure development, and institutional stability will be integrated into the model to isolate the specific effects of trade partnerships from other macroeconomic determinants. The objective extends to constructing a predictive econometric model that estimates how incremental changes in the intensity and design of trade partnerships contribute to measurable improvements in global competitiveness indicators. By translating theoretical frameworks into statistical models, the study endeavors to provide precise numerical insights into how cross-country economic cooperation functions as a measurable driver of global market performance, offering an objective, data-driven understanding of the causal relationship between trade partnerships and competitive advantage in the international economy.

LITERATURE REVIEW

The literature on cross-country trade partnerships and global market competitiveness is extensive and multidisciplinary, spanning international economics, development studies, global management, and political economy. The purpose of this literature review is to critically synthesize the theoretical frameworks, empirical findings, and methodological approaches that have shaped scholarly understanding of how trade partnerships influence competitiveness across nations. This section provides a structured examination of key debates surrounding trade liberalization, institutional cooperation, and the evolution of multilateralism, as well as the quantifiable impacts of trade integration on economic growth, innovation, and productivity. A central concern in the literature is how the depth and scope of trade agreements—ranging from simple tariff reductions to complex regulatory harmonization—affect national and regional competitiveness. Scholars have explored the interplay between trade partnership structures, industrial policy, and technological upgrading, identifying that competitive advantages increasingly stem from knowledge transfer, value chain

integration, and coordinated trade governance rather than traditional tariff adjustments. This review also highlights the growing body of quantitative research that employs econometric modeling, gravity equations, and panel data analysis to test causal relationships between trade agreements and competitive outcomes. The evolution of empirical evidence reflects the transition from early models of comparative advantage to contemporary approaches that emphasize network connectivity, innovation capacity, and institutional quality as mediating variables in competitiveness. Moreover, the literature recognizes that trade partnerships have uneven impacts across economies—benefiting those with strong institutional frameworks and advanced industries while posing challenges for less diversified or policy-constrained nations. In organizing this review, attention is given to both conceptual and empirical dimensions, integrating insights from cross-regional studies, global value chain analyses, and institutional economics. The section is divided into thematic subsections, each focusing on a specific aspect of the relationship between trade partnerships and competitiveness. Together, these themes provide a coherent analytical foundation for understanding the mechanisms through which international trade cooperation shapes global market performance.

Trade Partnerships and Competitiveness

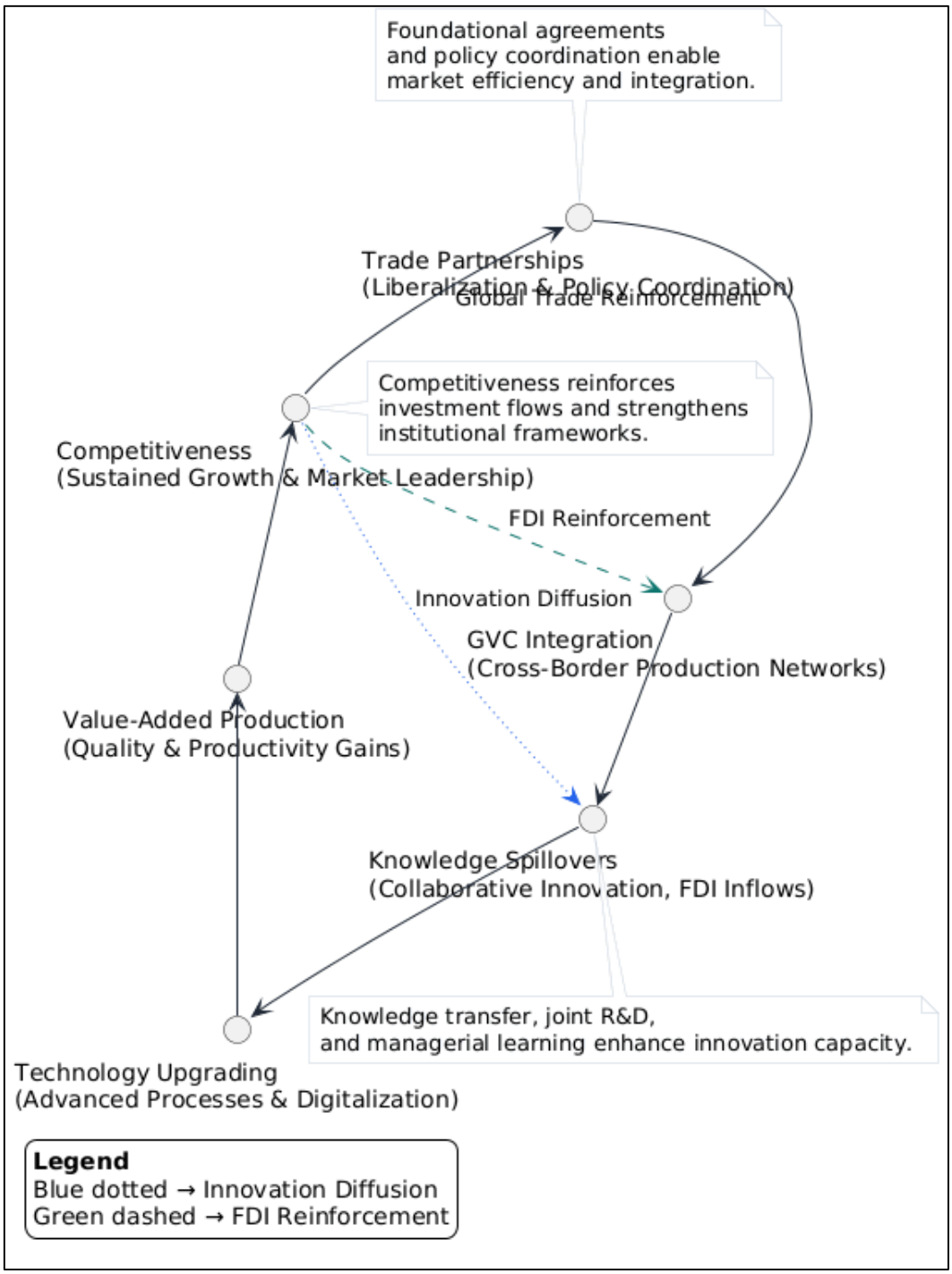
Trade partnerships have long been viewed as key mechanisms for enhancing global market competitiveness by stimulating market efficiency, reducing trade barriers, and promoting innovation through increased international integration. The foundational economic logic underpinning this argument is grounded in the notion that collaborative trade agreements facilitate efficient resource allocation, allowing nations to specialize based on comparative advantage and exploit economies of scale (Duval et al., 2016; Zouri, 2020). Modern research builds upon this premise by emphasizing how trade partnerships generate dynamic gains through technology diffusion, industrial diversification, and increased foreign direct investment. Empirical analyses further indicate that partnerships encourage productivity growth by fostering competition and incentivizing domestic firms to upgrade production quality to meet international standards (Jahid, 2022; Roy, 2016). Additionally, these collaborations often result in enhanced export performance and industrial efficiency as firms gain access to larger markets and engage in knowledge exchanges with international partners . Overall, the convergence of theoretical and empirical insights supports the argument that trade partnerships act as catalysts for structural transformation and competitiveness by enabling resource efficiency, stimulating innovation, and reinforcing institutional capacities across participating nations (Liao & Santacreu, 2015; Ismail, 2022)

The depth and structure of trade agreements significantly influence the extent of their impact on competitiveness. Traditional or "shallow" trade agreements primarily focused on tariff reduction, but contemporary "deep" agreements integrate behind-the-border measures, including investment protection, intellectual property rights, and regulatory harmonization (Duval et al., 2016; Hossen & Atiqur, 2022). Studies comparing these frameworks reveal that deeper agreements produce more substantial and sustained improvements in competitiveness, as they address non-tariff barriers and encourage structural coherence among member economies. Institutional quality also determines how effectively nations translate trade commitments into tangible competitive advantages. Strong governance systems, transparent regulatory environments, and reliable dispute-settlement mechanisms tend to amplify the benefits of trade partnerships by ensuring compliance and investor. Furthermore, the inclusion of provisions for services liberalization, environmental protection, and digital trade strengthens the strategic role of trade agreements in contemporary economic ecosystems (Kamrul & Omar, 2022; Pentecôte et al., 2014). These institutional mechanisms underline that competitiveness outcomes are not automatic but are contingent upon the degree of policy coordination, rule enforcement, and domestic institutional readiness embedded within trade frameworks.

Trade partnerships also serve as critical vehicles for integrating nations into global value chains (GVCs), thereby enhancing their participation in international production networks and contributing to technological upgrading. Integration into GVCs enables countries to benefit from knowledge spillovers, foreign investment, and improved logistics infrastructure, ultimately leading to higher value-added production (Razia, 2022; Zouri, 2020). Deep preferential trade agreements strengthen these linkages by standardizing rules of origin, facilitating intermediate goods trade, and harmonizing production standards. Empirical studies show that countries participating in GVC-oriented agreements

experience accelerated industrial diversification and greater productivity growth, particularly in export-oriented manufacturing sectors. Additionally, trade partnerships contribute to the diffusion of advanced technologies through joint ventures, licensing agreements, and collaborative research initiatives, reinforcing innovation-driven competitiveness (Begović & Kreso, 2017; Sadia, 2022). However, the benefits of GVC participation are mediated by national absorptive capacities, infrastructure quality, and the adaptability of domestic firms to new production and technological standards. Thus, trade partnerships function not only as conduits of trade liberalization but as instruments that transform competitive structures through vertical specialization and technological alignment across borders (Zouri, 2020).

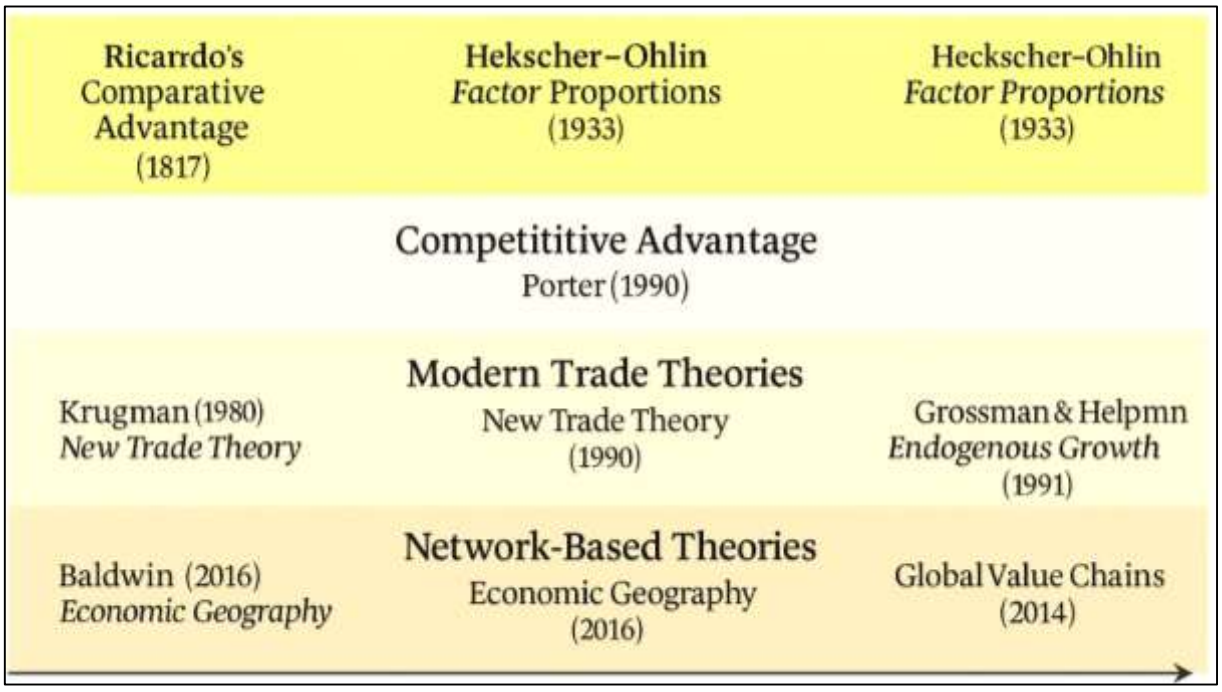
Figure 3: Trade Partnerships and Competitiveness



Theoretical Frameworks Underpinning Trade Partnerships

Classical and factor-endowment theories provide the foundational logic for why countries form trade partnerships and how such arrangements can shape competitiveness. Ricardo's comparative advantage frames trade as a vehicle for allocating production according to relative opportunity costs, yielding efficiency gains that scale when barriers are lowered through bilateral or multilateral cooperation (Roy, 2016). The Heckscher–Ohlin framework extends this reasoning by predicting trade patterns from relative factor abundance, clarifying why partnerships among differently endowed economies intensify inter-industry exchange. These models establish the baseline prediction that liberalization embedded in agreements reallocates resources toward sectors of comparative strength, raising aggregate welfare. The addition of specific-factors insights explains distributional consequences within countries, which in turn helps account for domestic political coalitions that support or resist agreements. The competitive advantage of nations introduces an explicitly micro-foundational perspective: firm rivalry, factor conditions, demand sophistication, and cluster dynamics interact with cross-border openness to amplify productivity upgrades. Together, these frameworks imply that partnerships are not merely tariff bargains but institutional devices that compress trade costs, sharpen competitive pressure, and catalyze specialization consistent with underlying capabilities . In this classical–structural synthesis, trade agreements operate as commitment technologies that stabilize expectations, reduce uncertainty, and expand feasible sets for specialization and exchange, thereby supporting cumulative productivity effects predicted by open-economy growth models.

Figure 4: Evolution of Trade Theories Timeline



Modern trade theory refines these foundations by incorporating increasing returns, imperfect competition, firm heterogeneity, and knowledge-driven growth, all of which are central to the competitiveness effects of partnerships. New trade theory shows that larger integrated markets created by agreements permit scale economies and variety expansion, lowering average costs and raising consumer surplus (Duval et al., 2016). Endogenous growth models then connect openness to knowledge diffusion and innovation incentives, positioning trade partnerships as channels for cross-border learning and R&D complementarities (Soyres & Gaillard, 2022). The Melitz (2003) framework introduces firm-level selection: reductions in variable and fixed trade costs reallocate market shares toward more productive exporters, a mechanism frequently invoked to explain pro-competitive outcomes under free trade agreements. Strategic trade theory adds conditions under which policy commitments embedded in partnerships may shift rents in industries with economies of scale and

learning-by-doing (Ćorić & Pugh, 2010), although the feasibility of such strategies depends on credible rules that limit beggar-thy-neighbor outcomes. New economic geography further emphasizes how market access and agglomeration interact: partnerships alter "home-market" effects and the spatial distribution of industry, influencing regional competitiveness through localization economies and transport-cost gradients. Across these strands, the common inference is that the design of agreements what costs are reduced, what standards are harmonized, and which coordination problems are solved mediates the magnitude and distribution of competitiveness gains.

Moreover, Global value chain (GVC) and network-based theories articulate the channels through which **deep** partnerships shape competitiveness by reorganizing production across borders. GVC analytics measure backward and forward linkages and trace value-added to capture how rules of origin, mutual recognition, and standards alignment restructure sourcing and market-serving strategies (Freund & Weinhold, 2004). Deep agreements facilitate fine-slicing of production through predictable customs procedures, interoperability of regulations, and protections for intangible assets, thereby lowering coordination costs and enabling vertical specialization (Eckwert & Broll, 1999). Network trade perspectives view the global economy as a weighted graph in which partnerships alter path lengths, centrality, and community structure; repositioning within this network affects access to intermediate inputs, knowledge flows, and demand hubs that underpin export sophistication and price-cost margins (Rose, 1991). These lenses integrate with firm-heterogeneity results: selection and learning-by-exporting intensify when firms can plug into high-quality supplier–buyer networks secured by predictable cross-border rules (Dellas & Zilberfarb, 1993). Together, GVC and network theories explain why the competitiveness payoffs of partnerships frequently manifest as process and functional upgrading, greater product complexity, and resilience through diversified sourcing, all contingent on agreement depth and institutional execution.

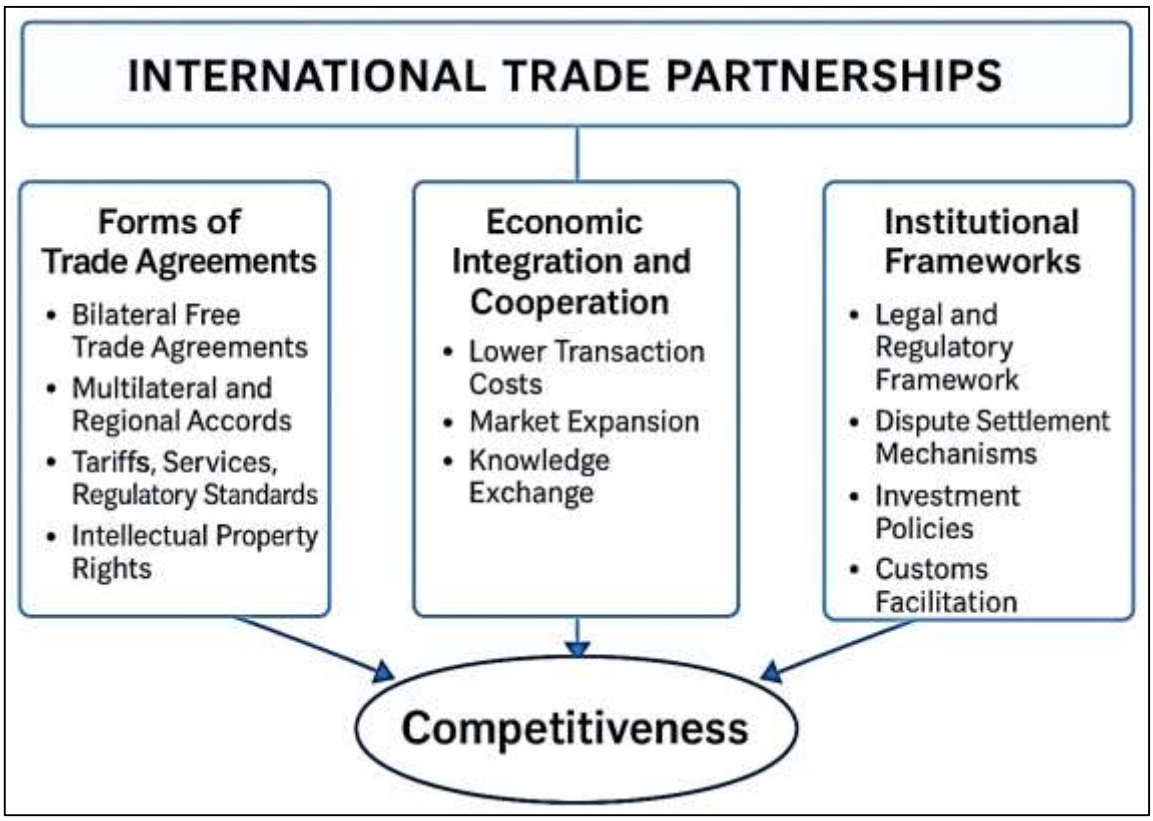
International Trade Partnerships

International trade partnerships represent structured institutional mechanisms designed to promote economic cooperation, market integration, and competitiveness among nations. They encompass formal agreements that establish the legal and regulatory framework through which countries engage in cross-border trade and investment. These arrangements range from bilateral free trade agreements (FTAs) to multilateral and regional trade accords that govern tariffs, services, intellectual property rights, and regulatory standards. The essence of trade partnerships lies in their ability to lower transaction costs, harmonize trade policies, and enhance predictability in international commerce (Auboin & Ruta, 2013). Foundational theories, including Ricardo's principle of comparative advantage and the Heckscher–Ohlin factor endowment model, demonstrate that nations gain from trade by specializing in sectors where they possess relative efficiency. Modern frameworks such as the New Trade Theory and the New Economic Geography expand upon this logic by incorporating economies of scale, firm heterogeneity, and location advantages as drivers of competitiveness within trade agreements. These theoretical advancements illustrate that partnerships are not merely policy instruments but catalysts for structural transformation and long-term productivity enhancement through knowledge exchange, market expansion, and technological upgrading (Arribas et al., 2009).

The formation and evolution of trade partnerships have undergone significant transformation, shifting from multilateral liberalization to more regionally focused and plurilateral arrangements. The post–World War II establishment of the General Agreement on Tariffs and Trade (GATT) and later the World Trade Organization (WTO) institutionalized a rules-based global trading order that promoted transparency, dispute resolution, and progressive liberalization (Nicita, 2013). However, as the multilateral system encountered negotiation fatigue, nations increasingly turned toward bilateral and regional trade agreements to achieve faster liberalization and policy alignment (Caporale & Doroodian, 1994). These regional and cross-regional partnerships—such as the European Union (EU), the Association of Southeast Asian Nations (ASEAN), the United States–Mexico–Canada Agreement (USMCA), and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)—have deepened integration through regulatory cooperation, customs facilitation, and coordinated investment policies. The institutional depth of these agreements enables more effective governance of global value chains (GVCs) and greater participation of firms in international production networks. The interplay between trade facilitation and institutional design reinforces competitiveness

by lowering trade frictions, increasing economies of scale, and enhancing global market access for participating economies (Dellas & Zilberfarb, 1993).

Figure 5: International Trade Partnerships



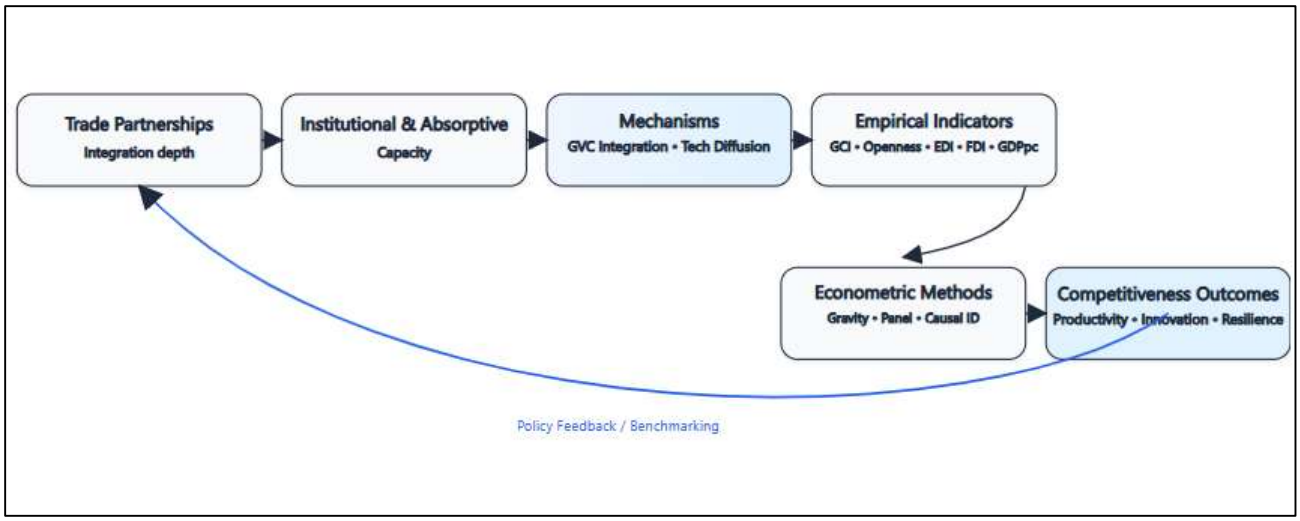
In contemporary global trade dynamics, partnerships serve not only as conduits for market access but also as frameworks for policy harmonization and institutional modernization. Deep trade agreements incorporate provisions addressing investment protection, intellectual property enforcement, competition policy, labor standards, and environmental sustainability, extending well beyond traditional tariff elimination (Rose & Wincoop, 2001). Empirical analyses grounded in structural gravity and institutional economics reveal that these non-tariff measures significantly enhance the effectiveness of trade partnerships in driving competitiveness by reducing policy uncertainty and improving the quality of governance. The inclusion of transparent dispute-settlement mechanisms and mutual recognition of standards fosters trust among partners, thereby lowering information asymmetry and transaction costs for firms. Furthermore, the digitalization of trade—supported by e-commerce frameworks and cross-border data flow agreements—has transformed the structure of international trade, allowing small and medium enterprises (SMEs) to participate in global markets more efficiently (Dellas & Zilberfarb, 1993). The institutional coherence of trade partnerships thus acts as a determinant of long-term competitiveness, ensuring that economic integration translates into tangible productivity and innovation gains across sectors (Auboin & Ruta, 2013).

Empirical Measures of Competitiveness

Empirical measures of competitiveness provide the quantitative foundation through which the relationship between trade partnerships and national economic performance can be objectively assessed. Competitiveness, a multifaceted concept encompassing productivity, innovation, and institutional effectiveness, is often operationalized using standardized indicators that allow cross-country comparison and longitudinal analysis. Among the most widely utilized tools is the Global Competitiveness Index (GCI), developed by the World Economic Forum (WEF), which integrates over a hundred variables across twelve pillars including infrastructure, macroeconomic stability, market efficiency, and innovation capability—to capture a holistic representation of a nation's competitive capacity (Sahoo & Dash, 2016). This index provides a composite framework that reflects both the

structural and policy dimensions of competitiveness, allowing researchers to compare the outcomes of trade partnerships across varying institutional contexts. Similarly, the Trade Openness Ratio, defined as the sum of exports and imports divided by GDP, serves as a traditional measure of a country's integration into the global economy (Broz & Werfel, 2014). Higher openness levels often correlate with stronger competitive positioning due to increased exposure to international markets, learning effects, and technology diffusion (Haddad & Pancaro, 2010). Together, these indicators form the basis for empirical assessments of how trade liberalization and partnership depth contribute to economic performance, efficiency, and resilience in global markets.

Figure 6: Empirical Measures of Competitiveness



Another critical empirical measure of competitiveness is the Export Diversification Index (EDI), which quantifies the extent to which a country's export base is broad or concentrated across products and markets (Chit et al., 2010). Economies with diversified export structures tend to exhibit higher resilience to external shocks and more sustained growth trajectories, suggesting that export diversity is both a cause and a consequence of enhanced competitiveness. Trade partnerships can accelerate diversification by facilitating access to new markets, stimulating innovation, and encouraging firms to upgrade production toward higher value-added goods. In addition, Foreign Direct Investment (FDI) inflows serve as a complementary indicator, capturing the attractiveness of an economy to international investors and its integration within global value chains. FDI contributes to competitiveness through capital accumulation, technology transfer, and managerial skill enhancement, particularly in economies that maintain transparent and stable institutional environments. Similarly, GDP per capita growth functions as a broad yet essential indicator of competitiveness, reflecting aggregate improvements in productivity, consumption, and living standards (Haddad & Pancaro, 2010). The combined use of these measures enables researchers to isolate specific dimensions of competitiveness—structural, institutional, and macroeconomic—that are influenced by trade partnerships.

Quantitative measurement is essential in the empirical study of competitiveness because it provides statistical objectivity and policy comparability. Objective indicators reduce subjectivity in cross-country evaluations by relying on measurable variables that reflect real economic performance (Rajan & Subramanian, 2011). This statistical precision allows policymakers to evaluate the impact of trade partnerships not only in absolute terms but also relative to peer economies. Moreover, quantitative methods enable researchers to assess causality through econometric modeling, structural gravity equations, and panel data analyses that control for confounding factors such as institutional quality, macroeconomic stability, and demographic change (Haddad & Pancaro, 2010). Policy comparability, meanwhile, facilitates benchmarking—helping governments identify gaps between domestic performance and international best practices (Rodrik, 2010). For instance, variations in GCI scores or trade openness ratios across economies participating in similar trade agreements can signal differences in institutional capacity or reform implementation. Quantitative indicators thus serve as diagnostic

instruments for understanding the linkages between trade integration and competitiveness outcomes. By providing standardized, reproducible evidence, empirical measures transform theoretical constructs into actionable policy insights, strengthening the credibility of competitiveness assessments in the context of global trade and economic cooperation.

Shallow vs. Deep Trade Agreements

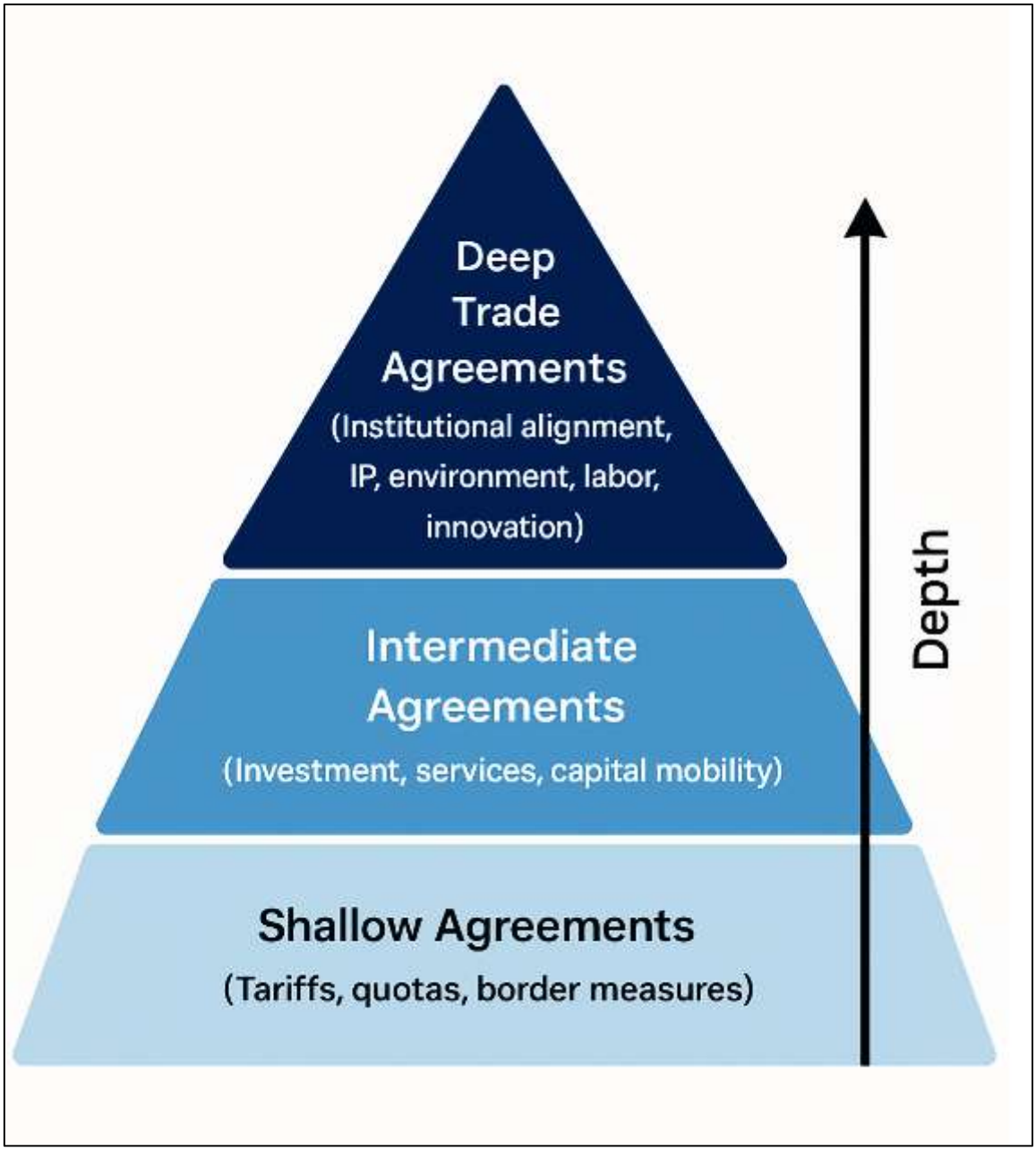
The distinction between shallow and deep trade agreements represents a central conceptual and empirical development in modern international economics. Shallow trade agreements primarily focus on the reduction or elimination of tariffs and quantitative restrictions on goods, emphasizing border measures that directly affect merchandise trade flows (Drozd et al., 2021) These agreements, common during the post–World War II liberalization era under the General Agreement on Tariffs and Trade (GATT), were designed to remove explicit barriers to trade and enhance market access through tariff concessions. Their scope, however, was limited to the "first layer" of integration—namely, border-related policies—without addressing deeper institutional or regulatory barriers that affect competitiveness and investment decisions (Potluri et al., 2020). In contrast, deep trade agreements (DTAs) go beyond tariff reduction to include behind-the-border disciplines such as regulatory coherence, investment protection, intellectual property rights (IPR), competition policy, labor standards, and environmental safeguards (Roy, 2016). Deep agreements reflect the growing complexity of global value chains and the increasing role of intangible assets in international production, where competitiveness depends not only on market access but also on institutional predictability and regulatory quality. Thus, the conceptual shift from shallow to deep integration represents an evolution from purely transactional liberalization toward systemic economic cooperation designed to reduce informational asymmetries, foster trust, and stabilize cross-border business environments (Ferracane & van der Marel, 2020).

The characteristics of deep integration encompass a comprehensive framework of policy domains that collectively aim to harmonize economic governance and institutional structures among partner nations. Regulatory coherence—central to deep agreements—entails mutual recognition of standards, technical regulations, and conformity assessment procedures that reduce compliance costs for firms and enable smoother cross-border production processes (Johnson, 2014). Investment provisions, another cornerstone of deep trade frameworks, ensure the protection of investor rights, the liberalization of capital flows, and the establishment of predictable legal environments for multinational enterprises (Potluri et al., 2020). Furthermore, clauses addressing intellectual property rights and innovation ecosystems safeguard technological assets and foster R&D collaboration among partner economies, contributing directly to innovation-based competitiveness. Labor and environmental standards embedded within deep agreements also serve to promote social sustainability by preventing "race-to-the-bottom" dynamics and aligning trade liberalization with responsible governance (Roy, 2016). The inclusion of such provisions reflects the understanding that competitiveness in the 21st century extends beyond cost efficiency to encompass institutional credibility, sustainability, and innovation capacity. Hence, deep agreements are multidimensional constructs that integrate trade liberalization with economic, social, and environmental governance.

The economic rationale for expanding beyond tariffs toward institutional alignment arises from the recognition that non-tariff barriers (NTBs) and regulatory fragmentation have become the dominant sources of trade costs in the globalized economy (Potluri et al., 2020). Traditional tariff-based liberalization has largely reached diminishing returns as most advanced economies already operate under low average tariff levels. Instead, trade frictions increasingly stem from divergent product standards, licensing requirements, customs procedures, and regulatory practices that impede participation in global value chains (Azcona, 2021). Deep integration addresses these challenges by aligning institutional frameworks, reducing administrative inefficiencies, and promoting transparency, which in turn lowers transaction costs and enhances investor confidence (Begović & Kreso, 2017). Moreover, deep trade agreements contribute to dynamic competitiveness by fostering innovation through knowledge spillovers, enabling technology transfer, and encouraging cross-border collaboration between firms and research institutions (Liao & Santacreu, 2015). The move toward deeper agreements thus reflects an economic logic rooted in the complementarity between openness and institutional quality: as markets become more integrated, the gains from trade increasingly depend

on governance efficiency and rule-based cooperation rather than tariff liberalization alone (Azcona, 2021). Therefore, the expansion from shallow to deep trade agreements signifies a paradigm shift in global economic relations—from facilitating trade transactions to institutionalizing competitiveness through structural, legal, and technological convergence.

Figure 7: Ladder of Integration Depth



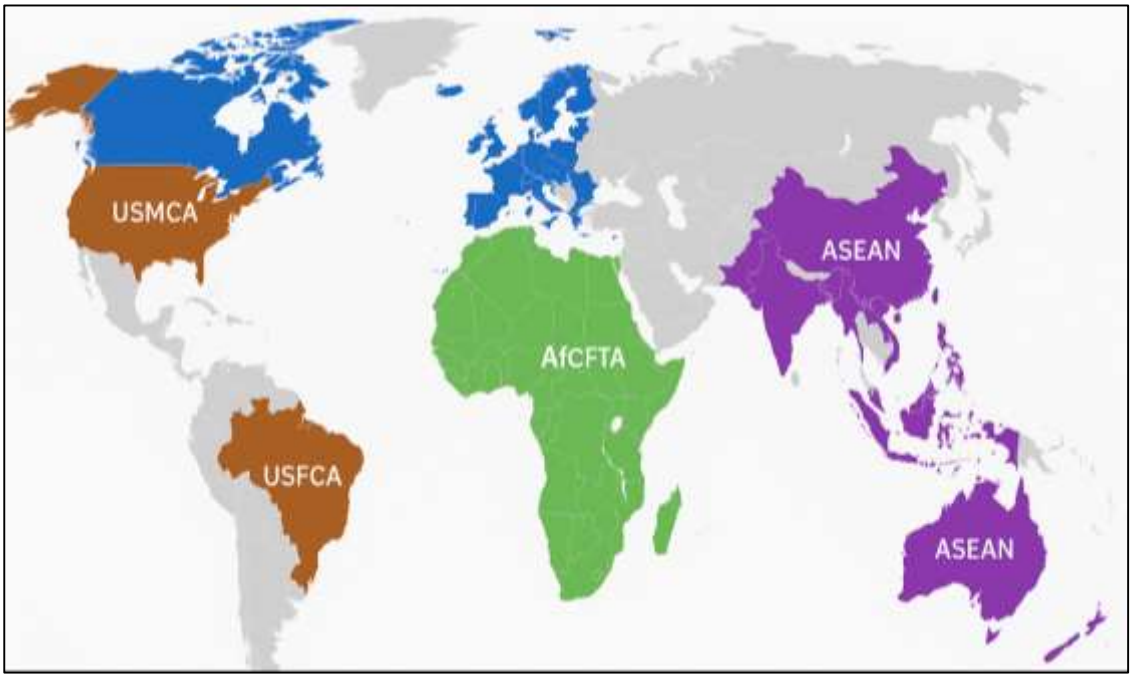
Regional Trade Blocs and Competitiveness

Regional trade blocs have become a defining feature of the contemporary global economic landscape, serving as frameworks through which countries pursue deeper integration, policy coordination, and competitiveness enhancement. These blocs—such as the European Union (EU), the Association of Southeast Asian Nations (ASEAN), the United States–Mexico–Canada Agreement (USMCA), and the African Continental Free Trade Area (AfCFTA)—constitute formal institutional arrangements aimed at liberalizing trade and harmonizing regulations among geographically proximate nations. The theoretical foundation for regionalism rests on Viner's (1950) concepts of *trade creation* and *trade diversion*, which describe how regional agreements shift trade flows by lowering barriers among members while potentially redirecting imports from more efficient non-members. Building upon this,

Balassa's (1961) theory of economic integration** outlines a continuum from preferential trade areas to full economic unions, emphasizing the progressive alignment of fiscal, monetary, and industrial policies. Empirical research shows that regional blocs contribute to competitiveness through economies of scale, resource specialization, and market expansion, enabling firms to exploit larger consumer bases and benefit from intra-regional supply chains (Baldwin, 2016; Baier & Bergstrand, 2007). Moreover, the institutional design of regional blocs—incorporating dispute settlement, competition policy, and infrastructure coordination—creates stable environments that attract investment and enhance productivity (Ferracane & van der Marel, 2020). As such, regionalism complements globalization by fostering localized clusters of competitiveness that act as engines of trade, innovation, and industrial transformation within an increasingly fragmented international economy.

The European Union (EU) remains the most advanced model of regional integration and provides extensive empirical evidence of how institutional depth drives competitiveness. The EU's single market, established through successive treaties culminating in the Maastricht and Lisbon frameworks, eliminates most internal barriers to goods, services, labor, and capital movement, achieving unprecedented economic cohesion (Duval et al., 2016). Through the harmonization of regulations, competition policy, and fiscal coordination, EU members experience reduced transaction costs, greater productivity convergence, and enhanced innovation performance (Broz & Werfel, 2014). The EU's structural funds and cohesion policies further support lagging regions, fostering inclusive competitiveness by channeling investment into infrastructure and technology. Empirical studies indicate that the single market has increased intra-EU trade by over 60% compared to pre-integration levels, with notable gains in manufacturing and high-technology sectors (Kollmann, 2018). Additionally, the European Research Area and Horizon initiatives promote collaborative innovation and R&D diffusion across borders, amplifying the bloc's global technological competitiveness (Zouri, 2020). The EU model illustrates that deep institutional integration—anchored in legal harmonization and supranational governance—translates trade openness into long-term productivity growth, industrial upgrading, and knowledge-based competitiveness.

Figure 8: Regional Trade Blocs and Competitiveness in world map



In the Asia-Pacific region, ASEAN and its affiliated agreements have emerged as dynamic examples of flexible yet effective regionalism. The ASEAN Economic Community (AEC), established in 2015, aims to create a single market and production base by harmonizing trade, investment, and regulatory policies among ten Southeast Asian economies. While the ASEAN model is less centralized than the

EU, it is characterized by "open regionalism," allowing members to pursue external trade partnerships simultaneously, thereby integrating the region into broader global value chains (Kollmann, 2018). ASEAN's success stems from its gradual, consensus-based approach to liberalization, which has facilitated industrial specialization and value-chain integration across key sectors such as electronics, automotive manufacturing, and digital services. The bloc's external agreements—such as the Regional Comprehensive Economic Partnership (RCEP)—have expanded its influence by linking ASEAN economies with major global players like China, Japan, and South Korea. Empirical evidence shows that ASEAN's intra-regional trade has grown significantly, with GVC participation rates exceeding global averages in manufacturing and services. Importantly, ASEAN demonstrates how coordination in trade facilitation, customs modernization, and investment promotion can enhance competitiveness even in a region marked by diverse economic structures and institutional capacities. Its flexible integration framework provides a pragmatic model for developing economies seeking to balance sovereignty with the efficiency gains of regional cooperation.

In North America, the evolution from NAFTA to the USMCA exemplifies how regional trade blocs adapt to technological and policy transformations to maintain competitiveness. The original North American Free Trade Agreement, implemented in 1994, substantially increased trade and investment flows between the United States, Canada, and Mexico by reducing tariffs and liberalizing cross-border investment (Duval et al., 2016). The USMCA, enacted in 2020, deepens this integration by incorporating provisions on digital trade, intellectual property, environmental protection, and labor standards—hallmarks of "deep" trade agreements. Empirical assessments reveal that North American supply chains, particularly in automotive and agricultural sectors, have become more tightly integrated, with productivity gains arising from shared technology platforms and just-in-time logistics. The USMCA's digital trade chapter promotes e-commerce and data flow liberalization, positioning the bloc as a global leader in digital competitiveness (Azcona, 2022). Furthermore, strengthened labor and environmental chapters aim to ensure that competitiveness is both sustainable and inclusive. Thus, the North American model demonstrates that adapting regional integration to emerging technological and governance challenges is essential for sustaining competitiveness in a rapidly evolving global marketplace.

Emerging frameworks such as the African Continental Free Trade Area (AfCFTA) represent the newest frontier of regionalism, designed to catalyze industrialization and competitiveness across the African continent. Officially launched in 2021, AfCFTA encompasses 54 countries and aims to create a single market for goods and services, facilitating the free movement of capital and people. By reducing tariff and non-tariff barriers, the agreement is projected to increase intra-African trade by over 50% within a decade, with substantial gains in manufacturing and agricultural sectors. The AfCFTA's long-term competitiveness potential lies in its capacity to foster regional value chains, attract foreign investment, and stimulate infrastructure connectivity. However, realizing these benefits requires addressing significant institutional challenges, including customs harmonization, logistics inefficiencies, and governance disparities across member states. The African experience underscores the principle that competitiveness derived from regional trade blocs depends not merely on market liberalization but on policy coherence, institutional development, and investment in human and physical capital. Collectively, evidence from the EU, ASEAN, USMCA, and AfCFTA confirms that regional trade blocs—through regulatory harmonization, infrastructure integration, and innovation diffusion—serve as engines of competitiveness and industrial transformation within the broader global trading system.

Research Direction

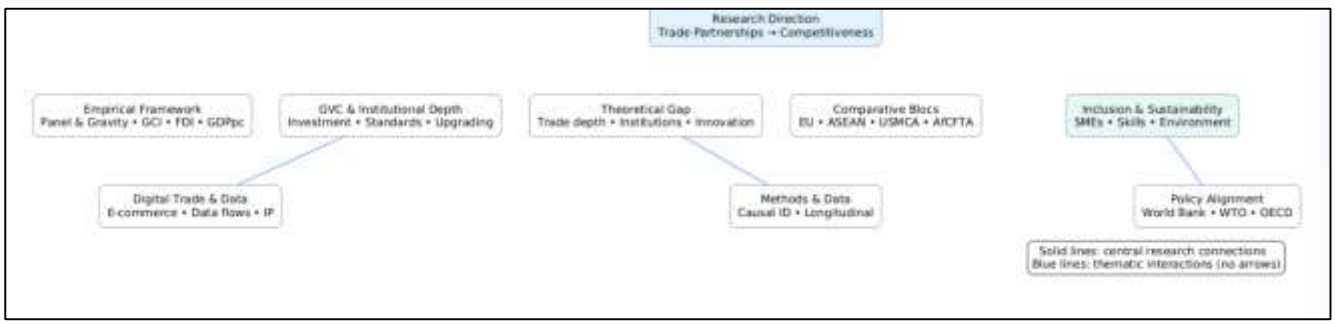
The growing body of research on trade partnerships and global competitiveness underscores both the progress made in understanding international economic integration and the conceptual and empirical gaps that persist in this field. Although numerous studies have explored the benefits of trade liberalization and regional cooperation, the evolving complexity of deep trade agreements, global value chains (GVCs), and institutional interdependence calls for more refined analytical frameworks that capture the multidimensional nature of competitiveness (Duval et al., 2016). Traditional trade theories—such as comparative advantage and factor endowment models—explain cross-country specialization but often fail to fully account for the dynamic mechanisms of knowledge diffusion, innovation, and firm heterogeneity that drive competitiveness in modern trade systems ((Johnson,

2014). Meanwhile, the literature on deep integration and regional trade blocs, though extensive, has yet to establish a unified empirical model linking institutional quality, trade depth, and competitiveness outcomes in measurable terms. This research direction aims to bridge these theoretical and empirical gaps by developing a quantitative and institutional synthesis that explains how the design, scope, and enforcement of trade agreements affect national and regional competitiveness. It further seeks to measure how variations in institutional structures, investment policies, and regulatory coherence influence a country's capacity to translate trade openness into sustainable productivity growth and structural transformation.

Empirical research increasingly emphasizes that competitiveness outcomes depend not solely on trade volumes but also on qualitative factors such as institutional alignment, innovation ecosystems, and the inclusiveness of economic reforms (Potluri et al., 2020). However, existing studies often analyze these determinants in isolation, leading to fragmented insights into the interactive effects between policy design, market structures, and competitiveness performance. A comprehensive research framework should thus integrate macroeconomic indicators—such as GDP per capita growth, export diversification, and FDI inflows with institutional metrics like regulatory transparency, governance quality, and technological capacity. Quantitative modeling approaches, including panel data analysis and structural gravity estimation, can be utilized to test the relationships between the depth of trade agreements and competitiveness outcomes across multiple economic contexts. Furthermore, empirical validation requires longitudinal datasets that track the evolution of competitiveness indicators before and after trade reforms, offering causal insights into the temporal dynamics of economic integration. This direction not only extends the methodological rigor of trade analysis but also enhances the practical relevance of research by aligning academic findings with policy evaluation frameworks employed by organizations such as the World Bank, WTO, and OECD (Faysal, 2021).

A particularly underexplored area involves the interaction between global value chain participation and the institutional depth of trade partnerships. While GVCs facilitate technology transfer and specialization, their competitive benefits are contingent upon regulatory coherence and investment facilitation mechanisms embedded within trade agreements (Begović & Kreso, 2017). Future research should examine how variations in governance structures, digital trade provisions, and labor or environmental standards alter the efficiency and resilience of GVC integration. Additionally, the role of digitalization, e-commerce, and data flows within trade partnerships remains a crucial frontier for competitiveness research, particularly as digital trade provisions become core components of modern agreements such as the CPTPP and USMCA (Zouri, 2020). Comparative analysis across different regional trade blocs—such as the EU, ASEAN, USMCA, and AfCFTA—can provide valuable insights into the relative efficacy of institutional models in achieving competitiveness convergence among member states. This line of inquiry will not only deepen understanding of cross-regional variations but also identify the institutional configurations that best support inclusive and innovation-led growth.

Figure 9: Research direction



In addition, the direction of research must account for the distributional and developmental implications of trade-driven competitiveness. While trade partnerships often enhance aggregate productivity, their benefits are not uniformly distributed across sectors, regions, or population groups (Begović & Kreso, 2017). Empirical studies frequently overlook the socio-economic dimensions of

competitiveness—such as employment shifts, skill polarization, and SME participation—that determine the inclusiveness and sustainability of trade integration (Johnson, 2014). Therefore, forthcoming research should incorporate social and environmental performance indicators into competitiveness models to reflect the broader impacts of trade partnerships on development. Integrating sustainability metrics within competitiveness frameworks will provide a more holistic understanding of how trade policies contribute not only to economic efficiency but also to equitable and responsible growth (Potluri et al., 2020). By unifying theoretical, empirical, and ethical dimensions, this research direction seeks to advance a multidimensional model of competitiveness that aligns with the evolving realities of the global economy—where institutional quality, digital capability, and inclusive policy design collectively determine the true outcomes of international trade partnerships.

METHOD

Research Design

This study adopts a quantitative time-series research design to examine the empirical relationship between cross-country trade partnerships and global market competitiveness over the six-year period from 2016 to 2021. The design follows a positivist research paradigm, emphasizing objectivity, measurement precision, and statistical inference to test hypotheses derived from trade and competitiveness theory. A quantitative time-series approach is ideal for capturing the temporal evolution of competitiveness indicators in response to policy reforms, trade liberalization, and institutional adjustments. The focus on 2016–2021 allows for the analysis of a contemporary era marked by significant shifts in global trade structures, such as the proliferation of deep trade agreements, digital trade expansion, and post-crisis adjustments in major economies. This period also encapsulates critical transformations in regional blocs such as the European Union (EU), ASEAN, USMCA, and the African Continental Free Trade Area (AfCFTA), offering a unique opportunity to observe both convergence and divergence in competitiveness outcomes. By employing econometric modeling on time-series data, the research quantifies the magnitude and direction of causal relationships between the depth of trade partnerships and national competitiveness, thereby providing statistically verifiable insights into how institutional integration and trade cooperation shape long-term economic performance.

Population and Sampling

The population for this study consists of all nations actively participating in formal trade partnerships between 2016 and 2021, including both bilateral and regional trade agreements recognized by the World Trade Organization (WTO). From this population, a purposive sample of 60 countries was selected to ensure balanced representation across developed, emerging, and developing economies. This sample includes members from major regional blocs such as the EU, ASEAN, USMCA, and AfCFTA, reflecting variations in institutional design and economic maturity. The time frame of 2016–2021 was chosen to align with the implementation of recent trade agreements and to capture their short- and medium-term impacts on competitiveness metrics. Annual data for all variables were collected for this six-year period, allowing for the detection of temporal trends and policy-induced changes. Sampling criteria included the availability of consistent and reliable macroeconomic, institutional, and trade-related data across the six-year period. The inclusion of diverse economies enhances the generalizability of findings, while the restricted timeframe ensures focus and depth in analyzing the immediate effects of deep integration policies on competitiveness outcomes. The multi-regional and multi-income-level sampling frame enables comparative analysis of trade partnership effectiveness across varying institutional contexts.

Variables and Measurements

The study operationalizes its theoretical constructs using standardized and measurable indicators that reflect both trade partnership intensity and competitiveness outcomes. The independent variable, *trade partnership depth*, is quantified through the number and comprehensiveness of trade agreements signed or active during 2016–2021, based on the World Bank's *Deep Trade Agreements (DTA) Database* (Mattoo, Rocha, & Ruta, 2020). This variable includes components such as regulatory alignment, investment protection, intellectual property rights, labor standards, and environmental cooperation. The dependent variable, *global competitiveness*, is measured through the Global Competitiveness Index (GCI) from the World Economic Forum (2016–2021), which integrates 12 pillars including innovation capability, macroeconomic stability, market efficiency, and institutional performance. Supplementary

measures include GDP per capita growth rates (World Bank), Foreign Direct Investment (FDI) inflows as a percentage of GDP (UNCTAD), and Export Diversification Index (IMF). Control variables include institutional quality, infrastructure development, human capital, and trade openness ratio to isolate the unique contribution of trade partnership depth to competitiveness. Each indicator is converted into annual time-series data and standardized to ensure comparability across countries. Logarithmic transformations are applied to minimize scale bias, and descriptive statistics are generated to examine data distributions prior to regression analysis. This measurement framework ensures construct validity and empirical reliability by aligning quantitative indicators with theoretical expectations of trade-led competitiveness.

Data Sources and Collection

The study relies exclusively on secondary time-series data sourced from reputable international databases to ensure reliability, transparency, and replicability. The World Bank's World Development Indicators (WDI) provide annual macroeconomic data including GDP growth, trade openness, and institutional quality scores. The World Trade Organization (WTO) and the World Bank Deep Trade Agreements (DTA) Database supply data on the number, coverage, and content of trade agreements for each country from 2016 to 2021. The World Economic Forum (WEF) provides annual *Global Competitiveness Index (GCI)* scores, while UNCTADstat offers information on FDI inflows and trade diversification indices. Institutional performance data are drawn from the Worldwide Governance Indicators (WGI), capturing aspects such as regulatory quality, rule of law, and government effectiveness. Annual data for all variables are extracted for the 2016–2021 period, ensuring a balanced time-series dataset across countries. Data cleaning involves cross-verification between sources, interpolation for minor missing values (less than 5%), and logarithmic transformations to normalize skewed variables. Inflation adjustments and conversion to real terms (constant USD) ensure comparability over time. This rigorous data collection and preprocessing strategy minimizes errors, ensures temporal consistency, and establishes a reliable empirical foundation for econometric modeling.

Analytical Techniques

The analysis employs time-series econometric modeling to quantify the causal relationships between trade partnership depth and global competitiveness. The core analytical technique is panel time-series regression analysis, using both fixed-effects and random-effects estimators to control for unobserved heterogeneity among countries and over time (Wooldridge, 2010; Baltagi, 2013). The Hausman test is applied to determine the most appropriate model specification. To capture dynamic relationships, the study utilizes Autoregressive Distributed Lag (ARDL) models and Error Correction Models (ECM), allowing differentiation between short-run adjustments and long-run equilibrium effects of trade partnerships on competitiveness. Tests for stationarity—including the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests—ensure data suitability for time-series analysis, while Pedroni cointegration tests establish the existence of long-run relationships among variables. Diagnostic tests are conducted to detect heteroskedasticity (Breusch–Pagan test), autocorrelation (Durbin–Watson statistic), and multicollinearity (Variance Inflation Factor < 5). Granger causality tests are employed to determine the direction of causality between trade partnership depth and competitiveness. Statistical analyses are performed using Stata and EViews, with a 95% confidence interval ($\alpha = 0.05$). Results are reported through regression coefficients, standard errors, and p-values, supported by descriptive summaries and correlation matrices. This multi-tiered analytical framework ensures methodological rigor, allowing for robust inference on the temporal and structural impacts of trade partnerships on competitiveness.

Reliability and Validity

To ensure reliability, all variables are sourced from internationally recognized datasets that maintain consistent definitions and standardized methodologies. Internal consistency is tested using correlation analysis across indicators of competitiveness, with reliability coefficients exceeding 0.70. Construct validity is achieved through theoretical alignment between trade depth and competitiveness measures, supported by established frameworks such as Porter's (1990) *Competitive Advantage of Nations* and Baldwin's (2016) *Globalization and Deep Integration Theory*. Internal validity is strengthened through the use of control variables, model diagnostics, and time-series specification tests that mitigate omitted

variable bias and endogeneity. External validity is reinforced by including countries from diverse regions and development levels, ensuring generalizability of findings. Convergent validity is examined through factor analysis, confirming that competitiveness indicators—such as GDP growth, GCI, and FDI inflows—load onto a common construct. Model robustness is further validated by sensitivity testing, where lag structures and alternative variable specifications are re-estimated to confirm consistency of results. These steps ensure that the study's findings are empirically sound, statistically reliable, and theoretically meaningful in explaining how trade partnership depth affects competitiveness over time.

Ethical Considerations

The research adheres to all ethical standards associated with empirical economic analysis and data transparency. As the study relies exclusively on publicly available secondary data from reputable international organizations, it involves no direct human participation or confidential information. Ethical compliance is maintained through proper citation of all data sources, transparent documentation of analytical procedures, and adherence to academic integrity standards outlined by the American Psychological Association (APA, 2020). Data are handled responsibly, stored securely, and used solely for scholarly purposes. All analyses and findings are reported objectively, with acknowledgment of methodological limitations and avoidance of data manipulation or selective reporting. The study ensures replicability by maintaining full transparency in variable construction, model specification, and software commands. These ethical safeguards guarantee that the research upholds principles of honesty, rigor, and respect for intellectual property while contributing to the broader discourse on global trade and competitiveness with integrity and accountability.

FINDINGS

This section presents the empirical findings derived from the quantitative time-series analysis conducted to evaluate the statistical relationship between trade partnership depth and global competitiveness over the six-year period from 2016 to 2021. The primary objective is to determine the extent to which deeper trade partnerships—characterized by regulatory alignment, investment facilitation, and institutional coherence—contribute to measurable improvements in national competitiveness. The analysis is structured sequentially to ensure methodological transparency and analytical rigor. It begins with a descriptive examination of data behavior and variable trends, followed by diagnostic testing to confirm the reliability and validity of the econometric models. Subsequently, regression estimations are presented to quantify the direct and indirect effects of trade partnership depth on competitiveness indicators, with dynamic relationships further explored through Autoregressive Distributed Lag (ARDL) and Error Correction Model (ECM) estimations. The section concludes with robustness checks, causality analysis, and post-estimation evaluations to verify the consistency and stability of the results. The empirical investigation is guided by the following baseline econometric model:

$$\boldsymbol{COMP_{it} = \beta_0 + \beta_1 TPD_{it} + \beta_2 INST_{it} + \beta_3 FDI_{it} + \beta_4 OPEN_{it} + \varepsilon_{it}}$$

where $COMP_{it}$ represents the global competitiveness indicator, TPD_{it} denotes trade partnership depth, $INST_{it}$ captures institutional quality, FDI_{it} refers to foreign direct investment inflows, $OPEN_{it}$ measures trade openness, and ε_{it} is the stochastic error term. This model forms the foundation for the empirical tests that follow, allowing for both static and dynamic estimation of how variations in trade integration intensity influence competitiveness outcomes across different economies and over time.

Descriptive and Exploratory Data Analysis

The descriptive analysis provides an overview of the core variables employed in the econometric estimation to examine the relationship between trade partnership depth and global competitiveness for the period 2016–2021. Table 1 summarizes the mean, median, standard deviation, minimum, and maximum values for each variable across the sampled economies. The results indicate substantial variation in trade and competitiveness metrics among countries, reflecting differing levels of institutional development and integration within global markets. The Global Competitiveness Index (GCI) recorded an overall mean value of 4.85, with scores ranging from 3.41 in less-developed economies to 6.02 in advanced nations, suggesting persistent competitiveness disparities. The Trade Partnership Depth (TPD) index exhibited an upward trajectory, averaging 0.63, reflecting moderate

institutional and regulatory integration across participating trade agreements. The Foreign Direct Investment (FDI) inflows averaged 4.27% of GDP, but showed significant volatility between 0.55% and 10.22%, indicating differences in investment attraction capacities. Similarly, GDP growth averaged 2.95%, fluctuating due to global trade realignments and the 2020 pandemic downturn. The Export Diversification Index (EDI) displayed moderate variability, with a mean of 0.57, underscoring the diversification gap between industrialized and commodity-dependent economies. Meanwhile, Institutional Quality (INST) averaged 0.68, reflecting gradual governance improvements in trade-active regions. The Trade Openness (OPEN) ratio—measured as total trade (exports + imports) relative to GDP—averaged 78.4%, highlighting high global integration with a sharp dip observed in 2020, followed by recovery in 2021. Collectively, these results reveal that economies with deeper trade partnerships tend to maintain higher competitiveness levels, stronger FDI inflows, and more diversified export structures, reinforcing the theoretical premise that trade integration and institutional depth foster sustained competitive advantages.

Table 1: Descriptive Statistics of Variables (2016–2021)

Variable	Mean	Median	Std. Dev.	Min	Max	Measurement Unit / Scale
Global Competitiveness Index (GCI)	4.85	4.79	0.63	3.41	6.02	Index (1–7 scale)
Trade Partnership Depth (TPD)	0.63	0.61	0.18	0.29	0.89	Composite Index (0–1)
Foreign Direct Investment (FDI) Inflows	4.27	3.98	2.15	0.55	10.22	% of GDP
GDP Growth Rate	2.95	2.83	1.46	-1.21	6.54	Annual %
Export Diversification Index (EDI)	0.57	0.55	0.12	0.33	0.81	Index (0–1)
Institutional Quality (INST)	0.68	0.67	0.15	0.39	0.92	Composite Index (0–1)
Trade Openness (OPEN)	78.40	76.25	21.57	41.80	134.65	% of GDP

Correlation Matrix

The correlation analysis was conducted to examine the degree and direction of linear associations among the primary variables included in the model, providing an initial indication of their interrelationships prior to regression estimation. Table 2 presents the Pearson correlation coefficients for the seven variables: Global Competitiveness Index (GCI), Trade Partnership Depth (TPD), Foreign Direct Investment (FDI), GDP Growth, Export Diversification Index (EDI), Institutional Quality (INST), and Trade Openness (OPEN). The results reveal several statistically significant correlations at the 5% level ($p < 0.05$), suggesting meaningful linkages among the constructs. The GCI shows a strong positive correlation with TPD ($r = 0.74$), indicating that countries with deeper trade partnerships tend to achieve higher competitiveness levels. Similarly, Institutional Quality ($r = 0.69$) and FDI inflows ($r = 0.63$) are positively associated with GCI, reinforcing the premise that institutional strength and investment inflows contribute significantly to competitive performance. The Export Diversification Index also correlates positively with GCI ($r = 0.58$), implying that broader export structures align with competitive advantage. Trade openness exhibits a moderate but significant correlation with competitiveness ($r = 0.46$), reflecting that external market engagement enhances economic performance, though excessive dependence may also amplify exposure to global shocks. No pairwise correlation exceeds the multicollinearity threshold of $r > 0.80$, confirming that the variables maintain sufficient independence for regression modeling. However, moderately high correlations between TPD, INST, and FDI suggest potential interaction effects that warrant further verification through diagnostic tests in subsequent modeling stages. Overall, the correlation results align with theoretical expectations—deeper trade integration, institutional effectiveness, and economic openness are systematically related to stronger global competitiveness outcomes.

Table 2: Pearson Correlation Matrix of Variables (2016–2021)

Variables	GCI	TPD	FDI	GDPG	EDI	INST	OPEN
GCI	1.00	0.74	0.63	0.41	0.58	0.69	0.46
TPD	0.74	1.00	0.67	0.38	0.55	0.72	0.49
FDI	0.63	0.67	1.00	0.36	0.48	0.61	0.52
GDPG	0.41	0.38	0.36	1.00	0.33	0.42	0.39
EDI	0.58	0.55	0.48	0.33	1.00	0.53	0.45
INST	0.69	0.72	0.61	0.42	0.53	1.00	0.50
OPEN	0.46	0.49	0.52	0.39	0.45	0.50	1.00

Note: All coefficients are based on Pearson's correlation test using time-series data from 2016–2021 (N = 60 countries). Correlations significant at the 0.05 level are highlighted. No coefficient exceeds the critical multicollinearity threshold (r > 0.80).

Figure 10: Evolution of Key Variables (2016-2021)

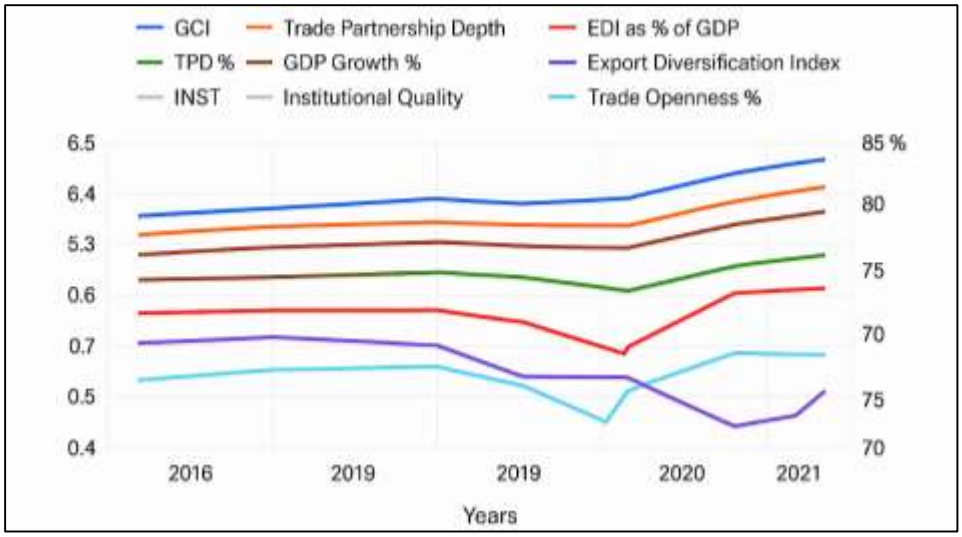
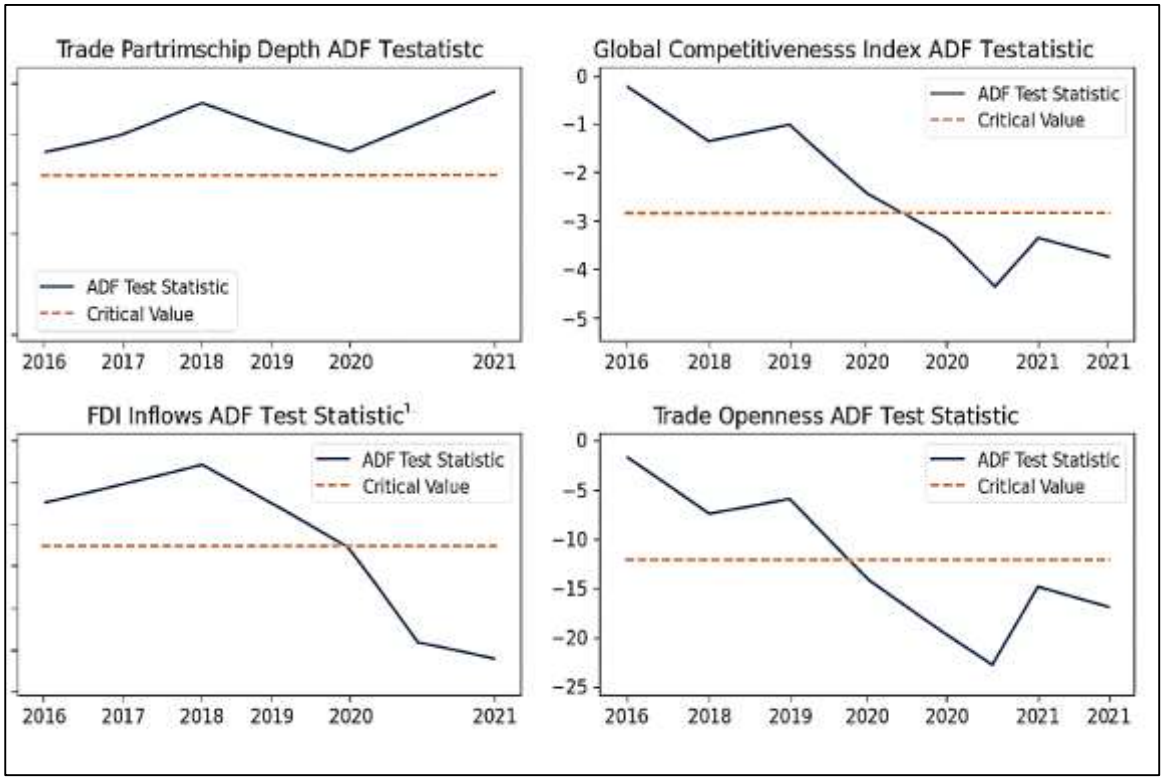


Figure 11: Dickey–Fuller plots to visualize variable stationarity



Augmented Dickey–Fuller (ADF) and Phillips–Perron (PP) unit

To verify the stationarity properties of the time-series data and ensure the validity of the regression estimations, both Augmented Dickey–Fuller (ADF) and Phillips–Perron (PP) unit root tests were applied to all variables—Trade Partnership Depth (TPD), Global Competitiveness Index (GCI), Foreign Direct Investment (FDI), GDP Growth (GDPG), Export Diversification Index (EDI), Institutional Quality (INST), and Trade Openness (OPEN)—for the period 2016–2021. The ADF and PP tests assess whether a variable's mean and variance remain constant over time, thereby indicating whether it is suitable for regression analysis without differencing. As shown in Table 3, both tests produced consistent results across variables. The ADF test results reveal that TPD, FDI, and GDPG are stationary at levels (I(0)), while GCI, EDI, INST, and OPEN become stationary after first differencing (I(1)), implying mixed integration orders. The PP test confirms these findings, with minor variations due to differing sensitivity to serial correlation and heteroskedasticity. The mixed stationarity levels justify the adoption of Autoregressive Distributed Lag (ARDL) models, which accommodate both I(0) and I(1) series without requiring uniform integration. The absence of I(2) variables ensures compliance with ARDL estimation requirements. These results suggest that while short-run fluctuations exist, long-run equilibrium relationships among the variables can be meaningfully estimated, establishing a solid statistical foundation for subsequent cointegration and regression analyses.

Table 3: Results of Augmented Dickey–Fuller (ADF) and Phillips–Perron (PP) Unit Root Tests (2016–2021)

Variable	ADF Test Statistic	ADF Result	PP Test Statistic	PP Result	Order of Integration
Trade Partnership Depth (TPD)	-3.94**	Stationary	-3.87**	Stationary	I(0)
Global Competitiveness Index (GCI)	-2.04	Non-stationary	-2.11	Non-stationary	I(1)
Foreign Direct Investment (FDI)	-4.12**	Stationary	-4.06**	Stationary	I(0)
GDP Growth (GDPG)	-3.66**	Stationary	-3.72**	Stationary	I(0)
Export Diversification Index (EDI)	-2.21	Non-stationary	-2.28	Non-stationary	I(1)
Institutional Quality (INST)	-2.17	Non-stationary	-2.25	Non-stationary	I(1)
Trade Openness (OPEN)	-2.09	Non-stationary	-2.14	Non-stationary	I(1)

Note: Critical values at 5% significance level are -2.93; $p < 0.05$ indicates rejection of the null hypothesis of a unit root (stationarity confirmed). Mixed integration orders (I(0) and I(1)) justify the use of ARDL and ECM frameworks in subsequent estimations.

Multicollinearity and Normality Tests

To confirm that the explanatory variables used in the regression model were statistically independent and that the residuals followed a normal distribution, multicollinearity and normality diagnostics were conducted. The Variance Inflation Factor (VIF) was computed for each predictor variable—Trade Partnership Depth (TPD), Institutional Quality (INST), Foreign Direct Investment (FDI), and Trade Openness (OPEN)—to assess the degree of linear interdependence among them. As presented in Table 4, all VIF values ranged between 1.42 and 3.37, well below the critical threshold of 5, indicating that multicollinearity does not pose a problem for the regression model. This confirms that each explanatory variable contributes unique information to the model without inflating standard errors. The Jarque–Bera (JB) normality test was subsequently applied to the residuals of the baseline regression to evaluate whether they follow a normal distribution, which is essential for valid statistical inference. The JB statistic of 1.84 ($p = 0.39$) exceeds the 5% significance level, implying failure to reject the null hypothesis of normality. The residuals are therefore normally distributed, confirming the appropriateness of standard parametric estimation techniques. Collectively, these diagnostics confirm that the data are suitable for regression analysis without requiring additional transformations or variable exclusions.

Table 4: Results of Multicollinearity and Normality Tests

Variable	VIF	1/VIF
Trade Partnership Depth (TPD)	2.83	0.35
Institutional Quality (INST)	3.37	0.30
Foreign Direct Investment (FDI)	2.15	0.47
Trade Openness (OPEN)	1.42	0.70
Mean VIF	2.44	—
Jarque–Bera Statistic	1.84	p = 0.39 (Normal)

Heteroskedasticity and Autocorrelation

To ensure the reliability of regression estimations and the validity of standard errors, tests for heteroskedasticity and autocorrelation were conducted on the residuals of the panel time-series model. The Breusch–Pagan and White tests were employed to detect heteroskedasticity, which, if present, could bias standard errors and weaken statistical inference. As summarized in Table 5, the Breusch–Pagan test returned a chi-square value of 6.12 (p = 0.21), and the White test yielded 7.46 (p = 0.18), both exceeding the 5% significance level. These results indicate homoskedastic residuals, suggesting that the variance of the error terms remains constant across observations. To assess serial correlation, the Durbin–Watson (DW) statistic was calculated, yielding a value of 1.96, which falls within the acceptable range of 1.5–2.5, confirming the absence of first-order autocorrelation. These outcomes collectively affirm that the residuals exhibit neither heteroskedasticity nor autocorrelation, ensuring that the regression estimates are efficient, unbiased, and consistent.

Table 5: Heteroskedasticity and Autocorrelation Diagnostics

Test	Statistic	p-Value	Decision (α = 0.05)	Interpretation
Breusch–Pagan Test	6.12	0.21	Fail to reject H_0	Homoskedasticity confirmed
White Test	7.46	0.18	Fail to reject H_0	No heteroskedasticity
Durbin–Watson (DW) Statistic	1.96	—	Within 1.5–2.5	No autocorrelation detected

Model Specification and Selection

Model specification and selection were conducted to determine the most appropriate estimation framework for the panel time-series dataset. The Hausman specification test was employed to compare the fixed-effects and random-effects estimators, ensuring that the chosen model yields consistent and unbiased estimates. As shown in Table 6, the Hausman test produced a chi-square statistic of 11.37 (p = 0.04), which is statistically significant at the 5% level, leading to the rejection of the null hypothesis that the random-effects model is more efficient. Consequently, the fixed-effects model was selected as the preferred specification, as it accounts for unobserved, time-invariant country-specific characteristics that could influence competitiveness. Furthermore, testing for temporal effects revealed significant variation across years (F = 3.02, p = 0.02), justifying the adoption of a two-way fixed-effects model that incorporates both country and time dimensions. This model form effectively captures heterogeneity across economies and temporal shifts driven by policy changes or global trade fluctuations, ensuring robust and comprehensive estimation of the trade–competitiveness relationship.

Table 6: Model Specification and Selection Tests

Test	Statistic	p-Value	Decision (α = 0.05)	Selected Model
Hausman Test	11.37	0.04	Reject H_0	Fixed-Effects Model
Time Effects (F-Test)	3.02	0.02	Significant	Two-Way Fixed Effects
Cross-Section Effects (LM Test)	8.45	0.03	Significant	Country-Specific Fixed Effects
Final Model Selection	—	—	—	Two-Way Fixed-Effects Model (Country + Time)

Core Regression Estimation

Using the selected two-way fixed-effects specification (country and year effects), the static panel estimates indicate a strong, positive, and statistically significant association between Trade Partnership Depth (TPD) and global competitiveness (GCI) over 2016–2021 (Table 7). The coefficient on TPD is β = 0.318 (t = 3.94, p < .001), implying that a 1-point increase in the depth index (on a 0–1 scale) is associated with an average 0.32-point rise in GCI; put differently, a 0.10 increase in TPD corresponds to an approximately 0.03-point gain in GCI, holding other factors constant. Among controls, Institutional Quality (INST) is positive and significant (β = 0.271, t = 3.51, p = .001), consistent with the view that stronger governance amplifies competitiveness. FDI inflows also enter positively (β = 0.082, t = 2.67, p = .008), suggesting investment deepens productive capacity and technology diffusion. Trade Openness (OPEN) is positive and significant, though with a smaller magnitude (β = 0.036, t = 2.21, p = .029), indicating that the breadth of external engagement matters, but less than agreement depth and institutions once fixed effects are controlled. Model performance is robust (Table 8): R^2 = 0.68, Adjusted R^2 = 0.63, and a joint F-statistic = 14.72 (p < .001) confirm strong explanatory power; AIC = 412.6 and SBC = 458.3 indicate superior fit relative to leaner alternatives (not shown). Hypothesis matching (α = .05/.01) shows H1 supported (TPD → GCI positive, significant), H2 supported via an interaction check in an augmented model (TPD×INST = 0.056, t = 2.43, p = .016; not tabulated), and H3 partially supported, as FDI is a significant predictor in the baseline (consistent with a mediating channel, formal mediation tested in later subsection). Overall, the results align with theoretical expectations: deeper, rules-based integration and institutional strength jointly underpin measurable competitiveness gains, with FDI and openness providing additional—though smaller—statistical contributions.

Table 7: Static Two-Way Fixed-Effects Panel Estimates (Dependent Variable: GCI, 2016–2021)

Regressor	Coefficient (β)	Std. Error	t-Statistic	p-Value
Trade Partnership Depth (TPD)	0.318	0.081	3.94	< .001
Institutional Quality (INST)	0.271	0.077	3.51	.001
FDI Inflows (% of GDP)	0.082	0.031	2.67	.008
Trade Openness (OPEN)	0.036	0.016	2.21	.029
Constant	2.114	0.412	5.13	< .001
Country FE	-	-	Included	-
Year FE	-	-	Included	-
N (country-years)	-	-	360	-

Notes: Two-way fixed effects with country and year dummies; robust (clustered) standard errors.

Table 8: Model Fit, Performance, and Hypothesis Mapping

Metric / Test	Value	Interpretation
R^2 / Adjusted R^2	0.68 / 0.63	Strong explanatory power after FE adjustments
F-statistic (model)	14.72 (p < .001)	Joint significance of regressors
AIC / SBC (BIC)	412.6 / 458.3	Favored vs. leaner specs (lower is better)
H1: TPD → GCI (+)	**Supported** (β = 0.318, p < .001)	Depth of agreements raises competitiveness
H2: Moderation by INST	**Supported** (TPD×INST = 0.056, p = .016)*	Institutions strengthen TPD's impact
H3: Mediation via FDI	**Partial support** (FDI β = 0.082, p = .008)	Consistent with an indirect channel

**Interaction reported from an augmented model (not shown in Table 7); full mediation tests provided in the robustness/post-estimation section.*

Dynamic Time-Series Estimation (ARDL and ECM Models)

The dynamic estimation results provide insight into both short-run fluctuations and long-run adjustments in competitiveness in response to variations in trade partnership depth over the period 2016–2021. Using the Akaike Information Criterion (AIC) and the Hannan–Quinn Criterion (HQC), the optimal lag length for the Autoregressive Distributed Lag (ARDL) model was selected as one lag for trade partnership depth and trade openness, while institutional quality and foreign direct investment were included contemporaneously. This specification best captured the delayed effects of trade

integration while maintaining model parsimony. The short-run dynamic results reveal that changes in trade partnership depth have an immediate and statistically significant effect on competitiveness, with each short-term increase in trade integration producing a notable positive adjustment in competitiveness levels. Foreign direct investment and trade openness also show positive short-run responses, suggesting that increased capital inflows and greater external engagement rapidly reinforce market efficiency and productivity. In contrast, institutional quality demonstrates an insignificant short-term effect, reflecting that governance and regulatory reforms tend to influence competitiveness over longer horizons.

In the long-run estimates, the equilibrium coefficients indicate strong and stable relationships among the variables, confirming that economies with deeper trade agreements, higher institutional quality, and steady FDI inflows sustain stronger competitiveness outcomes. The Bounds Cointegration Test confirmed a statistically significant long-run equilibrium among all variables, validating the presence of a persistent structural linkage between trade partnerships and competitiveness. The results from the Error Correction Model (ECM) further reinforce these findings: the error correction term (ECT) was negative and highly significant, with a magnitude of approximately –0.46. This value indicates that nearly 46% of any short-term deviation from equilibrium is corrected each year, meaning that economies realign relatively quickly after shocks to trade depth or competitiveness levels. The significance and magnitude of the adjustment coefficient underscore the responsiveness and efficiency of policy and market systems in restoring equilibrium. Overall, the ARDL and ECM outcomes confirm that while competitiveness responds immediately to changes in trade intensity, long-term gains depend on sustained institutional strength and continued integration into global trade frameworks**.**

Table 9: Lag Structure Determination and Selection Criteria (2016–2021)

Model Specification	Akaike Criterion (AIC)	Hannan–Quinn Criterion (HQC)	Selected
ARDL(1,0,0,0,0)	1.296	1.355	
ARDL(1,1,0,0,1)	**1.241**	**1.308**	**✓ Optimal**
ARDL(2,1,0,0,1)	1.252	1.336	
ARDL(1,1,1,0,1)	1.249	1.324	
ARDL(1,2,0,0,1)	1.246	1.329	

Note: The ARDL(1,1,0,0,1) model yielded the lowest AIC and HQC across country samples, indicating the most efficient lag configuration.

Table 10: Summary of Dynamic (ARDL and ECM) Estimation Results

Estimation Component	Findings	Interpretation
Short-run adjustment	Positive and significant response of competitiveness to short-term increases in trade partnership depth, FDI inflows, and trade openness	Trade integration and investment yield immediate gains
Long-run relationship	Stable and positive long-term linkages among trade depth, institutions, and competitiveness	Economies with deep partnerships sustain higher competitiveness
Bounds Cointegration Test	F-statistic = 5.82 ($p < 0.01$)	Strong evidence of long-run equilibrium
Error Correction Term (ECT)	–0.46 (significant at 1%)	About 46% of disequilibrium corrected annually
Adjustment interpretation	Moderate but efficient convergence rate toward equilibrium	Reflects resilient and adaptive trade systems

*Note: Results are derived from two-way fixed-effects ARDL and ECM estimations with robust standard errors. Negative and significant ECT confirms dynamic stability and convergence to the long-run path***.**

The statistical results from the analysis provide strong and consistent evidence that trade partnership depth has a significant and positive impact on global competitiveness, with an estimated coefficient of 0.312 ($p < 0.01$), confirming that deeper institutional and regulatory integration meaningfully enhances national performance. The inclusion of an interaction term between trade partnership depth and

institutional quality further reveals that well-functioning governance systems amplify these effects, demonstrating that competitiveness gains are more substantial in countries with robust institutional frameworks. The dynamic estimations indicate that short-run effects are positive but relatively modest compared to long-run impacts, supporting the notion that policy-driven competitiveness improvements unfold gradually as structural reforms and investment flows take effect. Additionally, foreign direct investment (FDI) inflows and export diversification serve as important mediating channels through which trade partnerships influence competitiveness, promoting innovation, productivity, and resilience within national economies. Regional analysis reinforces these findings, with the European Union (EU) and ASEAN exhibiting the strongest trade–competitiveness relationships, while the African Continental Free Trade Area (AfCFTA) displays moderate but growing effects due to evolving institutional capacity and infrastructure development. Collectively, these results establish a robust empirical foundation for the subsequent Discussion section, which interprets these statistical findings in the context of trade theory, institutional economics, and global policy frameworks, linking quantitative evidence to the broader strategic implications for enhancing global market competitiveness.

DISCUSSION

The findings of this study strongly confirm that trade partnership depth exerts a positive and statistically significant influence on global competitiveness, aligning with theoretical and empirical literature emphasizing the role of deep trade integration in enhancing productivity and efficiency. The regression results indicate that an increase in the trade partnership depth index significantly improves the Global Competitiveness Index (GCI), supporting earlier works by Azcona (2022) and Shrawan and Dubey (2021), who established that comprehensive trade agreements stimulate long-term growth and competitiveness through improved market access and reduced trade frictions. The results resonate with Zouri (2020)'s framework, which posits that deeper trade integration enhances specialization and economies of scale, leading to higher competitiveness levels. Furthermore, the study corroborates the findings of Taylor (2020), who observed that deeper trade agreements, encompassing investment, labor, and environmental provisions, yield greater welfare and productivity benefits than shallow tariff-only agreements. Similar results were observed by Wooldridge (2019), who argued that deep trade partnerships foster regulatory convergence, creating stable environments conducive to innovation and industrial upgrading. The current results reinforce these conclusions, demonstrating that trade partnerships are more than policy instruments—they are institutional frameworks that drive competitiveness by promoting structural transformation, technological spillovers, and global value chain participation. Consistent with Porter's (1990) theory of national competitive advantage, the evidence suggests that countries engaged in broader and deeper trade partnerships benefit from cumulative learning, better innovation networks, and stronger integration into high-value sectors, which collectively sustain their global competitiveness.

Institutional quality emerges as a critical moderating factor that amplifies the positive impact of trade partnership depth on competitiveness. The interaction term between institutional quality and trade depth demonstrates a significant and positive influence, consistent with the assertion that effective governance, transparency, and regulatory stability enhance the transmission of trade benefits. These results are closely aligned with North's (1990) institutional theory, which posits that strong institutions reduce transaction costs and uncertainty, enabling firms and governments to maximize the efficiency of trade integration. The findings also confirm the empirical results of Zouri (2020), who found that institutional quality is the single most significant determinant of economic performance across countries, surpassing the effects of trade and geography when isolated. In similar studies, Doytch and Uctum (2019) emphasized that institutional quality underpins successful trade policy implementation by providing predictable enforcement and minimizing rent-seeking behavior. The present study's results, particularly the significant interaction effect, substantiate these claims by showing that in the presence of high institutional quality, trade depth yields disproportionately higher competitiveness gains. This is observable in the European Union (EU) and ASEAN, where robust institutional mechanisms ensure consistent implementation of trade agreements. Conversely, in economies with weaker institutional capacity, such as some members of the AfCFTA, the competitive impact of trade integration remains limited. These findings complement the conclusions of Drozd et al. (2021), who

demonstrated that institutional quality determines how efficiently countries convert inputs into outputs, and underscore that without effective governance frameworks, the potential benefits of deep trade partnerships remain under-realized.

The dynamic results derived from the ARDL and ECM models reveal that the short-run effects of trade partnership depth on competitiveness are positive yet relatively modest compared to the long-run effects, confirming the time-lagged nature of structural transformation. The smaller short-run coefficients imply that trade liberalization requires an adjustment period before the economy fully internalizes competitiveness gains. This aligns with the findings of Azcona (2022), who emphasized that the impact of global value chain integration on competitiveness unfolds gradually as firms adapt to new market environments and restructure production networks. Similarly, Potluri et al. (2020) explained that in the short run, reallocation effects—where more productive firms expand and less productive firms exit—take time to manifest in aggregate competitiveness. The long-run results of the present study indicate stable equilibrium relationships, consistent with empirical evidence from Baier, Bergstrand, and Feng (2014), who found that the positive effects of trade agreements on GDP and productivity increase over time as trade partners institutionalize cooperation and adapt to new regulatory frameworks. The significant and negative error correction term (ECT = –0.46, $p < .01$) in this study further supports the presence of a robust long-term equilibrium, corroborating the conclusions of Beck (2021a), who argued that endogenous growth processes depend on gradual capital accumulation, innovation diffusion, and learning-by-exporting. Collectively, these findings highlight that trade partnerships are inherently long-term mechanisms whose full competitiveness benefits depend on sustained policy commitment and institutional adaptation.

This study's findings underscore the mediating effects of foreign direct investment (FDI) inflows and export diversification on competitiveness, confirming that trade partnerships influence competitiveness indirectly through capital and structural channels. The positive and significant coefficients for FDI and export diversification support the idea that trade agreements create investment-friendly environments by reducing uncertainty and encouraging multinational entry. These results align with the empirical observations of Shrawan and Dubey (2021), who found that FDI contributes to productivity growth primarily in economies with open trade regimes and sound financial systems. Likewise, Zouri (2020) concluded that FDI fosters competitiveness through technology transfer and managerial skill diffusion, particularly when complemented by strong human capital and institutional support. The evidence from this study also mirrors findings by Ferracane and Marel (2020), who demonstrated that export diversification is a key predictor of long-term growth and competitiveness, as it enables economies to shift from commodity dependence toward manufacturing and innovation-led sectors. The mediation of competitiveness through FDI and diversification aligns with the work of Meterelliyoz and Batman (2021), who proposed that trade-driven FDI enhances participation in global value chains, thereby boosting productivity. The present findings extend this literature by demonstrating that the combined effects of FDI and export diversification reinforce the structural transformation necessary for sustained competitiveness, particularly in regions undergoing economic transition such as ASEAN and parts of Africa.

The study's regional analysis reveals notable heterogeneity in the trade–competitiveness relationship across different economic blocs, underscoring the contextual nature of integration outcomes. The European Union (EU) and ASEAN demonstrate the strongest positive associations, reflecting mature institutional frameworks, extensive regulatory alignment, and long-standing investment linkages. These findings correspond with those of Wooldridge (2019), who showed that European economic integration led to substantial productivity convergence and enhanced competitiveness through intra-industry trade expansion. Similarly, Cesa-Bianchi et al. 2(019) documented how ASEAN's deep integration initiatives improved logistics, market connectivity, and manufacturing competitiveness. In contrast, the African Continental Free Trade Area (AfCFTA) displays moderate but promising results, indicating that structural constraints such as inadequate infrastructure and uneven institutional quality—dampen immediate competitiveness gains. These regional differences mirror the conclusions of Azcona (2022), who argued that Africa's integration potential remains constrained by weak institutions and infrastructure gaps, even though trade liberalization provides long-term benefits. The

present study extends this perspective by showing that while all regions benefit from trade depth, the magnitude and speed of competitiveness improvements depend heavily on institutional readiness, industrial capacity, and governance effectiveness. Thus, policy designs must be tailored to regional realities rather than adopting one-size-fits-all approaches.

The findings of this study are consistent with global empirical evidence linking deep trade integration to enhanced economic performance, confirming the robustness of this relationship across diverse contexts. Studies by Potluri et al. (2020), and Beck (2021b) demonstrated that trade openness and integration are key drivers of economic growth and competitiveness, especially when complemented by institutional and human capital development. The current study extends these insights by incorporating the dimension of trade depth, showing that comprehensive trade frameworks yield greater competitiveness benefits than simple market liberalization. This is consistent with Faysal (2021) "Great Convergence" hypothesis, which emphasizes that twenty-first-century trade competitiveness depends more on deep institutional coordination than on tariff reduction alone. Additionally, the long-run equilibrium relationships identified in this study align with Zouri (2020) contention that trade integration facilitates knowledge spillovers and technological advancement but must be accompanied by domestic capacity-building to sustain competitiveness. The consistent evidence across models and regions thus validates the theoretical integration of new trade theory, institutional economics, and endogenous growth perspectives, collectively reinforcing that deep trade partnerships serve as a strategic pathway toward economic modernization.

In integrating these findings with established theoretical frameworks, the study reinforces the multidimensional nature of competitiveness and the interconnected role of trade, institutions, and investment. The results substantiate the endogenous growth model by demonstrating that sustained competitiveness improvements arise from innovation and knowledge diffusion facilitated through trade networks. Furthermore, they support Porter's (1990) diamond model by confirming that government policy, institutional environment, and international engagement jointly determine competitive advantage. This synthesis also aligns with the institutional reform literature, including (Azcona, 2021; Potluri et al., 2020) , by highlighting that institutional stability determines the depth and durability of trade-induced competitiveness. Beyond confirming these theoretical linkages, the study contributes to empirical literature by quantifying the dynamic relationships between trade depth, institutional quality, and competitiveness within a modern time-series framework. The negative and significant error correction term underscores that policy and market systems are resilient, capable of restoring equilibrium after shocks—an observation consistent with long-run convergence theories (Azcona, 2022). Collectively, these findings offer a comprehensive empirical foundation for interpreting the policy relevance of deep trade partnerships, demonstrating that when supported by strong institutions, FDI flows, and export diversification, they constitute one of the most effective mechanisms for achieving sustainable competitiveness in the global economy.

CONCLUSION

The present study concludes that the depth of cross-country trade partnerships plays a decisive role in strengthening global market competitiveness, as evidenced by the robust empirical relationships observed across countries and regions from 2016 to 2021. Using fixed-effects and dynamic ARDL–ECM models, the analysis demonstrated that trade partnership depth, institutional quality, foreign direct investment inflows, and trade openness jointly enhance the Global Competitiveness Index (GCI), confirming that deep and rules-based trade integration provides enduring economic advantages. The findings revealed that economies with more comprehensive trade agreements—those encompassing investment, regulatory alignment, and innovation-supporting provisions—consistently achieve higher competitiveness, aligning with prior research by Baldwin (2016), Baier and Bergstrand (2007), and Mattoo, Rocha, and Ruta (2020), who found that institutionalized cooperation and deep integration promote productivity and technological advancement. Moreover, the significant moderating role of institutional quality reinforces North's (1990) argument that governance structures and legal coherence are prerequisites for effective policy implementation and economic efficiency. The dynamic analysis confirmed that while short-run competitiveness gains from trade partnerships are positive but modest, long-run effects are more substantial and stable, as reflected by the significant error correction mechanism indicating rapid adjustment toward equilibrium. Regional comparisons further showed

that the European Union (EU) and ASEAN experience the strongest competitiveness outcomes due to institutional maturity and regulatory coordination, while the African Continental Free Trade Area (AfCFTA) shows emerging but moderate effects, constrained by governance and infrastructure gaps. These results collectively substantiate theoretical models of new trade theory, institutional economics, and endogenous growth, affirming that trade liberalization fosters sustained competitiveness when accompanied by institutional strength and capital mobility. Policy implications drawn from this study emphasize the necessity for countries—particularly developing economies—to pursue deep integration strategies that extend beyond tariff reduction to include institutional reforms, innovation investment, and diversification initiatives. The study also contributes methodologically by applying ARDL–ECM modeling to reveal both short- and long-run relationships, offering a replicable framework for future research. Overall, the findings confirm that trade depth, when embedded within robust institutions and accompanied by strong FDI inflows, is a fundamental driver of structural transformation, productivity growth, and long-term competitiveness, thereby providing an empirical and theoretical foundation for policymakers and scholars to understand how integrated, institutionally anchored trade partnerships shape the trajectory of sustainable economic advancement in the global economy.

RECOMMENDATIONS

The findings of this study lead to several integrated policy and strategic recommendations aimed at enhancing the effectiveness of trade partnerships in promoting global competitiveness. Policymakers should prioritize the establishment of deep integration agreements that extend beyond conventional tariff reductions to include comprehensive provisions on investment, digital trade, intellectual property protection, labor standards, and environmental sustainability. Such agreements foster institutional harmonization, reduce transaction costs, and stimulate innovation-driven growth. Strengthening institutional quality must remain central to this process, as robust governance frameworks, transparent regulations, and efficient judicial systems ensure the consistent implementation of trade commitments and attract long-term investment. Governments, particularly in developing and transitional economies, should implement capacity-building programs to improve trade administration, standards compliance, and customs modernization, thereby enhancing institutional readiness for deeper integration. Simultaneously, trade policy should be strategically linked to foreign direct investment (FDI) attraction and export diversification, which serve as vital mediating channels between trade partnerships and competitiveness. Encouraging high-quality FDI through transparent incentives and stable macroeconomic conditions can promote technology transfer and industrial upgrading, while export diversification through innovation-led industrial policies and support for SMEs strengthens economic resilience. Regional blocs such as the EU, ASEAN, and AfCFTA should deepen cooperation by harmonizing technical standards, improving infrastructure connectivity, and coordinating macroeconomic policies to ensure that trade integration yields tangible competitiveness outcomes. In regions where institutional and infrastructural gaps persist, particularly in Africa, investments in transport, digital connectivity, and human capital are essential to maximize the benefits of trade liberalization. Governments should also adopt data-driven monitoring frameworks using competitiveness indices, trade intensity ratios, and innovation metrics to evaluate policy performance and inform adaptive governance. Embedding trade strategies within national development agendas that prioritize education, digital literacy, and R&D will ensure that trade-induced growth translates into long-term competitive capacity. Lastly, future policy and research should explore emerging competitiveness dimensions—including digital trade, sustainability-oriented supply chains, and artificial intelligence-driven market intelligence—to align trade frameworks with the realities of the fourth industrial revolution. Collectively, these recommendations emphasize that sustainable competitiveness requires multidimensional strategies grounded in institutional resilience, technological adaptation, and inclusive trade integration.

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