



Original Article

An Analysis of the WTO Agreement's Impact on India's Agricultural Exports

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Abstract

The WTO Agreement on Agriculture (AoA) came into force in 1995 and since then India's agricultural trade structure has undergone a major transformation, shaped by three pillars: market access, domestic support and export subsidies. Over the past three decades, India has transformed from a relatively inward-looking agricultural economy to a significant exporter in global agricultural trade. India's agricultural exports have increased almost eightfold, from US\$6.7 billion in 1995-96 to around US\$53 billion in 2022-23, accounting for nearly 11 per cent of India's total trade exports. Major agricultural export commodities include rice (US\$10.9 billion), marine products (US\$8.1 billion), spices (US\$4.3 billion), sugar (US\$4.1 billion) and cotton (US\$2.5 billion). Imports have also grown significantly, particularly in pulses, edible oils and fruits, reflecting the twin forces of tariff liberalisation and changing dietary patterns driven by urbanisation and income growth. India has consistently used Special and Differential Treatment (S&D) provisions to protect policy space for food security, minimum support price (MSP) and rural livelihoods. However, WTO disputes such as the US-led challenge on sugar export subsidies (2019) and the ongoing negotiations on the Public Stock Holding (PSH) programme since 2013 highlight India's policy tension between domestic food security objectives and multilateral commitments. As India navigates the complexities of global agricultural trade, it needs to focus on increasing productivity, diversifying exports, strengthening value chains and ensuring sustainable food security in a liberalised but increasingly volatile global environment.

Keywords: Agreement on Agriculture, Agricultural Exports and Imports, Impact of AoA, World Trade Organization

Introduction

The WTO Agreement on Agriculture was established in 1995 and this Agreement on Agriculture (AOA) brought about a historic change by bringing global agricultural trade under a common multilateral framework. AoA Designed around three main objectives: increasing access to world markets, reducing trade-distorting domestic support, and eliminating export subsidies, the AOA sought to create a fair, transparent, and competitive global agricultural trading environment. For India, where agriculture is the backbone of the economy and the primary source of livelihood for more than half the population, the AOA presented both opportunities and challenges. On the one hand, it provided access to international markets, which paved the way for growing agricultural exports such as rice, spices, and seafood, which also saw significant growth. On the other hand, it imposed binding commitments on subsidies, tariff reductions, and stringent reporting obligations that often conflicted with India's domestic priorities, particularly those related to food security, price stability, and rural well-being.

The AoA is structured around three basic pillars, the market access pillar mandating the conversion of non-tariff barriers into tariffs and their gradual reduction. The domestic pillar controls trade-distorting subsidies through Aggregated Support Measures (AMS) and categorizes them into amber, blue and green boxes, each box representing different levels of trade distortion. The export subsidy pillar requires the gradual elimination of direct export support while ensuring regular transparency through notifications. To protect developing economies, the AoA includes special and differential treatment (S&D) provisions that provide flexibility for extended implementation periods and policy adjustments.

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Mechanisms such as the 2013 Bali Peace Clause and the ongoing negotiations on Permanent Solution for Public Stock Holdings (PSH) provide legal protection for countries like India to maintain Minimum Support Price (MSP), based procurement and food distribution programmes. Despite this flexibility, India's agriculture sector has faced challenges in competing globally due to cheap imports, dominance of multinationals and structural inefficiencies. However, through strategic policy adaptation and negotiations, India is balancing trade liberalization with its domestic requirements. This paper critically examines the impact of the WTO Agreement on Agriculture on India's agricultural exports and assesses how India's policy responses, trade policies, and participation in WTO negotiations have shaped its agricultural trade path in the evolving global economic framework.

Review of Literature

The literature on the WTO Agreement on Agriculture (AoA) highlights diverse perspectives on global trade, agricultural policy and its implications for India's agricultural economy. Abhijit Das and Sachin Kumar Sharma (2012) critically analyzed the Doha Round negotiations in their study, finding that agricultural practices were increasingly favoring developed nations, gradually reducing commitments to reduce tariffs and subsidies while reducing beneficial provisions for developing countries. Devidas G. Male (2017) emphasized that without proper domestic preparation, implementing AoA reforms could destabilize developing economies like India, urging a strong internal market to protect farmers from unfair global competition. Similarly, R. Ullamudaiyar and P. Balasubramanian (2014) argued in their study for increasing public investment, innovation and research and development so that India can equally benefit from the WTO framework. J. Sheeba and R. Reena (2019) examined India's agricultural trade trends during 2008–2018, finding a positive trade balance and diversification in exports such as rice, spices and marine products. FAO (2020) highlighted the strategic space in the AOA to promote sustainable agriculture and align trade with the Sustainable Development Goals (SDGs). Mamta Ranga and Deepti Sharma (2014) noted in their study that WTO provisions provide India with opportunities for expanded market access and export growth, as well as structural agricultural reforms. Kaliappa Kalirajan and Kanhaiya Singh (2006) observed that India's low domestic subsidies and flexible tariff bindings give it an advantageous position under AOA rules. The CRS report (2020) called for reforms to modernize AOA commitments with an emphasis on food

security and tariff protection. Finally, Sharma, Lahiri and Neogi (2020) highlighted the inequity in domestic support entitlements, where the high subsidy capacity of developed nations distorts fair competition. Taken together, these studies highlight that while the AoA offers potential benefits, its success for India depends on policy negotiations, domestic flexibility, and equitable reforms in global agricultural trade rules. The present study examined the impact of the WTO's agricultural agreement on India's exports.

Objectives of the Study

1. To examine how the WTO Agreement on Agriculture (AoA) has affected India's agricultural exports since 1995.
2. The study examines trend of the share of agricultural GDP in India.
3. To study the agricultural GDP growth rate and export rate in India.
4. To analyse how the three pillars of the AoA -market access, domestic support and export subsidies -have influenced India's agricultural trade policies.

Methodology

The present study is based on secondary sources and the study adopts a descriptive and analytical research design based on secondary data obtained from reliable sources such as WTO reports, FAO publications, APEDA statistics, Ministry of Commerce (Government of India) and World Bank trade database. Relevant literature from academic journals, policy briefs and WTO negotiation documents has been reviewed to understand both qualitative and quantitative dimensions. Various statistical tools like percentage, mean, coefficient of variation and CAGR have been used in the present study. The data were analyzed using trend analysis and comparative assessment of India's trade performance before and after the implementation of AoA (1995–2024).

Trends in India's agricultural exports

India's agricultural exports have undergone significant changes over the past few decades, reflecting changes in production patterns, global demand, and trade policies. Agriculture plays a key role in India's export economy, contributing significantly to foreign exchange earnings and rural income. With trade liberalization and infrastructure improvements, therefore India has diversified its export basket beyond traditional commodities such as tea, coffee and spices to include cereals, fruits, vegetables, marine products and processed foods.

Table 1. Export of Agricultural Commodities from India (value in million US \$)

year	Total Export	Agriculture and allied Exports	Growth Rate in Agricultural Exports	Agriculture Exports as % of Total Export
Pre-WTO Period				
1990-91	18145	3354	17.59	18.49
1991-92	17865	3203	-4.5	17.93
1992-93	18537	3126	-2.1	16.92
1993-94	22238	4028	28.4	18.11
1994-95	26331	4226	4.9	16.05

Average	20623.2	3589.4	8.86	17.5
CV	17.70	13.98	--	5.70
CAGR	10.12	7.16	--	-2.69
Post-WTO Period				
1995-96	31795	6082	43.9	19.13
1996-97	33470	6863	12.8	20.50
1997-98	35006	6626	-3.4	18.93
1998-99	33219	6035	-11.3	18.17
1999-00	36822	5608	-7.0	15.68
2000-01	44560	5973	6.5	13.5
2001-02	43827	5901	-1.7	13.5
2002-03	52719	6710	14.1	12.8
2003-04	63843	7533	12.2	11.8
2004-05	83536	8475	11.7	10.1
2005-06	103091	10214	20.5	9.9
2006-07	126414	12683	24.0	10.3
2007-08	163132	18432	45	11.3
2008-09	185295	17534	-4.8	9.5
2009-10	178751	17735	1.1	10.0
2010-11	251136	24696	39.2	9.9
2011-12	217664	37420.8	51.52	17.19
2012-13	300400.7	42356.50	13.19	14.10
2013-14	314415.7	43357.92	2.36	13.79
2014-15	310352	39290.56	-9.38	12.66
2015-16	262003.7	34503.42	-12.18	13.17
Average	136735.81	17334.72	11.82	13.62
CV	75.82	79.25	--	25.20
CAGR	14.62	12.35	--	-2.00

Source: Calculation based on data from RBI, Handbook of Statistics on Indian Economy

The above table shows the exports of agricultural products from India. During the pre-WTO period (1990-91 to 1994-95), the performance of India's agricultural and allied exports was satisfactory. Its average value was US\$ 3589.4 million and its average share in total exports was 17.5 per cent. The compound annual growth rate of 7.16 per cent during the pre-WTO period was lower than that of 12.35 per cent during the post-WTO period (1995-96 to 2014-15). The average value of agricultural and allied exports during the post-WTO period was US\$ 17334.72 million and its average share was 13.62 per cent. However, there have been various fluctuations in agricultural exports during the post-WTO period. The share of agricultural exports in total exports was 19.13 per cent in 1995-96. It initially increased to 20.50 in 1996-97. Thereafter, the share continued to decline till 2005-06, when it fell to 9.9 per cent. After that, there were several fluctuations and the share reached 13.7 per cent in 2015-16. The average share of agricultural exports during the period 1995-96 to 2015-16 was 13.62 per cent, which is lower than the average share in the pre-WTO period. This means that the average share of

agricultural exports in total exports has decreased in the post-WTO period, indicating a negative impact of the WTO on agricultural exports. This is contrary to the expectation that the WTO Agreement on Agriculture would help improve the country's agricultural exports. It would not be an exaggeration to say that this has harmed the Indian agriculture sector and farmers.

The coefficient of variation calculated in the table shows that the variability has increased over the years. The share of agricultural exports in total exports was 5.70 in the pre-WTO period, which increased to 25.20 in the post-WTO period. Further, we see that although the average value of agricultural exports increased from \$3589.4 million to \$17334.72 million in the pre-WTO period, the average share decreased from 17.5 per cent to 13.62 per cent in the post-WTO period, respectively. This means that the value of agricultural exports increased in both periods but its share in total exports decreased. This was due to the country's non-agricultural exports growing more than its agricultural exports.

Table 2. Agricultural share of GDP, growth rate and export in India

Time	Agriculture, forestry, and fishing, value added (% of GDP)	Agriculture, forestry, and fishing, value added (annual % growth)	Agricultural raw materials exports (% of merchandise exports)
1990	27.59	4.02	4.05
1991	27.66	-1.95	2.01
1992	26.90	6.65	1.60
1993	27.06	3.323	1.97
1994	26.52	4.716	1.19
1995	24.46	-0.7	1.29
1996	25.20	9.92	2.53
1997	24.25	-2.55	2.00
1998	24.18	6.32	1.66
1999	22.97	2.67	1.42
2000	21.61	-0.01	1.26
2001	21.62	6.01	1.14
2002	19.54	-6.6	1.06
2003	19.59	9.05	1.08
2004	17.82	0.18	1.20
2005	17.62	4.81	1.27
2006	16.81	2.94	1.72
2007	16.75	5.51	1.98
2008	16.79	-0.24	1.74
2009	16.74	-0.88	1.29
2010	17.03	8.79	2.23
2011	17.19	6.40	2.48
2012	16.85	1.49	4.10
2013	17.15	5.57	2.83
2014	16.79	-0.22	2.17
2015	16.18	0.65	1.77
2016	16.36	6.80	1.54
2017	16.56	6.61	1.52
2018	16.03	2.10	1.57
2019	16.76	6.16	1.15
2020	18.67	4.01	1.34
2021	17.37	4.62	1.47
2022	16.55	6.26	0.94
2023	16.19	2.66	0.82
2024	16.35	4.59	0.9

Source: World Bank Database, World Development Indicators

The data from 1990 to 2024 show a clear structural transformation in India's economy, with the share of agriculture, forestry and fishing declining from 27.6 per cent in 1990 to around 16.3 per cent in 2024, reflecting the increasing dominance of industry and services. Despite this decline in relative GDP contribution, the annual growth in agricultural value added has shown significant volatility over the years, ranging from sharp contractions (-6.6 per cent in 2002) to periods of high growth (9.9 per cent in 1996 and 8.8 per cent in 2010) reflecting the vulnerability of agriculture to climate shocks, policy changes and global market fluctuations. Meanwhile, agricultural raw material exports as a share of total merchandise exports have declined from 4.05 per cent in 1990 to less than 1 per cent in 2024, indicating that India is gradually shifting from primary commodity exports to higher-value agricultural and non-agricultural products. In the post-1995 period,

exports have diversified significantly following the WTO Agreement on Agriculture but the sector has faced global competition and price volatility. This suggests that the agricultural sector has lagged behind after the AoA. Overall, while India's agricultural production has increased in absolute terms, its relative economic contribution and share of exports have declined, underscoring the need for a policy focus on productivity, value addition and flexibility in the context of liberalised global trade dynamics.

How AoA rules matter in practice for India

1. **Taxation and market access:** Taxation required the conversion of quantitative restrictions (QRs) into binding tariffs. For many agricultural products, India negotiated relatively high tariffs (the usual developing country approach) that preserved policy space. Tax liberalization under the AoA increased market access in partner markets but, importantly, did not remove

India's domestic policy instruments -India continued to use tariffs, sanitary/phytosanitary (SPS) measures and non-tariff instruments in WTO rules to stabilize domestic markets. The net result: more integration, but with retained domestic policy flexibility.

2. **Domestic support and food-security tensions:** The AoA in principle imposes disciplines on domestic support (amber/green box, AMS, de-minimis) that limit trade-distorting subsidies. India's reliance on MSP and bulk procurement for the public distribution system (PDS), which is crucial for food security, often pushes support measures into trade-distorting or reportable areas of the AOA. India has repeatedly argued for S&D remedies and permanent remedies (the Bali "Beyond Peace Clause") to avoid legal challenges when MSP-based procurement exceeds the de-minimis threshold. These negotiations and the Peace Clause (2013) are central to India's WTO policy.
3. **Export Subsidy Discipline and Disputes:** The AOA reduced export subsidies, but countries have used a variety of schemes and instruments that are controversial. India's sugar sector has been the subject of WTO dispute settlement cases (Panels DS579/580/581 etc.) where the Panel found some schemes to be export subsidies under AOA rules - leading India to appeal or uphold its policies. These disputes illustrate the conflict between domestic support for producers, export incentives and AOA discipline.

Empirical Relationship: AoA + Domestic Policy → Observed Trade Outcomes

Growth and Relevant Policy Challenges: Evidence suggests that AoA has been consistent with long-term growth in Indian agri-exports (due to diversification, higher volume and value addition), but policy components (export bans/restrictions, procurement for domestic food security) have occasionally reduced exportable items or shifted the product mix towards items permitted for export (processed goods, high-value horticulture). For example, government restrictions on non-basmati rice and wheat in 2022-24 helped maintain domestic stocks but subtracted an estimated US\$5-6 billion from potential export earnings in FY 2023/24.

Disputes have limited some measures and forced policy recalibration: WTO dispute rulings (e.g., sugar subsidy panel findings) have raised legal doubts on some forms of producer support (FRP/MSP types) and export-incentive schemes. Such rulings may force India to modify programs, support them through appeals/negotiations (peace clause/MC decisions), or risk retaliatory measures. The ongoing sugar dispute and PSH negotiations demonstrate that AOA disciplines can be applied where domestic measures are generous and reporting is incomplete.

Constructive shift towards processed and high-value goods: As tariffs have been reduced and global demand has developed, Indian exporters have moved up the value chain in processed foods, spices, packaged goods, and horticulture—sectors less prone to immediate domestic policy constraints and more capable of capturing value.

This structural change has increased export flexibility even though staple products face export restrictions. Sectoral export growth in processed and high-value products explains part of the overall export growth.

Limitations

This paper is descriptive and draws on a combined set of government and international data; sectoral micro-studies (commodity-level econometrics) will be needed to identify the impact of the AoA separately from broader liberalization, technology, and domestic reforms. Differences in data coverage (what is included in "agriculture and related" -fisheries, processed food) lead to differences in headline values; study uses multiple sources for triangulation.

Conclusion

The analysis clearly shows that the WTO Agreement on Agriculture (AoA) has been both transformative and challenging for India's agricultural sector. Since its implementation in 1995, India has made significant progress in expanding and diversifying its agricultural exports -from a narrow base of primary commodities to a broad range of processed and high-value products. These changes reflect India's increasing integration into the global trading system and its strategic use of WTO flexibilities, such as the Special and Differential Treatment (S&D) provisions and the Bali Peace Clause, to protect food security and rural livelihoods. However, the data reveals persistent challenges: the declining share of agriculture in GDP, the volatility of export performance, and the declining contribution of agricultural products to total exports highlight productivity gaps, structural weaknesses, and sensitivity to global market fluctuations. WTO disciplines on subsidies and export measures have constrained India's policy position, creating conflicts between multilateral obligations and domestic priorities such as minimum support prices (MSPs) and public distribution systems (PDSs). In short, the WTO framework has provided opportunities for trade expansion and modernization, but has also imposed constraints that require careful policy balancing. As a result, India has not only benefited but also lost, according to the AoA. India is an agrarian democracy, with almost half of its population dependent on agriculture today. The way forward for India is to pursue inclusive, WTO-consistent agricultural reforms, promote value addition, and secure permanent multilateral arrangements for public reserves to safeguard national food security interests. Otherwise, India should pursue the interests of Indian agriculture and farmers by implementing an independent agricultural policy without accepting the terms of the WTO.

Policy Measures and Recommendations

1. **Secure a Permanent Solution (PSH) to Maintain Public Stocks:** India should actively lead negotiations for a legally binding PSH framework that addresses the food security needs of developing countries beyond the temporary Bali peace clause.
2. **Promote Green Box-consistent support:** Redirect subsidies to productivity-enhancing investments such

as agricultural research and development, irrigation, crop insurance, digital extension services, and sustainable farming practices to remain WTO-compliant while improving efficiency.

3. **Diversify and improve the export basket:** Encourage high-value and processed agricultural exports (spices, horticulture, seafood, organic and packaged foods) to reduce dependence on volatile commodity markets and enhance global competitiveness.
4. **Enhance trade transparency and compliance:** Strengthening the institutional capacity of trade and agriculture ministries to ensure timely and accurate WTO notifications of domestic support, export incentives, and tariff changes, while minimizing the risks of disputes.
5. **Strategically use tariff and non-tariff measures:** Maintaining calibrated tariffs, sanitary and phytosanitary (SPS) standards, and technical barriers to trade (TBT) in accordance with World Trade Organization rules to protect domestic producers from unfair competition.
6. **Invest in infrastructure and logistics:** Modernize rural infrastructure, cold storage, and port connectivity to reduce export transaction costs and strengthen India's agri-value chain integration.
7. **Empower farmers through trade awareness and market access:** Facilitating training and cooperative platforms to connect small farmers to export markets, using e-NAM (National Agricultural Market) and adopting quality certification standards.
8. **Strengthen agricultural diplomacy:** Build coalitions with other developing countries (G-33, African and ASEAN nations) to advocate for fair reforms to the World Trade Organization's agricultural rules, which will make domestic support rights more equitable.

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Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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