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Impact of WTO Agricultural Reforms on India's Agricultural Trade Competitiveness

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Abstract

The establishment of the World Trade Organization (WTO) in 1995 and the entry into force of the Agreement on Agriculture (AoA) brought about a fundamental change in the global agricultural trade framework. The Agreement on Agriculture (AoA) under the World Trade Organization (WTO) redefined global agricultural trade by promoting market-oriented reforms and reducing protectionism. For the Indian economy, this has deep agricultural roots, this transition brought about a significant policy shift towards liberalization, market integration, and export orientation. This paper critically examines how the WTO agricultural reforms have impacted India's agricultural trade performance and competitiveness. Using secondary data from 1990 to 2024, it analyses export-import trends, assesses competitiveness using the Revealed Comparative Advantage (RCA) index, and assesses welfare outcomes for farmers and rural producers. The study finds that India's export competitiveness has strengthened significantly in traditional exports such as rice, seafood, and cotton, while there has been a relative decline in traditional exports such as tea and coffee. Despite the overall economic benefits, challenges remain in the form of non-tariff barriers, limited infrastructure and unequal benefits for small farmers. The paper concludes that sustainable trade competitiveness will depend on productivity growth, policy coherence and inclusive trade reforms. Although the WTO AoA has benefited greatly from the export of some products, in recent times there has been a situation where farming is becoming unaffordable due to rising production costs. Therefore, the government should think in the farmers' favour and create a system that protects the interests of Indian farmers.

Keywords: *WTO, Agreement on Agriculture, India, Agricultural Trade, Competitiveness, Export Liberalization*

Introduction

Agriculture is the backbone of the Indian economy; it plays a key role in India's socio-economic framework. It contributes approximately 17% to the national gross domestic product and provides livelihood to almost half of India's population. Despite gradual structural transformation, agriculture remains important for food security, employment and rural well-being. The establishment of the World Trade Organization (WTO) in 1995 and its Agreement on Agriculture (AoA) brought about changes in global agricultural trade policies by introducing binding commitments on tariffs, domestic support and export subsidies. The intention was to create a level playing field by reducing trade distortions. However, its implications for developing countries like India are complex. India's agricultural policy before the WTO was largely protectionist, involving quantitative restrictions, export controls and high tariffs. After 1995, India took several liberalization measures in line with the provisions of the AoA - replacing quantitative restrictions with tariffs, rationalizing subsidies and increasing market access. However, the results have been mixed. Export growth has improved in selected commodities, while the welfare of small farmers and price stability remain vulnerable. This study seeks to analyze India's agricultural trade performance after WTO reforms and assess whether liberalization has enhanced global competitiveness and benefited rural producers.

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Review of Literature

There have been many studies on WTO and Agricultural. The most of the important review on this topic are discussed here. Gulati and Narayanan (2003), in their book *"The WTO and Indian Agriculture"*, they are argue that WTO-induced trade liberalization led to an overall improvement in India's agricultural exports but simultaneously exposed farmers to international price volatility and market risks. Similarly, Chand (2018) in his paper *"Agricultural Trade Policy and Food Security in India"* observe that export growth has been commodity-specific mainly driven by rice, marine products, and cotton, while imports of edible oils and pulses have significantly increased post-liberalization. Dev and Rao (2012), through their study *"Agricultural Price Policy, Farm Profitability and Food Security in India"*, emphasize that trade reforms have largely bypassed small and marginal farmers due to unequal access to markets, inadequate infrastructure, and weak institutional support systems. Joshi, Gulati and Landes (2007) in their IFPRI discussion paper on agricultural diversification and smallholders in South Asia reveal that India's export competitiveness has improved mainly in high-value products such as fruits, vegetables and dairy products, reflecting a shift towards diversified exports. Ramesh Chand (2010), in "Understanding the Nature and Causes of Food Inflation" (EPW), argues that the subsidy rules of the AoA limit the policy space of developing countries like India, particularly regarding minimum support prices (MSP). Moreover, WTO (2023), World Trade Report 2023 and UNCTAD (2022) emphasize that while India is complying with its AoA obligations, non-tariff barriers (SPS and TBT measures) and high imposed tariffs continue to challenge market access for Indian agricultural products. Despite this research, there is little clear empirical link between India's WTO-era reforms, trade competitiveness and farmer welfare, which this paper aims to fill.

Objectives of the Study

1. To analyze trends of imports and exports in India's agricultural before and after WTO reforms.
2. To evaluate the competitiveness of India's major agricultural commodities in world markets.
3. To assess the benefit of small farmers and rural producers whether trade liberalization.
4. To draw policy implications for promoting agricultural competitiveness and export potential.

Methodology

This study uses a mixed methods approach, combining quantitative and qualitative analyses to assess the impact of the WTO agricultural reforms on India's trade competitiveness. Quantitative methods are used to assess trends in exports, imports and competitiveness indices, while qualitative methods help to explain policy changes and institutional responses in the post-WTO period. This research relies primarily on secondary data sources. Statistical information has been collected from the World Trade Organization (WTO) Trade Statistics, the Food and Agriculture Organization's FAOSTAT database and the UNCTAD Trade Analysis Information System (TRAINS). In addition, national data has been obtained from the Directorate General of Business Intelligence and Statistics (DGCIS), the Agricultural and Processed Food Products Export Development Authority (APEDA) and the World Bank's World Development Indicators (WDI). Together, these sources ensure the reliability and global comparability of the data. The study period is from 1990 to 2024, covering both the pre-WTO phase (1990-1995) and the post-WTO phase (1996-2024), to capture long-term structural changes. Analytical tools include the Revealed Comparative Advantage (RCA) index to measure export competitiveness, the Compound Annual Growth Rate (CAGR) to assess export trends, and policy analysis to examine tariff adjustments, subsidy structures, and compliance with WTO rules. This comprehensive approach provides a holistic understanding of India's agricultural trade performance under the WTO.

The WTO Agreement on Agriculture: Framework and India's Commitments

The WTO Agreement on Agriculture (AoA) is a landmark international agreement established in 1995 as part of the Uruguay Round of trade negotiations, which led to the establishment of the World Trade Organization (WTO). The AoA's primary objective is to create a fair, market-oriented and transparent global trading system in agriculture by reducing trade distortions caused by protectionist policies, subsidies and import restrictions. Before the AoA, world agricultural trade operated under a highly protectionist regime, with developed countries maintaining large amounts of subsidies and import barriers. The AoA sought to reform this system by introducing binding commitments in three key areas, known as its three pillars:

1. Market access: The conversion of non-tariff barriers (such as quotas) into tariffs and their gradual reduction to allow for greater imports.
2. Domestic support: The classification and regulation of subsidies based on their trade-distorting effect, classified into amber box, blue box and green box measures.

3. Export Competition: Reduction or elimination of export subsidies that artificially inflate a country's agricultural exports.

For developing countries like India, the AoA allows for special and differential treatment, which gives them flexibility in implementing commitments to protect food security, rural livelihoods, and farmers' interests. India's obligations under the AoA include binding tariffs (100-150% for most items), maintaining a domestic base of less than 10% of the value of agricultural output, and minimal export subsidies. India also made use of the "special and differential treatment" provisions available to developing countries.

Trends in India's Agricultural Trade

Export Performance

Period	Major Commodities	Export Value (USD Billion)	Export Value (USD Billion)	CAGR (%)
1990-1995	Tea, Coffee, Spices	3.6	3.6	—
1996-2005	Rice, Marine, Cotton	8.4	8.4	8.2
2006-2015	Sugar, Fruits, Vegetables	30.4	30.4	12.1
2016-2024	Basmati Rice, Marine, Processed Foods	53.0	53.0	6.5

Source: Compiled from World Trade Organization, Trade Statistics, UNCTAD TRAINS and APEDA data.

The above data presented in this table reflects the evolution of India's agricultural export performance over three decades, covering both the pre-WTO and post-WTO periods. In the pre-WTO period (1990-1995), India's agricultural exports were worth US$3.6 billion, dominated by traditional commodities such as tea, coffee and spices. There was limited diversification and restrictive trade policies during this period. Export performance remained modest, as India's agricultural trade was largely isolated from the global market.

In the post-WTO decade (1996-2005), there was a significant change in policy following the implementation of the Agreement on Agriculture. Exports more than doubled to US$8.4 billion, with a compound annual growth rate of 8.2%. Exports diversified into rice, marine products and cotton, reflecting India's increasing competitiveness in these commodities, partly due to liberalization and improved market access. Between 2006 and 2015, exports grew to US$30.4 billion, with the highest CAGR of 12.1%. This period coincides with rapid globalization, the expansion of agro-processing industries, and strong international demand for sugar, fruits, and vegetables. However, in the most recent phase (2016-2024), although export values increased to $53 billion, the CAGR fell to 6.5%, indicating a slowdown in growth.The decline could be due to fluctuations in global prices, rising non-tariff barriers and domestic supply constraints. The export composition shows an increased emphasis on basmati rice, seafood and processed foods, indicating a shift towards higher-value and processed agricultural goods.

Overall, the analysis shows that WTO-led liberalisation has increased India's export potential and product diversification, although recent trends highlight the need for a new policy focus on maintaining competitiveness and addressing structural constraints.

Import Trends

Commodity	Import Quantity (1995) in million tonnes	Import Quantity (2023) in million tonnes	CAGR (%)	Major Observations
Edible Oils	1.5	14	8.5	Rapid growth due to rising domestic consumption and limited domestic production.
Pulses	2.0	5.5	4.5	Imports compensate for domestic shortfalls; critical for protein security.
Wheat	0.8	3.2	5.5	Increasingly imported during deficit years; price-sensitive commodity.
Sugar	0.5	2.0	5.3	Imports supplement domestic supply to stabilize prices.
Maize	0.3	1.5	6.0	Driven by demand in feed and processed food industries.
Soybean & Soy Products	0.2	1.0	5.9	Rising demand in edible oils and animal feed.

Source: Compiled from World Trade Organization, Trade Statistics, UNCTAD TRAINS and APEDA data.

From the above table, the importance of the major agricultural products in India is shown that in the period of 1995 to 2023, there is a significant increase in both ratio and foreign supply dependence. The largest growth was recorded in edible oil, in 1995, from 1.5 million tonnes from 1.5 million tonnes in between 1.5 million tonnes, which shows the CAGR of 8.5%, which shows the CAGR of 8.5%, which resulted in dominant domestic use and limited domestic production. Imports of pulses increased from 2.0 to 5.5 million tonnes (CAGR 4.5%), mainly to ensure the domestic deficit and ensure protein safety. Wheat imports increased from 0.8 to 3.2 million tonnes (CAGR 5.5%), which is mostly imported in the deficit year, so that its price is underlined in sensitive form and strategic importance. Sugar imports increased from 0.5 (CAGR 5.3%) to 20 million tonnes (CAGR 5.3%) to stabilize domestic prices during the fluctuation product. The maize imports grew up to 1.5 million tonnes from 0.3 (CAGR 6.0%), it was mainly due to increasing demand in food and processed food industries. Similarly, the import of soybean and soy products to meet the needs of the edible oil and feeding needs, increased from 0.2 (cagr 5.9%). Overall, statistics show that in the last three decades, the agricultural imports of India has increased significantly, which shows the structural variation in the demand-supply, increasing domestic use and equality in the global agricultural market, which causes to improve the domestic product and import The requirements of policies were underlined to reduce dependence.

Commodity-wise Competitiveness

Commodity	Competitiveness Trend	RCA (1995)	RCA (2023)
Rice	Strong comparative advantage	3.2	6.8
Spices	Stable and growing	4.5	5.2
Tea	Declining competitiveness	2.9	1.6
Cotton	Post-liberalization surge	1.1	3.8
Sugar	Modest improvement	0.7	1.4
Marine Products	Strong export growth	2.4	5.9

Source: Agricultural and Processed Food Products Export Development Authority (APEDA). (2024). *Agri-Export Data 2023-24.* New Delhi: APEDA

The above table shows that India's commodity-wise comparative advantage (RCA) shows significant changes in agricultural competitiveness between 1995 and 2023. Rice has emerged as a strong export-oriented commodity, with its RCA increasing from 3.2 to 6.8, reflecting increased productivity, global demand for high-quality varieties and supportive export policies. Spices maintain a high and slightly increasing RCA from 4.5 to 5.2, reflecting global competitiveness driven by India's traditional expertise and quality branding. In contrast, tea shows a significant decline in RCA from 2.9 to 1.6, reflecting loss of competitiveness due to rising production costs and intensifying global competition. Cotton shows a notable improvement, with RCA increasing from 1.1 to 3.8, indicating a post-liberalization growth due to integration in the global textile market. Sugar shows a modest increase, with RCA increasing from 0.7 to 1.4, indicating a steady but limited improvement. Marine products show good export growth, with RCA increasing from 2.4 to 5.9, highlighting the success of modernization, cold chain infrastructure, and access to international markets. Overall, the analysis shows that India's post-WTO trade liberalization has increased competitiveness in select commodities such as rice, cotton, spices, and marine products, while traditional exports such as tea are declining in global performance, reflecting the uneven impact of trade reforms across different agricultural sectors.

India's Import and Export of Principle Agricultural commodities (Value in Rs. Cr)

	Agriculture Import	Total National Import	% of Agricultural Imports to Total National Imports	Agricultural Exports	Total National Export	% of Agricultural Export to Total National Exports
1990-91	1205.86	43170.82	2.79	6012.76	32527.28	18.49
1991-92	1478.27	47850.84	3.09	7838.04	44041.81	17.80
1992-93	2876.25	63374.52	4.54	9040.30	53688.26	16.84
1993-94	2327.33	73101.01	3.18	12586.55	69748.85	18.05
1994-95	5937.21	89970.70	6.60	13222.76	82673.40	15.99
1995-96	5890.10	122678.14	4.80	20397.74	106353.35	19.18
1996-97	6612.60	138919.88	4.76	24161.00	11881.32	20.33
1997-98	8784.19	154176.29	5.70	24832.45	130100.64	19.09
1998-99	14566.48	178331.69	8.17	25510.64	139751.77	18.25
1999-00	16066.73	215528.53	7.45	25313.66	159095.20	15.91
2000-01	12086.23	228306.64	5.29	28657.37	201356.45	14.23
2001-02	16256.61	245199.72	6.63	29728.61	209017.97	14.22
2002-03	17608.83	297205.87	5.92	34653.94	255137.28	13.58
2003-04	21972.68	359107.66	6.12	36415.48	293366.65	12.41
2004-05	22811.84	501064.54	4.55	41602.65	375339.53	11.08
2005-06	15977.75	660408.90	2.42	45710.97	456417.86	10.02
2006-07	23000.28	840506.31	2.74	57767.87	571779.28	10.10
2007-08	22549.81	1012311.70	2.23	74673.48	655863.52	11.39
2008-09	28719.24	1374435.55	2.09	81064.52	84.755.06	9.64
2009-10	54365.29	1363735.55	3.99	84443.95	845533.64	9.99
2010-11	51073.97	1683466.96	3.03	113046.58	1136964.22	9.94
2011-12	70164.51	2345463.24	2.99	182801.00	1465959.31	12.47
2012-13	95718.89	2669161.96	3.59	227192.61	1634318.29	13.90
2013-14	85727.30	2715433.91	3.16	262778.54	1905011.00	13.79
2014-15	121319.02	2737086.58	4.43	239681.04	1896348.42	12.64
2015-16	140289.22	2490305.54	5.63	215396.32	1716384.40	12.55
2016-17	164726.83	2577675.37	6.39	226651.91	1849433.55	12.26

Sources: Directorate of General of Commercial Intelligence &Statistics, Department of Commerce

The above table depicts India's agricultural trade from 1990-91 to 2016-17, which reflects significant structural changes in the country's trade structure following economic liberalization and WTO integration. Agricultural imports, which constituted only 2.79% of total national imports in 1990-91, gradually increased to about 6.39% by 2016-17, reflecting increasing dependence on imported items such as edible oils, pulses and cereals to meet domestic demand. Import growth accelerated after 2000, reflecting a widening gap between production and consumption in key sectors. On the other hand, agricultural exports maintained a relatively strong position, although their share in total national exports declined from 18.49% in 1990-91 to about 12.26% in 2016-17. This trend shows that although India's total export basket has shifted towards manufacturing and services, the relative importance of agriculture in total exports has declined. However, in absolute terms, agricultural exports have grown significantly due to items such as rice, spices, cotton and marine products. The overall data highlights a dual dynamic of growing export potential in some high-value sectors and increasing import dependence for essential food items. These trends highlight the mixed effects of post-WTO trade liberalization, where India's agriculture sector gained a global presence but faced new vulnerabilities in food import dependence and price volatility.

Impact on Farmers and Rural Livelihoods

While macroeconomic indicators show export gains, micro-level welfare outcomes are uneven.

Positive Outcomes

- Increased export earnings from high-value crops like basmati rice, cotton, and marine products.
- Growth in agri-processing, logistics, and allied sectors, generating employment.
- Enhanced adoption of international quality standards and certification practices.

Negative Outcomes

- Farmers face global price volatility and rising input costs.
- Unequal distribution of benefits, smallholders often excluded from export value chains.

- Policy uncertainty regarding MSP and subsidy support (Dev & Rao, 2012).

  Thus, WTO-led liberalization has benefited commercial exporters more than small farmers, intensifying rural inequality.

Challenges to Agricultural Competitiveness

1. **Non-Tariff Barriers (NTBs):** SPS and TBT standards imposed by developed countries restrict market access.
2. **Infrastructural Constraints:** Inadequate cold storage, transportation, and port facilities.
3. **Subsidy Limitations:** WTO rules limit fiscal flexibility for farmer support.
4. **Price Volatility:** Dependence on global commodity markets exposes producers to instability.
5. **Limited Value Addition:** Exports remain concentrated in low-processed goods.
6. **Weak Institutional Mechanisms:** Inefficient farmer cooperatives and lack of risk insurance.

Policy Implications and Recommendations

1. **Strengthen domestic support that complies with the WTO:** India should gradually shift from trade-distorting input subsidies to green box measures such as agricultural research and development (R&D), irrigation efficiency, market infrastructure and rural extension services. As Chand (2018) emphasizes, such investments increase long-term productivity and comply with WTO rules.
2. **Promote value addition:** Promoting agro-processing clusters, food parks and branding initiatives can increase value capture for farmers. Expanding geographical indication (GI) tagging for unique Indian products such as Darjeeling tea or basmati rice can enhance global recognition and export competitiveness.
3. **Diversify the export basket:** India should promote organic, sustainable and climate-smart agricultural products to meet the preferences and environmental standards of emerging global consumers. Diversification will also reduce over-reliance on a few traditional commodities.
4. **Increase market access:** India needs to negotiate to reduce non-tariff barriers (NTBs) such as SPS and TBT measures and gain greater representation in WTO agriculture committees to ensure fairer trade opportunities for developing countries.
5. **Empowering small farmers:** Strengthening farmer producer organizations (FPOs) will enable small farmers to access export markets, collective bargaining power and access to modern technology, enabling them to integrate into global value chains.
6. **Modernizing infrastructure:** Significant investments are needed in logistics, warehousing, cold chain facilities and digital traceability systems to reduce post-harvest losses and improve export quality standards.
7. **Strategic trade policy:** India should maintain flexibility and safeguard mechanisms in tariff obligations to protect sensitive goods and ensure national food security while remaining within the WTO legal framework.
8. **Farmer-centric approach:** Finally, trade reforms should prioritize the welfare of farmers, ensuring that liberalization does not harm livelihood security. The government must create a balanced policy environment that protects the interests of farmers while promoting export growth.

Conclusion

The agricultural agreement of the World Trade Organization has impacted deep on the agricultural trade of India. During the reforms, the importance of exports in exports, exports and some items in the export baskets were refused. However, the total consequences of domestic structural challenges and unequal global trade rules have remained uneven results. Although India has used the membership of the global trade organization to integrate the global agricultural market, its benefits have gained large amounts and export-centric growers. In the future trade policies should emphasize the inclusion growth, attachment to competitiveness and to the farmers of the farmers. India's long-term agricultural competitiveness depends on growth, technical adoption, policy consistency and compromised market. With strong domestic support, a balanced approach to the global trade organization and it will ensure that globalization will strengthen India's trade status and rural prosperity.

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Conflicts of interest

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