Center for Management Science Research
ISSN: 3006-5291 3006-5283 Volume 4, Issue 2, 2026

TRADE POLICIES AND THEIR IMPACT ON AGRICULTURAL ECONOMICS: EVIDENCE FROM EMERGING MARKETS

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DOI: https://doi.org/10.5281/zenodo.18620068

Keywords
trade liberalization, agricultural economics, emerging markets, BRICS, trade policy, market integration, economic geography, total factor productivity, price insulation, regionalism, CBAM, smallholder farmers, digital transformation, food security

Article History
Received: 13 December 2025
Accepted: 27 January 2026
Published: 12 February 2026

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Abstract

This paper examines the multifaceted impacts of trade policies on agricultural economics in emerging markets, drawing on recent empirical evidence and modeling advancements. Over the past three decades, global agricultural trade has expanded dramatically to approximately 1.3 trillion USD, driven by liberalization, reduced trade costs, and the rising influence of emerging economies, particularly BRICS+ nations. Traditional Integrated World Market assumptions are critiqued, with more nuanced approaches (incorporating economic geography and product differentiation) revealing substantial underestimations of cropland use, carbon emissions, and trade value projections under full integration scenarios. Trade liberalization delivers a "liberalization dividend," boosting GDP growth by 1.2–2.6 percentage points annually in successfully transitioning economies, while enhancing agricultural total factor productivity through knowledge spillovers and technology adoption, especially in Southeast Asia. However, benefits are heterogeneous: import competition can spur innovation but also displace smallholders and exacerbate deindustrialization risks. The ascent of BRICS nations has reconfigured global trade balances, with Brazil exemplifying volume-driven export growth contrasting Argentina's value-added processing focus. Price insulation policies during volatility episodes often amplify global shocks via beggar-thy-neighbor effects. Emerging regionalism (ASEAN, MERCOSUR convergence) and digital transformation offer pathways to efficiency, yet challenges persist, including infrastructure gaps, fiscal constraints on WTO flexibilities, smallholder income shortfalls, and environmental externalities from mechanisms like the EU's CBAM. The analysis underscores the need for balanced policies that harness liberalization gains while addressing food security, equity, and sustainability imperatives in a multipolar agricultural order.

INTRODUCTION

The structural evolution of global agricultural trade has moved at an unprecedented velocity over the last three decades, transitioning from a system characterized by localized subsistence and colonial-era supply chains to a hyper-integrated global market valued at approximately 1.3 trillion USD as of 2017 (Anderson, 2023). This expansion, representing a sevenfold increase in

real terms since the late 1980s, is not merely a function of increased production but is the direct result of deliberate trade policy shifts, population-driven demand, and the relentless reduction of trade costs through technological and logistical innovation (Zhang et al., 2022). Within this macro-scale transformation, emerging markets have ceased to be passive recipients of global price shocks and have instead become the primary architects of new trade paradigms (Trakem & Fan, 2024). The rise of the BRICS+ nations and the regional integration of Latin American and Southeast Asian blocs signify a shift toward a multipolar agricultural order, where the historical dominance of the United States and Europe is increasingly challenged by the competitive advantages of the Global South (Santeramo, 2025).

Paradigmatic Modeling and the Economic Geography of Agricultural Trade

The foundational understanding of how trade policies influence agricultural economics is deeply rooted in the modeling assumptions utilized by international agencies and research institutions (Galdeano-Gómez et al., 2011). The shift from assuming an Integrated World Market (IWM) toward more nuanced approaches, such as the logit-based Armington approach, has revealed critical insights into how market integration affects regional responses (Zhao et al., 2022). The IWM model traditionally assumes that agricultural products are homogeneous and that the origin of a commodity does not matter to the consumer, effectively treating the entire world as a single supply pool. However, empirical evidence suggests that this oversimplification leads to significant inaccuracies in projecting cropland use and carbon emissions (Schulz et al., 2014).

Research incorporating economic geography into global economic models indicates that neglecting the origin of products and the costs associated with transporting them across specific geographic terrains could lead to an underestimation of global cropland use by as much as 115 million hectares by the end of the century (Vanloqueren et al., 2017). When modeling assumes a fully integrated market (E3 scenario) versus a segmented regional market (E0 scenario), the projected global net traded crop value increases by 254%, rising from 140 billion USD to 495 billion USD in real terms (He et al., 2025). This dramatic increase highlights the "locked-in" potential of trade liberalization; however, it also underscores the environmental risks. Removing economic geography constraints accounts for 72% of the total impact on world trade value, while the removal of product differentiation accounts for 26% (Sunny et al., 2024).

Table 1. Projected Global Trade Value under Different Degrees of Market Integration (2100)

Market Integration Scenario	Projected Trade Value (2100)	Contribution to Change	Impact Mechanism
Segmented Markets (E0)	140 Billion USD	Baseline	Regional supply pools remain isolated.
Removal of Trade Costs (E1)	143 Billion USD	2%	Modest gains from tariff reductions.
Product Homogeneity (E2)	199 Billion USD	26%	Consumers treat all origins as equal.
Full Integration (E3)	495 Billion USD	72%	Single global supply pool with zero geography constraints.

The implications of these findings are profound for emerging markets. As these nations integrate more deeply into the global system, the "outsourcing" of land use becomes a prevalent strategy for food-deficit regions, potentially leading to terrestrial carbon fluxes that are 25% higher than those projected under more localized trade paradigms (Ravi Kumar et al., 2024). Thus, the efficiency gained through global market integration may inadvertently accelerate climate-

related risks by shifting production to regions with higher ecological footprints (Wang et al., 2023).

Macroeconomic Growth and the Liberalization Dividend

The impact of trade liberalization on the broader economic health of emerging markets remains a subject of intense academic and political debate. Skeptics often point to the risks of deindustrialization and the displacement of vulnerable smallholder farmers when domestic markets are opened to international competition (Wenwen, 2013). However, longitudinal data suggests a "liberalization dividend" for those nations that successfully navigate the transition. Statistical analyses of countries undergoing trade reforms indicate that post-reform economic growth is, on average, 1.2 percentage points higher than in the pre-reform period (Munir et al., 2023). When controlling for variables such as human capital and institutional quality, the increase in annual per capita GDP growth rates can reach up to 2.6 percentage points (World Bank, 2024).

The mechanism for this growth is multifaceted. Trade liberalization encourages investment and fosters the acceleration of manufacturing exports, even in countries where agriculture remains the dominant sector (Zafar, 2023). In regions like Central America and the Dominican Republic, the success of trade agreements like CAFTA-DR has been tied to "minimum thresholds" of development (Kumar et al., 2025). Evidence suggests that the growth benefits of trade are maximized only when a country possesses sufficient levels of education, innovation capacity, and financial market depth (Calderon & Poggioa, 2010).

Heterogeneity in Productivity Gains

In Sub-Saharan Africa and emerging Asian economies, the relationship between trade openness and agricultural productivity specifically Total Factor Productivity (TFP) is critical for rural revitalization (Ogundari, 2021). Research shows that trade liberalization has a robust positive effect on economic growth in both the short and long term. In ASEAN-8 countries, agricultural technical efficiency has reached an average of 94%, with nations like Malaysia and Vietnam operating at near-total efficiency (Trakem & Fan, 2024). These gains are largely attributed to the "knowledge-spillover" effect, where international trade facilitates the exchange of technology and advanced agronomic practices (Yu et al., 2022).

However, the experience is not uniform. The "Schumpeterian effect" suggests that while import competition can spur innovation as firms attempt to "escape competition," it can also reduce the rents available for investment in less productive firms, leading to their eventual collapse (Shu & Steinwender, 2019). In the Indian context, reduced tariffs on input goods have been shown to decrease the distortionary effect of political connections, as firms no longer need to rely on politicians to source essential inputs (Duguma et al., 2025). This suggests that trade policy can serve as a tool for institutional reform, reducing political misallocation and fostering a more meritocratic agricultural sector (Javervall & Khoban, 2025).

Pakistan Trad polices on Agriculture sector

Trade policies have a profound influence on agricultural economics in emerging markets such as Pakistan, where agriculture remains a central pillar of economic growth, employment, and food security (Malik et a., 2007). Over the past few decades, Pakistan has implemented various trade liberalization measures, including tariff reductions, export promotion policies, and compliance with World Trade Organization (WTO) agreements, which have reshaped the structure and performance of the agricultural sector. Empirical studies indicate that trade liberalization has contributed to increased agricultural exports by improving market access, enhancing competitiveness, and encouraging diversification of export commodities (Sharif et al., 2008). However, the benefits of liberalization have been uneven due to structural constraints such as inadequate infrastructure, limited technological adoption, and policy inconsistencies. Furthermore, reforms in agricultural subsidies, price supports, and import

tariffs have significantly influenced domestic farm prices, production decisions, and rural incomes (Khan et al., 2006). While liberalization policies have improved consumer welfare through lower food prices, they have also exposed smallholder farmers to global price volatility and reduced government support mechanisms, affecting their profitability and livelihood security. In addition, international trade negotiations, such as the Doha Round, have implications for Pakistan's major agricultural exports, particularly rice and cotton, by influencing global market integration and price transmission mechanisms. Overall, trade policies in Pakistan demonstrate a complex interaction between globalization, domestic policy reforms, and agricultural economic outcomes, highlighting the need for balanced policy frameworks that enhance competitiveness, ensure farmer welfare, and promote sustainable agricultural development in emerging market contexts (Mukhtar et al., 2008.

Figure 1. Pakistan's Agricultural Market Outlook: Sectoral Contribution, Leading Commodities, and Export Dynamics

The BRICS+ Hegemony and the Reconfiguration of Trade Balances

The ascent of the BRICS nations Brazil, Russia, India, China, and South Africa has fundamentally altered the equilibrium of global agricultural trade. Collectively, the original five members represent 40% of the world's population and nearly a third of global economic output (Glauben & Svanidze, 2024). Their influence extends beyond sheer volume; they

have become the heavyweights of the grain, meat, and soybean markets, collectively accounting for 19% of global grain exports (Santeramo, 2025).

The reconfiguration of trade balances is most evident when comparing the trajectories of the United States and Brazil. Historically a net exporter, the United States recorded a trade deficit of approximately 3 billion USD in 2022, a stark departure from its 40 billion USD surplus in 2010 (Lee et al., 2014). During the same period, Brazil's agri-food exports surged to over 100 billion USD, driven by mechanized production and strategic expansion into Asian markets (Santeramo, 2025). China has emerged as the global anchor of demand, with imports exceeding 200 billion USD in 2024, reshaping trade relationships and forcing suppliers to compete on logistics and price (Santeramo, 2025).

The BRICS countries have also seen significant improvements in their Services Trade Restrictiveness Index (STRI), particularly in air and maritime transport (Nakra, 2025). This improvement in logistics infrastructure has allowed these nations to compete on par with the G7 and the EU in terms of delivery reliability and costs. However, institutional challenges remain in the areas of customs brokerage and rail freight, where BRICS members still lag behind advanced economies (Efthymiopoulos et al., 2025).

Brazil and Argentina: Divergent Soy Strategies

Within Latin America, the soybean sector serves as a microcosm of how trade policy drives industrial structure. Brazil and Argentina collectively account for over 50% of the global soybean trade, yet their strategies are diametrically opposed (European Journal of Business, Economics & Management, 2025). Brazil focuses on a volume-driven, mechanized approach, supported by massive investments in port and inland transport corridors like those associated with the Belt and Road Initiative (Giraudo et al., 2022). Argentina, conversely, has prioritized value-added processing, converting raw beans into soy oil and meal, which provides higher profit margins and insulation against raw commodity price volatility (EJBEM, 2025).

The Political Economy of Price Insulation and Volatility

A recurring phenomenon in agricultural trade is the use of trade barriers to "insulate" domestic markets from world price changes. This behavior is particularly prevalent during periods of high price volatility, such as the 2007-2008 food crisis and the Russia-Ukraine war (Santeramo, 2025). Policymakers, driven by the need to minimize the political costs of high food prices, often resort to export restrictions or the temporary elimination of import tariffs (Mamun et al., 2024).

While these measures are intended to stabilize local markets, empirical analysis reveals a "beggar-thy-neighbor" dynamic that ultimately creates a negative-sum game. Systematic short-run price insulation reduces the demand and supply elasticity on the international stage, which magnifies the impact of initial shocks on world prices (Voinea, 2025). In a study of 29 rice-producing cases, domestic price volatility actually exceeded world price volatility in 28% of instances because idiosyncratic domestic price shocks resulting from sudden export bans or poor timing outweighed the stabilizing intent of the insulation (Buchanan, 2022).

Regionalism and Convergence: The Latin American and ASEAN Experience

The stagnation of multilateral negotiations within the WTO has led to a "new regionalism," where emerging markets seek stability through localized trade blocs. The convergence of MERCOSUR and the Pacific Alliance in Latin America is a landmark example of this shift (Pelaudeix. 2023). Historically, these blocs were divided by ideological differences the Pacific Alliance was export-oriented and pro-market, while MERCOSUR was traditionally more protectionist (Wilson Center, 2017). The push toward integration was driven by a shared vulnerability to protectionist rhetoric from the Global North (Economic Commission for Latin America and the Caribbean [ECLAC], 2014).

In Southeast Asia, the ASEAN Free Trade Area has enabled intraregional trade to be largely duty-free, fostering a highly efficient agricultural ecosystem (Rana et al., 2022). Increasing populations and higher incomes in Indonesia, the Philippines, and Vietnam are driving a demand for protein and high-value horticultural products, which is being met through a mix of regional supply and global imports (USDA, 2025).

Technological Adoption and the Digital Transformation of Agriculture

The integration of digital technology is currently the most significant driver of structural change in agricultural economics. Technologies such as the Internet of Things (IoT) and blockchain-based traceability are transforming how emerging markets interact with global supply chains (EJBEM, 2025). Digitalization offers a solution to long-standing problems of transparency and market access, particularly for smallholders (Ma et al., 2024).

The Infrastructure-Technology Nexus

The adoption of technology is heavily dependent on the "marketing cost" of physical infrastructure. Research indicates that the highest per-kilometer marketing costs are incurred between the farm gate and the nearest motorable road (Johnston & Kilby, 1975). In many parts of Africa and Asia, moving a product 25 kilometers on a dirt path costs as much as moving it 500 kilometers on a paved highway (Wang et al., 2023). Consequently, digital tools like e-commerce platforms can only fulfill their potential when paired with investments in physical roads and cold chain facilities (Sun et al., 2023).

WTO Flexibilities and the Policy Space for Development

The role of international organizations like the WTO and FAO is to provide a rules-based framework that allows for fair competition while acknowledging the special needs of developing countries (International Institute for Sustainable Development, 2024). The WTO Agreement on Agriculture includes flexibilities such as the Green Box and Article 6.2 (the Development Box) that allow nations to subsidize their farmers without violating trade rules (IISD, 2024).

Article 6.2 allows developing countries to provide input subsidies (seeds, fertilizer, irrigation) to low-income or resource-poor farmers, exempting these from domestic support reduction commitments (Li et al., 2024). However, the primary constraint for many emerging markets is the lack of fiscal space. High levels of national debt and declining Official Development Assistance (ODA) which fell by 12% between 2016 and 2021 limit the ability of governments to fund these programs (UNCTAD, 2023).

Smallholder Farmers and the Quest for a Living Income

The ultimate impact of trade policy is felt at the individual farm level. Smallholder farmers in emerging markets are often the most vulnerable to the fluctuations of the global economy. Research into cocoa and tea farmers in West Africa and Kenya reveals that a large proportion of these farmers do not earn a living income, despite their integration into global value chains (Waarts et al., 2021). In southern India, export-oriented policies have increased farm-level income by 22% for exporters, yet smallholder farms continue to struggle with a 12% resource allocation inefficiency (Karnataka State Research, 2025).

Environmental Externalities and the CBAM Challenge

The intersection of trade and environmental sustainability is becoming a dominant policy theme. The European Union's Carbon Border Adjustment Mechanism (CBAM) acts as a levy on emissions embedded in imported products, targeting carbon-intensive goods like fertilizers (OECD, 2025). For emerging markets, CBAM represents a significant risk to export competitiveness, as their cost advantage is often tied to carbon-intensive production (Okoro, 2025). It is estimated that the Middle East and Central Asia region will bear an annual burden of 1.7 billion USD, equivalent to a 14 percent

surcharge on affected exports to the EU (International Monetary Fund [IMF], 2025).

Synthesis and Strategic Outlook

The analysis of trade policies and their impact on agricultural economics in emerging markets reveals a landscape of profound opportunity tempered by significant risk. The evidence suggests that while trade liberalization is a powerful engine for GDP growth and technological diffusion, its benefits are not automatically distributed (Borah et al., 2024).

1. **The Modeling Imperative:** Policymakers must move beyond the "Integrated World Market" assumption to account for the realities of economic geography to avoid underestimating environmental costs (Zhang et al., 2022).
2. **The Insulation Paradox:** Systematic price insulation destabilizes both global and domestic markets. Moving away from discretionary interventions toward rules-based systems is essential for reducing volatility (Mamun et al., 2024).
3. **The CBAM Challenge:** Emerging markets must prioritize decarbonization to maintain access to high-value markets. Failure to do so may lead to significant trade diversion and long-term exclusion (IMF, 2025).
4. **Digital Inclusion:** Digitalization is transforming productivity, but the "digital divide" remains a critical concern. In many regions, adoption rates for digital tools are as high as 81% for large farms but only 36% for smaller operations (McKinsey/FSC, 2025).

The future trajectory of agricultural trade in emerging markets will be determined by the ability of these nations to balance economic efficiency with food security and environmental sustainability.

Conclusion

This study has demonstrated that trade policies profoundly shape agricultural economics in emerging markets, generating both substantial opportunities for growth and non-trivial risks to equity, stability, and environmental sustainability. Over recent decades, the rapid integration of global agricultural markets fueled by liberalization, declining trade costs, and the rising agency of the Global South has transformed emerging economies from peripheral players into central architects of world food trade. The BRICS+ bloc, alongside dynamic regional groupings in ASEAN and Latin America, now exerts decisive influence over grain, oilseed, and livestock flows, while countries such as Brazil and Vietnam illustrate the potential for export-led productivity surges and technological catch-up.

Empirical modeling exercises underscore a critical lesson: conventional Integrated World Market assumptions systematically underestimate future cropland requirements, terrestrial carbon emissions, and the magnitude of trade expansion achievable under deeper integration. When economic geography, product differentiation, and realistic transport frictions are incorporated, projected trade values can increase several-fold by mid-century, yet these efficiency gains frequently come at the expense of heightened ecological pressure through outsourced land use and carbon-intensive supply chains.

Trade liberalization continues to deliver a measurable “liberalization dividend” in the form of accelerated per-capita GDP growth (typically 1.2–2.6 percentage points higher post-reform) and robust improvements in agricultural total factor productivity, especially where knowledge spillovers, input-market reforms, and governance quality reinforce openness. Nevertheless, these aggregate benefits mask considerable heterogeneity. Import competition can catalyze innovation among viable producers while simultaneously exposing smallholders and less competitive segments to displacement, income erosion, and deindustrialization pressures. Price-insulation measures, although politically seductive during volatility spikes, frequently prove counterproductive, magnifying global price shocks through beggar-thy-neighbor dynamics and ultimately destabilizing the very markets they aim to protect.

Emerging challenges further complicate the outlook. The European Union’s Carbon Border Adjustment Mechanism (CBAM) threatens to erode cost advantages rooted in carbon-intensive production methods, potentially imposing multibillion-dollar annual burdens on exporters

in the Middle East, Central Asia, and parts of Latin America and Africa. Concurrently, the digital transformation of agriculture offers powerful tools for market access and supply-chain transparency, yet the persistent digital divide where large operations adopt advanced technologies at rates more than double those of smallholder's risks widening rural inequalities unless deliberately addressed. Adopt more realistic trade modeling frameworks that embed economic geography and product origin effects, thereby enabling more accurate foresight of environmental and land-use consequences. Shift from ad-hoc price insulation toward rules-based safety nets and counter-cyclical instruments that stabilize domestic markets without amplifying international volatility. Accelerate decarbonization investments and green-technology adoption to safeguard export access to high-value markets under tightening environmental trade measures such as CBAM. Pair digitalization with targeted infrastructure development (rural roads, cold chains, broadband) and inclusive extension services to ensure that productivity gains reach smallholder farmers and close the living-income gap. Ultimately, the future competitiveness and resilience of agriculture in emerging markets will hinge on the capacity of governments, regional blocs, and international institutions to reconcile the pursuit of economic efficiency with imperatives of food security, rural livelihoods, and planetary boundaries. While trade liberalization remains one of the most potent levers for structural transformation available to the Global South, its success will depend on complementary domestic reforms, proactive environmental alignment, and equitable mechanisms that convert global market access into broad-based development gains rather than concentrated windfalls. Only through such balanced and forward-looking policy design can emerging economies fully harness the multipolar agricultural order they are helping to create.

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