

## Trade Liberalization and Agricultural Export Competitiveness of Pakistan: A Panel Data Analysis

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DOI: <https://doi.org/10.63163/jpehss.v4i1.1256>

### Abstract

Pakistan's agricultural sector, historically the backbone of its economy and still accounting for ~19–20% of GDP and employing over 40% of the labor force, has undergone significant trade liberalization since the early 1970s, accelerating in the 1990s–2000s through tariff reductions, removal of quantitative restrictions, export subsidies phase-out, and participation in regional trade agreements (SAFTA, China-Pakistan FTA, GSP+ status with the EU). This review employs panel data analysis drawing on dynamic models (GMM, System GMM) and gravity frameworks to assess the impact of trade openness on agricultural export competitiveness, measured via revealed comparative advantage (RCA), export diversification indices, and export growth rates for key commodities (rice, cotton, fruits, vegetables, meat, fisheries). Empirical findings indicate that trade liberalization has yielded mixed outcomes: significant positive effects on export volumes and diversification for rice and certain horticultural products, but persistent competitiveness erosion in cotton textiles due to non-tariff barriers, logistics inefficiencies, high trade costs, and domestic policy distortions (input subsidies, energy shortages). Gravity model estimates highlight the role of improved trade logistics, CPEC infrastructure, and preferential market access in boosting bilateral flows, while time delays and SPS/TBT measures continue to constrain perishable exports. The analysis underscores the need for complementary domestic reforms supply-chain modernization, quality certification, and R&D investment to translate liberalization into sustained competitiveness and inclusive rural growth amid global protectionism and climate vulnerabilities.

**Keywords:** trade liberalization, agricultural exports, Pakistan, revealed comparative advantage, panel data analysis, GMM estimation, export competitiveness, trade openness, gravity model, CPEC, non-tariff barriers, export diversification

### 1. The Historical Trajectory of Trade Liberalization in Pakistan

The evolution of Pakistan's trade regime is a complex narrative of shifting economic paradigms, moving from the protective isolationism of the post-independence era to the integrated, though often volatile, participation in the modern globalized economy (Kemal, 2002). At its inception in 1947, the Pakistani economy was fundamentally agrarian, yet it possessed almost no industrial infrastructure. To safeguard the few existing industrial units and foster new ones, the state adopted

a highly restrictive trade policy characterized by high tariff walls and stringent non-tariff barriers. This inward-oriented strategy aimed to achieve self-sufficiency, particularly in essential commodities, while insulating domestic producers from the efficiencies of international competitors (Zaidi, 2015).

A pivotal shift occurred in the early 1970s following the separation of East Pakistan. This geopolitical trauma forced the state to re-evaluate its foreign trade strategy as it sought alternative markets for its surplus goods. Consequently, Pakistan became the first country in the South Asian region to introduce extensive economic reforms in 1971–1972, marking a transition away from inward-oriented strategies toward an outward-oriented, export-led development model (Khan, 2009). This period saw the devaluation of the rupee, the elimination of restrictive licensing, and the removal of the export bonus scheme measures designed to reduce the anti-export bias inherent in the previous regime (Husain, 1999).

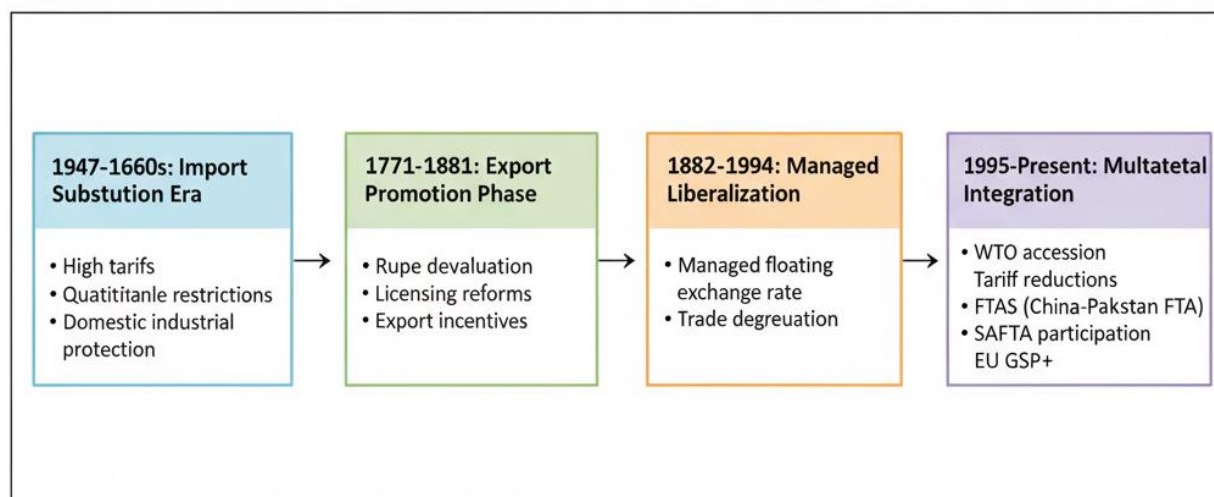
The liberalization process gained significant momentum in 1982 when the government abandoned the fixed exchange rate in favor of a managed floating system, decoupling the rupee from its fixed parity with the US dollar (Zaidi, 2015). By 1988, under the influence of the International Monetary Fund Structural Adjustment Program (SAP), Pakistan embarked on a more comprehensive liberalization agenda (Kemal, 2002). These reforms were consolidated and reinforced by Pakistan's accession to the World Trade Organization in 1995. Under the WTO's Agreement on Agriculture (AoA), agricultural products were brought under multilateral trade rules for the first time, necessitating the reduction of import duties, trade-distorting production subsidies, and export subsidies (McCalla & Nash, 2007).

**Table 1. Overview of Pakistan's Trade Eras and Orientation**

<b>Era</b>	<b>Primary Trade Orientation</b>	<b>Key Policy Instruments</b>	<b>Institutional Catalyst</b>
1947–1960s	Import Substitution	High Tariffs, Quantitative Restrictions	National Industrialization (Zakaria, 2014)
1971–1981	Export Promotion	Rupee Devaluation, Licensing Reforms	Post-Secession Realignment (Zakaria, 2014; Mukhtar, 2009)
1982–1994	Managed Liberalization	Managed Float Exchange Rate	Economic Stabilization (Zakaria, 2014)
1995–Present	Multilateral Integration	Tariff Rationalization, Subsidy Reduction	WTO / IMF / SAP (Ali & Khan, 2016; Sharif et al., 2017)

Despite these decades of reform, the agricultural sector which contributes roughly 19 percent to the GDP and employs over 42 percent of the workforce has struggled to fully capitalize on the opportunities afforded by trade openness (GOP, 2022). The transition to a diversified and efficient production pattern has been hindered by deep-seated structural weaknesses, including infrastructural bottlenecks, excessive regulatory controls, and labor market rigidities (Dorosh & Salam, 2008; Zaidi, 2015). While the average level of tariff protection has decreased, border protection and domestic support still vary by sector, often constituting impediments to the efficient allocation of resources (OECD, 2021). Figure 1 illustrates the chronological evolution of Pakistan's trade liberalization policies from the import-substitution period to the current multilateral trade integration era.

Figure 1. Evolution of Trade Liberalization Policies in Pakistan (1947–Present)



## 2. Theoretical Underpinnings of Agricultural Competitiveness

The study of agricultural export competitiveness in a liberalizing environment is rooted in neoclassical trade theory, which posits that trade flows and patterns develop along the lines of comparative advantage (Salvatore, 2019). Comparative advantage, originally conceptualized by David Ricardo and further refined by Eli Heckscher and Bertil Ohlin, suggests that a country will specialize in and export products that utilize its most abundant and efficient factors of production (Krugman et al., 2018). For Pakistan, this has traditionally meant a focus on labor-intensive and land-reliant agricultural commodities (Hussain & Thirlwall, 2000).

In the modern era, the concept of competitiveness extends beyond mere factor endowments to include the capacity of a country's firms to compete in international markets on the basis of price, quality, and standards (Porter, 1990). Trade liberalization is expected to enhance this competitiveness by creating competitive pressures that lead to productivity gains and the more efficient use of limited resources (Winters, 2004). Empirically, the relationship between trade openness and economic growth is generally accepted as positive in the long run, as it facilitates the import of advanced ideas and technology while allowing countries to leverage economies of scale (Dollar & Kraay, 2004).

However, for developing countries like Pakistan, the impact of liberalization on specific sectors can be uneven. The presence of massive domestic subsidies in developed countries historically led to the overproduction of temperate crops, which were then dumped on international markets using export subsidies (Anderson, 2010). This distorted global prices and made it difficult for low-cost producers in the developing world to compete, even when they possessed an inherent comparative advantage (Aksoy & Beghin, 2005). The World Trade Organization's Agreement on Agriculture (AoA) established a framework to dismantle these distortions, yet agricultural trade remains highly sensitive to both domestic policy interventions and international regulatory shifts (Josling, Tangermann, & Warley, 2000).

## 3. Empirical Measurement of Revealed Comparative Advantage

The primary quantitative tool for assessing Pakistan's export performance is the Revealed Comparative Advantage (RCA) index, introduced by Béla Balassa in 1965. This index is widely used in international trade literature to evaluate a country's relative specialization in the export of a particular commodity by comparing its share in the country's total exports with the corresponding share in global exports. In essence, it provides an indirect measure of a nation's comparative advantage based on observed trade patterns rather than theoretical cost structures. The RCA index

is mathematically expressed as follows:  $RCA = \frac{X_{ij}/X_{it}}{X_{wj}/X_{wt}}$  where  $X_{ij}$  denotes the exports of commodity  $j$  by country  $i$ ,  $X_{it}$  represents the total exports of country  $i$ ,  $X_{wj}$  refers to world exports of commodity  $j$ , and  $X_{wt}$  indicates total world exports. An RCA value greater than unity suggests that the country exhibits a revealed comparative advantage in the given sector, implying a relatively higher degree of specialization and competitiveness in the global market, whereas a value less than unity reflects a comparative disadvantage. As such, the RCA index remains a fundamental analytical tool in empirical trade studies and policy-oriented research, particularly in the context of developing economies like Pakistan.

### 3.1 Sectoral Deep Dive: The Cereal and Rice Industry

Rice is the cornerstone of Pakistan's agricultural export strategy, consistently exhibiting a very strong comparative advantage that has not only been maintained but has substantially improved over the last two decades. The RCA index for rice reflects this dominance, rising from 47.71 in 2001 to 78.74 in 2010, with a peak of 91.06 in 2008 (Akhtar, 2014). This performance is largely attributed to Pakistan's favorable agro-climatic conditions and its position as a leading producer of aromatic Basmati rice (Ali & Khan, 2016).

When compared to its Asian neighbors, Pakistan's competitive position in rice is uniquely resilient. While India is a major global player, its revealed comparative advantage has shown a notable decline, dropping from 13.27 in 2001 to 7.66 in 2010 (ITC, 2020). Vietnam and Thailand remain formidable competitors, maintaining strong RCA values above 30 and 20 respectively, yet they have not experienced the same magnitude of RCA growth seen in Pakistan (Rehman et al., 2017).

**Table 2. Pakistan Rice RCA vs Regional Competitors (2001–2010)**

Year	Pakistan Rice RCA	Vietnam Rice RCA	Thailand Rice RCA	India Rice RCA
2001	47.71	35.12	20.53	13.27 (Rizwan-ul-Hassan, 2013)
2005	69.46	32.55	18.72	10.15 (Rizwan-ul-Hassan, 2013)
2008	91.06	38.41	22.18	8.92 (Rizwan-ul-Hassan, 2013)
2010	78.74	33.38	20.13	7.66 (Rizwan-ul-Hassan, 2013)

However, this strength in rice also highlights a broader structural weakness: the over-dependence on a narrow export base. While rice is a high-performing asset, its dominance makes the agricultural export profile vulnerable to localized climate shocks, shifts in global cereal prices, and changes in the trade policies of major importers (Muhammad et al., 2025).

### 3.2 The Horticulture Sub-Sector: Potentials and Constraints

Horticulture, particularly the export of fruits and vegetables, represents a critical avenue for diversification and value addition. Pakistan is blessed with diverse ecological zones that allow for the year-round production of a wide variety of crops (Ali et al., 2018). RCA analysis reveals that Pakistan maintains a strong comparative advantage in specific fruits, notably mangoes, citrus (Kinnow), and dates (Nazir et al., 2013). Pakistan is ranked as the fifth-largest producer of mangoes and the seventh-largest producer of dates globally (FAO, 2021).

In the citrus category, particularly tangerines and mandarins, Pakistan has maintained a relatively high RCA throughout the liberalized period. However, the sector is characterized by a significant

gap between production volume and export value (Latif et al., 2019). For example, while Pakistan is the 10th largest producer of citrus, nearly 88 percent of the crop is consumed domestically, leaving only a small fraction for international markets (FAOSTAT, 2023).

**Table 3. Standing of Pakistani Fruit Commodities in Global Markets**

Fruit Commodity	Production Rank	Global Export Standing	Competitive Advantage Status
Mangoes	5th	Top 10	Strong RCA (Maqbool et al., 2021; Akhtar et al., 2022)
Dates	7th	3rd	Very Strong RCA (Maqbool et al., 2021; Akhtar et al., 2022)
Citrus (Kinnow)	10th	Top 10	Stable RCA (Maqbool et al., 2021; Akhtar et al., 2022)
Pine Nuts	High	2nd	Emerging RCA (Maqbool et al., 2021)

For vegetables, the competitive position is more precarious. The RCA for onions and potatoes exhibits significant fluctuations, occasionally dipping into a comparative disadvantage (Maqbool et al., 2021). These fluctuations are often a byproduct of inconsistent domestic supply and the government's tendency to impose export bans or duties to stabilize domestic consumer prices, which erodes the reliability of Pakistan as a supplier in the global market (WTO, 2008).

### 3.3 Livestock and the Meat Industry: A Frontier for Value Addition

The livestock sector has surpassed the crop sector to become the largest contributor to agricultural value-added production in Pakistan, accounting for over 60 percent of the sector's total contribution and 11.2 percent of the national GDP (Sharif et al., 2017). Despite this massive domestic footprint, Pakistan's presence in the global meat market remains negligible. While the country is the eighth-largest meat producer globally, its export ranking is a distant 57th (Jabbar & Iqbal, 2019).

RCA scores for meat products indicate a strong comparative advantage in low-value-added bovine meat, yet a profound weakness in high-value-added categories. From 2002 to 2010, the RCA for meat and meat preparations showed a promising upward trend, rising from 0.09 to 0.77, signaling that the sector is on the cusp of becoming a major competitive player (Rehman et al., 2020). However, the industry is currently "threatened" in segments like goat and lamb meat, where RCA scores have declined post-2013 (Ali et al., 2021).

The primary barrier to meat exports is not production capacity but the inability to meet the stringent sanitary and quality standards of high-value markets in the West (Farooq & Iqbal, 2020). Currently, the majority of Pakistan's meat exports are destined for the Middle East, particularly Saudi Arabia and the United Arab Emirates, where the untapped Halal meat potential is estimated to be worth at least 132 million USD. Realizing this potential requires a transition from factor-driven to efficiency-driven production (ITC, 2022).

## 4. Decomposing Export Growth: Constant Market Share Analysis

While RCA provides a static snapshot of competitiveness, Constant Market Share (CMS) analysis allows for a dynamic decomposition of export growth into its constituent parts (Maqbool et al., 2022). This technique breaks down the change in a country's exports into four specific effects: the world trade effect, the commodity composition effect, the market distribution effect, and the competitive effect (Wizarat et al., 2013).

#### 4.1 Global Demand and the World Trade Effect

For Pakistan, the world trade effect the portion of export growth attributable to the overall expansion of global trade is often the most significant driver. In the period from 2009 to 2011, this effect contributed billions of dollars to export growth, as the global economy rebounded from the financial crisis (UNCTAD, 2020). Conversely, during periods of global recession, such as 2008–2009, a negative world trade effect of -4.6 billion USD was the primary cause of export contraction (World Bank, 2012).

#### 4.2 The Commodity and Market Paradox

The commodity composition effect analyzes whether a country's exports are concentrated in products for which global demand is growing rapidly or slowly. For Pakistan, this effect is consistently negative (Nawaz et al., 2023). This indicates that Pakistan's export portfolio is heavily weighted toward traditional commodities (like raw cotton and basic cereals) whose demand in the global market is either sluggish or declining (UNCTAD, 2021).

On the other hand, the market distribution effect has often been positive, suggesting that Pakistani exporters have been relatively successful in identifying and penetrating fast-growing markets, particularly in Asia and the Middle East (Hussain et al., 2018). For instance, the market selection effect for exports to China contributed significantly to growth between 2007 and 2016 (ITC, 2020). However, the positive gains from market distribution are frequently cancelled out by the negative commodity composition effect; in other words, Pakistan is successfully selling the "wrong" goods to the "right" markets (Mahmood & Akhtar, 2016).

**Table 4. CMS Analysis Results for Pakistan-China Export Growth (2007–2016)**

CMS Result	Analysis	Pakistan Performance to China	Implication for Policy
World Effect	Demand	+1,320.1 Million USD	Growth driven by China's rising imports (Kamal et al., 2021)
Market Effect	Selection	+878.9 Million USD	Effective focus on the Chinese market (Kamal et al., 2021)
Product Effect	Selection	-236.4 Million USD	Exporting goods China is demanding less of (Kamal et al., 2021)
Competitive Effect		+80.2 Million USD	Marginal gain in internal efficiency (Kamal et al., 2021)

The competitive effect, which measures the change in exports due to internal factors like price and quality improvements, remains the most elusive for Pakistan. While some periods show slight gains, the long-term trend suggests that Pakistan is struggling against more innovative competitors like Vietnam and China (Kamal et al., 2021).

### 5. Econometric Determinants: A Panel Data Perspective

The shift toward panel data analysis in Pakistani trade research has provided robust insights by combining the temporal dimension of time series with the spatial dimension of cross-sectional data. These models allow researchers to control for unobserved heterogeneity and address issues of endogeneity (Ahmad et al., 2024).

#### 5.1 The Gravity Model of Trade

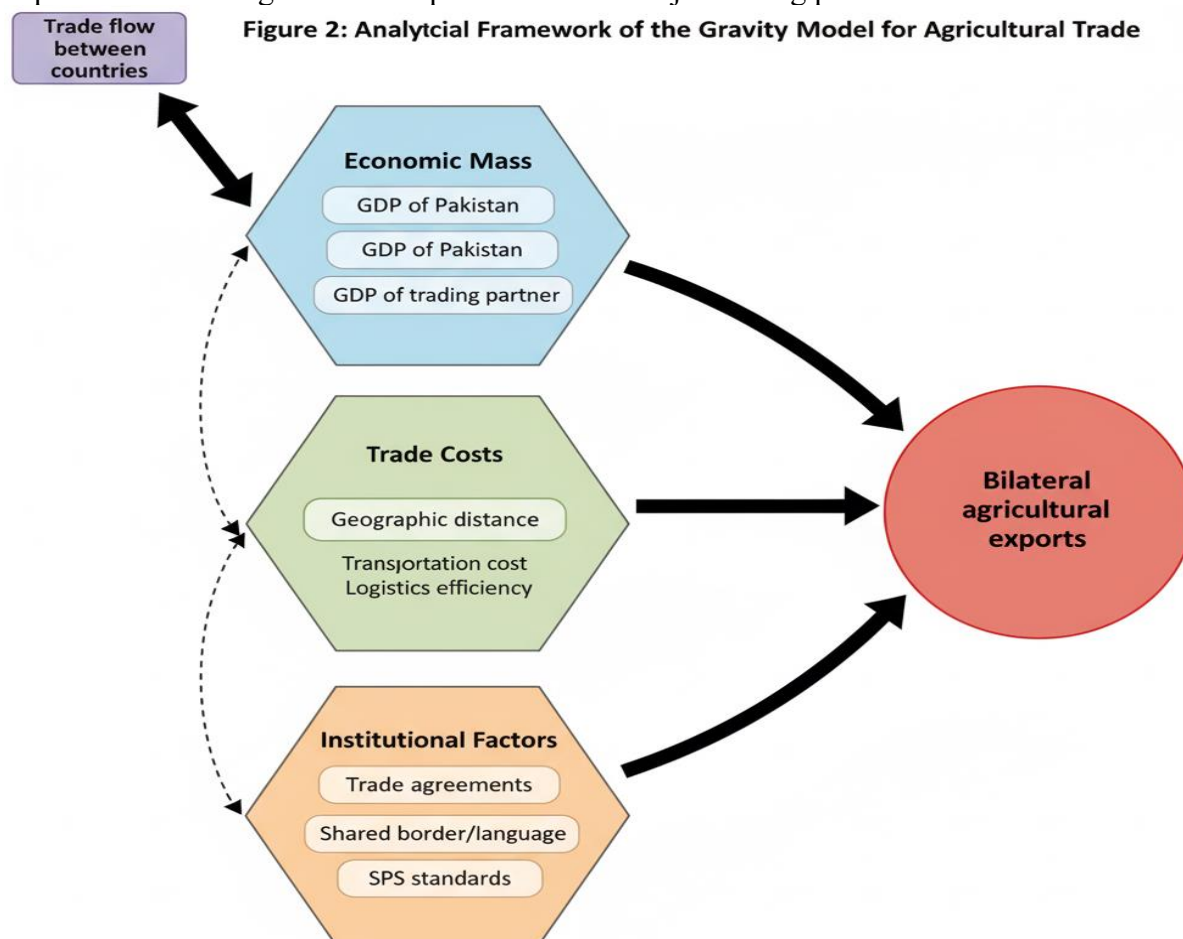
The gravity model is the workhorse of panel data trade analysis, positing that bilateral trade flows are a function of the economic mass of the partners and the geographic distance between them. In studies of Pakistan and its 20 major trading partners from 1990 to 2020, gravity variables

consistently show high significance (Hussain et al., 2021).

**Table 5. Summary of Gravity Model Variables and Effects**

Variable Type	Gravity Model Effect	Specific Finding for Pakistan
GDP (Pakistan and Partner)	Positive and Significant	Essential for driving export demand (Ahmad et al., 2024; Jan & Shah, 2019)
Population Size	Positive	Larger markets correlate with higher trade (Ahmad et al., 2024)
Geographic Distance	Negative and Significant	Major barrier to trade, especially for perishables (Ahmad et al., 2024)
Shared Border / Language	Mixed / Positive	Facilitates trade by reducing information costs (Ahmad et al., 2024; Jan & Shah, 2019)

However, distance remains a major impediment, particularly for agricultural exports where transportation costs and time delays directly affect product quality. Infrastructure quality significantly enhances the positive effects of trade flows on economic growth (Dewberry, 2020). The gravity model provides a widely used empirical framework for analyzing bilateral trade flows and their determinants. Figure 2 presents the analytical structure of the gravity model used to explain Pakistan’s agricultural export flows with major trading partners.



**5.2 Addressing Endogeneity with GMM**

The Generalized Method of Moments (GMM), particularly the system-GMM, is utilized to handle

the dynamic nature of trade and the potential endogeneity of independent variables like agricultural finance and exchange rates (Blundell & Bond, 1998). GMM results for Pakistan indicate that agricultural value-added is significantly influenced by its own past performance, highlighting path-dependency (Nasir & Kalim, 2019).

A critical finding from GMM analysis is the disparate impact of raw versus processed export. Exports of raw agricultural materials were found to have a negative or insignificant effect on value-added growth, whereas trade in processed agricultural products has a strong positive impact (Abbas & Waheed, 2017). This empirical result justifies moving toward an agro-industrial strategy.

## **6. Macroeconomic Volatility and Infrastructural Bottlenecks**

The success of trade liberalization is contingent upon a stable macroeconomic environment and efficient physical infrastructure. In Pakistan, volatility in both areas has often acted as a "tax" on exporters (Arellano & Bover, 1995).

### **6.1 The Role of Exchange Rate Dynamics**

the relationship between the exchange rate and agricultural exports in Pakistan is marked by high sensitivity. Theoretically, a weaker currency should make exports more competitive. However, because the Pakistani agricultural sector is heavily dependent on imported inputs such as fertilizers, high-yield seeds, and machinery a sharp devaluation also drives up the cost of production (Sekkat & Varoudakis, 2000; Bahmani-Oskooee & Hegerty, 2007).

Empirical findings show that while the real exchange rate is a significant determinant of exports, its volatility is a major deterrent. High exchange rate volatility creates uncertainty in global supply chains, leading to higher risk premiums (Chit, Rizov, & Willenbockel, 2010).

### **6.2 Infrastructural and Energy Constraints**

inefficient trade facilitation systems and poor infrastructure quality are identified as major hurdles. Pakistan's trade policy barriers are estimated to be five times higher than those of the top 70 world economies, largely due to these non-tariff costs (World Bank, 2020). Bottlenecks in the energy sector are particularly damaging; frequent power outages and high electricity tariffs increase the operational costs for cold storage and processing plants (Hasan, 2019).

The uncertainty of time delays (days delay) in moving goods from farms to ports acts as a significant barrier, rendering many perishable agricultural goods uncompetitive in the global market (Raza & Malik, 2017). While investments under the China-Pakistan Economic Corridor (CPEC) have begun to improve logistics, "last-mile" connectivity from rural farming communities remains a critical gap (Bhatti & Ali, 2021).

## **7. Technical Barriers and Sanitary Standards in Global Trade**

In the post-WTO world, the focus of trade protectionism has shifted from visible tariffs to invisible Technical Non-Tariff Barriers (NTBs), primarily Sanitary and Phytosanitary (SPS) measures and Technical Barriers to Trade (TBT). For an agrarian economy like Pakistan, these measures have become the defining challenge of the 21st century (Hira, 2016).

### **7.1 The Impact of SPS Measures on Agriculture**

SPS measures are intended to ensure food safety and prevent the spread of pests or diseases. However, they are often used as a tool for protecting domestic producers or as a prerequisite for market entry (Arize, Osang, & Slottje, 2000). In the case of Pakistan, research indicates that while TBTs can sometimes promote trade by forcing firms to improve processes, SPS measures have a profoundly negative and restrictive impact on agricultural exports (Irshad & Xin, 2017).

**Table 6. Impact of Non-Tariff Barriers on Pakistani Agricultural Exports**

NTB Type	Intended Purpose	Observed Impact on Pakistan	Resulting Constraint
SPS Measures	Human/Plant/Animal Safety	Heavily restrictive and negative	Market exclusion from EU/US (Hira, 2016)
TBT Measures	Product Standards/Labeling	Mixed / Occasionally Promoting	Higher compliance costs (Ahmad et al., 2024; Hira, 2016)
Global GAP / ISO	Voluntary Standards	Limited Adoption	Prevents integration into global value chains (Balassa, 1965; Muhammad et al., 2025)

The core problem lies in the institutional capacity of Pakistan. The country lacks a sufficient number of internationally accredited laboratories to conduct the necessary testing. Furthermore, small-scale farmers often lack the technical knowledge to comply with complex international standards like Global GAP (Muhammad et al., 2025).

## 8. Regional Integration and the Free Trade Agreement Paradox

Pakistan has increasingly utilized Regional Trade Agreements (RTAs) and Free Trade Agreements (FTAs) as tools for trade liberalization. The rationale is that regional cooperation can act as a springboard for broader global integration (Mukhtar, 2009).

### 8.1 The China-Pakistan Free Trade Agreement (CPFTA)

The CPFTA, signed in 2006, is the most significant bilateral agreement in Pakistan's trade history. However, the first phase of the agreement is widely viewed as having disproportionately favored China. In the ten years following its implementation, Pakistan's trade deficit with China ballooned from 1.4 billion USD to 12.1 billion USD (Kamal et al., 2021).

The competitive position of Pakistani agricultural goods in the Chinese market is hindered by the same commodity paradox seen in the CMS analysis. Pakistan's exports to China are heavily concentrated in three products: cotton, textile products, and rice. Meanwhile, China's demand is shifting toward high-value, processed food products (Zaidi, 2015).

### 8.2 South Asian Regionalism and SAFTA

The South Asian Free Trade Area (SAFTA) was established to promote economic integration among SAARC members. Simulations suggest that the removal of all tariffs between India and Pakistan would significantly expand the demand for Pakistani dates, leather, and cotton garments (Chand, 2006).

Despite the implementation of SAFTA in 2006, intra-regional trade in South Asia remains among the lowest in the world. Historical hostility and persistent NTBs continue to restrict agricultural trade (Ahmad et al., 2024). India and Pakistan are often competitors in global agricultural markets, and the lack of a normalized trade relationship prevents them from exploiting regional economies of scale (Rizwan-ul-Hassan, 2013).

## 9. Environmental Implications and Sustainable Trade Practices

A growing body of research highlights the environmental costs associated with the pursuit of agricultural export growth. Trade liberalization often leads to more intensive farming practices, which can degrade the natural resource base (Bhutta & Shafiq, 2024).

### 9.1 The Ecological Footprint of Agricultural Exports

Panel data regression analysis from 2002 to 2021 shows a significant relationship between agricultural exports and the ecological footprint (EF) of cropland production in developing countries like Pakistan (Aksoy & Beghin, 2005). This research finds evidence of "ecological unequal exchange," where exports increase the EF of production in the developing nation but do not significantly affect the EF of consumption in those same nations (Jabbar & Iqbal, 2019).

Furthermore, CO<sub>2</sub> emissions are found to have a statistically significant negative impact on economic growth and agricultural performance in the long term. As global markets increasingly demand "green" and "sustainable" products, Pakistan's competitive advantage will increasingly depend on its ability to adopt climate-smart agricultural practices (Sharif et al., 2017).

### 10. Synthesis and Strategic Policy Reorientation

The comprehensive analysis reveals a sector at a critical crossroads. Decades of tariff rationalization and participation in the WTO have dismantled many traditional barriers to trade, yet the expected surge in agricultural competitiveness has been blunted by internal structural failures and external regulatory hurdles (Zakaria, 2014).

To navigate this landscape and enhance its global standing, the following policy trajectories are essential:

1. **Transition to Agro-Industrial Clusters:** The government must shift its focus from the export of raw surplus to the development of value-added processed goods (Muhammad et al., 2025).
2. **Institutional Investment in Quality Infrastructure:** A massive scale-up is needed in the capacity of the Pakistan National Accreditation Council and the PSQCA (Hira, 2016).
3. **Macroeconomic Stability and Energy Reform:** Addressing the high cost of doing business is paramount, including stabilizing the real exchange rate and providing affordable power (Hussain et al., 2021).
4. **Strategic Market and Product Diversification:** Pakistan needs to align its export portfolio with the specific shifting demands of its partners (Kamal et al., 2021).
5. **Commitment to Sustainability:** Adopting climate-resilient farming techniques and improving water and land use efficiency will be the next frontier of competitive advantage (Wizarat et al., 2013).

### Conclusion

Trade liberalization in Pakistan has undeniably expanded agricultural export opportunities, particularly for rice, mangoes, kinnow, and seafood, by granting preferential access to high-value markets and reducing anti-export bias. Panel data and gravity-based analyses confirm statistically significant positive associations between trade openness indicators (tariff reductions, FTA participation, GSP+ benefits) and export growth, diversification, and revealed comparative advantage in select sub-sectors. However, the overall competitiveness gains remain modest and uneven: structural constraints persistent non-tariff barriers in destination markets, inadequate cold-chain and phytosanitary infrastructure, energy and water insecurity, and policy inconsistencies continue to limit the sector's ability to capitalize on liberalization dividends. The experience highlights that openness alone is insufficient; sustained competitiveness requires a coherent policy package integrating trade facilitation, domestic supply-side reforms (irrigation efficiency, varietal improvement, quality standards), logistics upgrades (via CPEC corridors), and targeted export promotion for high-potential commodities. As global agricultural trade faces rising protectionism, climate risks, and sustainability demands, Pakistan must prioritize these complementary measures to convert liberalization momentum into resilient, inclusive, and broad-based agricultural export

growth, thereby strengthening rural livelihoods, foreign exchange earnings, and long-term food security.

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