

COST-BENEFIT ANALYSIS OF WTO AGREEMENT ON AGRICULTURE AND FOOD PRODUCTION IN NIGERIA

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Abstract

The World Trade Organization (WTO) Agreement on Agriculture (AoA), since its entry into force in 1995, has fundamentally reshaped the rules governing global agricultural trade, with far-reaching implications for food production in developing economies such as Nigeria. Despite Nigeria's status as a founding WTO member, the net welfare effects of the AoA's core pillars, market access, domestic support, and export competition, on the country's agricultural sector remain a subject of considerable policy debate. This study undertakes a cost-benefit analysis of the WTO Agreement on Agriculture and its consequences for food production in Nigeria. The research is anchored on the theory of comparative advantage and structuralist trade theory. A mixed-methods design was adopted, combining structured questionnaires with key informant interviews. From a population of 1,500 farmers, agro-exporters, and trade policy stakeholders, 350 respondents were selected through stratified random sampling, yielding 320 valid questionnaires alongside eight key informant interviews. Quantitative data were analysed using descriptive statistics and chi-square testing in SPSS version 25, while qualitative responses were subjected to thematic analysis. Findings revealed that respondents perceived limited benefits from improved market access and technology transfer, although export crop diversification and foreign exchange earnings recorded modest gains, while strongly affirming that import surges, unequal subsidy regimes among developed economies, and constrained domestic support capacity had undermined local food production. The chi-square analysis confirmed a statistically significant relationship between WTO Agreement on agriculture provisions and food production outcomes in Nigeria. The study concludes that the costs of AoA implementation currently outweigh its benefits for Nigerian agriculture and recommends renegotiated special and differential treatment, enhanced domestic support, and strengthened agricultural infrastructure.

Keywords: World Trade Organization, Agreement on Agriculture, Nigeria, cost-benefit analysis, food production, trade liberalisation

Introduction

Agricultural trade liberalisation has, since the conclusion of the Uruguay Round in 1994, been governed at the multilateral level by the World Trade Organization (WTO) Agreement on Agriculture (AoA). Operationalised from 1995, the AoA was designed to progressively reduce distortions in global agricultural markets through three interlinked pillars, market access, domestic support, and export competition, on the premise that a more open, rules-based trading system would generate efficiency gains for all members through specialisation according to comparative advantage (WTO, 2024; Ricardo, 1817; Anderson & Martin, 2018).

Agriculture remains central to Nigeria's economy, accounting for a substantial share of employment, gross domestic product, and household food security (National Bureau of Statistics [NBS], 2024). As a founding WTO member, Nigeria committed to tariff bindings, reduced its capacity to deploy certain forms of domestic support, and opened its markets to agricultural imports, commitments expected to expose Nigerian farmers to a larger, more competitive international market while affording opportunities for export diversification (Federal Ministry of Agriculture and Rural Development [FMARD], 2023). Critics, however, contend that the AoA has disproportionately benefited developed economies, which retain substantial subsidy support under permitted exemptions, while developing countries such as Nigeria have faced recurring import surges in staples such as rice, wheat, poultry, and dairy products that pressure local producers (Stiglitz &

Charlton, 2005; Akinyemi & Olawale, 2021; Babatunde, 2020).

Successive Nigerian administrations have pursued tariff adjustments, import restrictions, and domestic support programmes, such as the Anchor Borrowers' Programme, to reconcile WTO obligations with food security imperatives (FMARD, 2023). Yet empirical cost-benefit assessments that systematically weigh the gains and losses attributable to the AoA for Nigerian food production remain scarce, a gap this study addresses through a structured cost-benefit analysis.

Statement of the Problem

Nigeria's agricultural trade balance has deteriorated markedly since the country's accession to WTO obligations, with the food import bill rising substantially even as domestic self-sufficiency ratios for key staples such as rice and wheat remain below target levels (NBS, 2024; World Bank, 2023). Proponents of trade liberalisation theorise that openness should generate efficiency gains through specialisation, allowing Nigeria to focus on commodities such as cassava, cocoa, sesame, and cashew where it holds a relative cost advantage; yet structuralist critiques suggest that asymmetric subsidy regimes among developed economies distort world prices to the detriment of developing-country producers, undermining these theoretical gains (Prebisch, 1950; Anderson & Martin, 2018; Diao, Hazell, & Thurlow, 2010; Ogunleye, 2020). The persistence of this tension, between the theoretical promise of liberalisation and Nigeria's lived experience of import surges and constrained domestic support, constitutes the core empirical problem addressed by

this study: the absence of a systematic, evidence-based cost-benefit assessment of the WTO Agreement on Agriculture's effect on food production in Nigeria.

Research Questions

The following research questions guided the study:

- i. What benefits have accrued to food production in Nigeria from the implementation of the WTO Agreement on Agriculture?
- ii. What costs and challenges has the implementation of the WTO Agreement on Agriculture posed for food production in Nigeria?

Objectives of the Study

The objectives of this study are:

- i. To examine the benefits that have accrued to food production in Nigeria from the implementation of the WTO Agreement on Agriculture.
- ii. To assess the costs and challenges that the implementation of the WTO Agreement on Agriculture has posed for food production in Nigeria.

Research Hypothesis

H₀: The WTO Agreement on Agriculture has no significant effect on food production in Nigeria.

Scope of the Study

This study is confined to an assessment of the WTO Agreement on Agriculture and its effect on food production in Nigeria, covering the period from 1995, when Nigeria's WTO commitments took effect, to 2024. It focuses on the perceptions and experiences of farmers, agro-exporters, and trade and agricultural policy

stakeholders regarding the costs and benefits associated with the Agreement's market access, domestic support, and export competition provisions. The study is theoretically grounded in the theory of comparative advantage and structuralist trade theory.

Empirical Literature Review and Conceptual Framework

Cost-Benefit Analysis

Cost-benefit analysis (CBA) is an analytical framework used to systematically weigh the aggregate gains and losses arising from a policy or institutional arrangement to determine whether benefits exceed costs (Boardman, Greenberg, Vining, & Weimer, 2018). Applied to trade policy, CBA extends beyond trade volumes to consider distributional effects, the opportunity costs of foregone policy space, and the long-run structural implications of binding international commitments (Diaz-Bonilla, 2015).

The WTO Agreement on Agriculture

The WTO Agreement on Agriculture rests on three principal pillars. The market access pillar required members to convert non-tariff barriers into bound tariffs subject to scheduled reductions (WTO, 2024). The domestic support pillar classifies subsidies into trade-distorting Amber Box measures subject to reduction commitments and minimally distorting Green Box measures that are largely exempt, creating differentiated capacity for governments to support farmers (Anderson & Martin, 2018). The export competition pillar mandates the phased reduction of export subsidies. Special and differential treatment provisions afford developing

countries longer implementation periods and lower reduction commitments, though their practical utilisation by Nigeria has been characterised as limited (Ogunleye, 2020).

Food Production in Nigeria

Food production in Nigeria spans staple and export crops, including cassava, yam, maize, rice, sorghum, cocoa, sesame, and cashew, alongside livestock and fisheries (FMARD, 2023). Despite substantial arable land, the sector is characterised by low mechanisation, fragmented landholding, post-harvest losses, and inadequate storage infrastructure, constraining productivity relative to major exporting nations (World Bank, 2023). Self-sufficiency ratios for staples such as rice and wheat remain below national targets, sustaining a persistent food import bill (NBS, 2024).

Empirical Review

Akinyemi and Olawale (2021) found that tariff reductions associated with WTO commitments coincided with a marked increase in Nigerian rice imports, with local production struggling to match the price competitiveness of imported alternatives. Ogunleye (2020) assessed Nigeria's utilisation of special and differential treatment provisions under the AoA and concluded that limited institutional capacity and weak negotiating representation had constrained the country's ability to fully exploit available flexibilities. At the continental level, Diao, Hazell, and Thurlow (2010) found that trade openness produced the strongest welfare gains in countries with complementary investments in infrastructure and farmer support systems,

while countries lacking such investments experienced limited or adverse effects.

Babatunde (2020) similarly found that Nigerian smallholder farmers exposed to import competition without corresponding access to credit or extension services experienced declining real incomes despite nominal increases in market access. Yusuf and Bello (2022) found that Nigeria's Amber Box support remained far below the de minimis thresholds permitted under the AoA, suggesting substantial unused policy space, while the FAO (2022) found that asymmetries in developed-country subsidy regimes continued to depress world prices for commodities of export interest to developing countries. Collectively, this evidence suggests a mixed, context-dependent picture of the AoA's effects, an issue insufficiently examined in the Nigerian context and which this study addresses.

Theoretical Framework

This study is anchored on the theory of comparative advantage (Ricardo, 1817) and structuralist trade theory (Prebisch, 1950). The theory of comparative advantage holds that nations benefit from trade by specialising in goods for which they hold a relative efficiency advantage. Applied to the AoA, this theory provides the normative justification for liberalisation: Nigeria, with its comparative advantage in tropical export crops such as cocoa, sesame, and cashew, should theoretically gain from increased market access, even as it imports staples produced more cheaply abroad.

Structuralist trade theory challenges the universality of comparative advantage gains, contending that developing

countries, as primary commodity exporters, are systematically disadvantaged by declining terms of trade, asymmetric subsidy regimes, and unequal bargaining power in multilateral negotiations, such that liberalisation can reproduce or deepen existing economic disparities (Prebisch, 1950; Stiglitz & Charlton, 2005). The integration of these two traditions enables a balanced lens for weighing both the theoretical promise of liberalisation and the structural constraints limiting its realisation for Nigerian food production.

Methodology

Research Design

A mixed-methods research design was adopted, combining quantitative and qualitative techniques within a cross-sectional survey framework. The cross-sectional design was selected because it enables the collection of data from a diverse population at a single point in time, making it appropriate for capturing contemporaneous perceptions and attitudes across stakeholder groups without the resource demands of longitudinal fieldwork (Creswell & Creswell, 2018). The quantitative strand employed a structured questionnaire to generate data amenable to statistical inference, while the qualitative strand utilised semi-structured Key Informant Interviews (KIIs) to elicit contextual depth and interpretive nuance that survey instruments alone cannot provide. Triangulation of the two strands strengthened the validity and reliability of the overall findings. Primary data for the study were collected between January and March 2025, reflecting stakeholder experiences of AoA implementation over the study period of 1995–2024. Secondary

data were drawn from published sources including WTO official reports, the National Bureau of Statistics Foreign Trade Statistics Report (NBS, 2024), the Federal Ministry of Agriculture and Rural Development Policy Implementation Report (FMARD, 2023), and the World Bank Nigeria Agriculture Sector Review (World Bank, 2023), and were integrated into the result and discussion sections to contextualise the primary survey findings. The mixed-methods design is consistent with established practice in applied trade policy research, where the complexity of institutional effects on agricultural outcomes requires both statistical patterns and contextualised stakeholder narratives to produce robust, policy-relevant findings (Bryman, 2016).

Population, Sample Size, and Sampling Technique

The study population comprised all individuals directly or professionally engaged with agricultural trade and food production policy in Nigeria who could provide informed perceptions of the WTO Agreement on Agriculture's effects. This population was estimated at 1,500 and included four sub-groups: registered farmers and cooperative members drawn from key staple and export crop production zones in South-West, North-West, and South-East geopolitical zones; agro-exporters and commodity traders registered with the Nigerian Export Promotion Council (NEPC); government trade and agricultural policy officials drawn from the Federal Ministry of Agriculture and Rural Development (FMARD), the Federal Ministry of Industry, Trade and Investment (FMITI), and the Nigerian Office for Trade Negotiations (NOTN); and agricultural

economists and trade policy academics drawn from universities and research institutes with active agricultural trade research programmes. The sampling frame for the quantitative strand consisted of membership registers, staff lists, and professional association directories obtained from NEPC, the All Farmers Association of Nigeria (AFAN), FMARD, and selected universities, providing a verifiable list from which respondents could be systematically selected. The unit of analysis was the individual respondent, with each participant treated as an independent informant reporting personal and professional perceptions of AoA effects on food production. A stratified random sampling technique was adopted to ensure proportional representation across the four stakeholder sub-groups, minimising the risk of any single group dominating the dataset. Within each stratum, respondents were selected by simple random sampling using numbered lists generated from the sampling frame. Sample size was determined using Slovin's formula: $n = N / (1 + Ne^2)$, where $N = 1,500$ and $e = 0.05$, giving $n = 1500 / 4.75 \approx 316$. The sample was augmented to 350 to account for anticipated non-response, of which 320 questionnaires were retrieved and found usable, representing a response rate of 91.4%. Eight Key Informants—two from each stakeholder sub-group—were purposively selected for the qualitative strand on the basis of their direct institutional engagement with WTO agricultural trade negotiations or implementation, ensuring that the qualitative data captured authoritative, experience-based perspectives.

Instrument, Validity, and Reliability

Data were collected using a structured questionnaire with a demographic section and a five-point Likert-scaled section measuring perceptions of AoA benefits and costs, alongside a semi-structured Key Informant Interview guide. The instrument was reviewed by experts in agricultural economics and trade policy for content validity and pre-tested on 20 respondents outside the main sample before finalisation.

Ethical Considerations

The study was conducted in strict adherence to established ethical principles governing research involving human participants. Prior to data collection, ethical approval was sought and obtained from the relevant institutional review authority. All respondents received a detailed participant information sheet explaining the purpose of the study, the voluntary nature of participation, the right to withdraw at any stage without consequence, and the procedures for data handling and storage. Written informed consent was obtained from all questionnaire respondents before administration of the instrument. Key Informants similarly provided verbal and written consent prior to their interviews, and were informed that interviews would be audio-recorded solely for the purpose of accurate transcription and would be deleted upon verification of the transcript. No personally identifiable information was retained in the dataset: questionnaires were assigned numeric codes and informants were referenced by stakeholder category designation only, ensuring complete anonymisation. Data were stored in password-protected files accessible only to

the research team and will be securely destroyed upon expiration of the required retention period. No participant was offered financial or material inducements that could compromise the voluntariness of participation, and no conflicts of interest exist between the researchers and any of the institutions or organisations from which respondents were drawn.

Method of Data Analysis

Quantitative data were analysed using SPSS version 25. Demographic data were summarised using frequencies and percentages. Research questions were analysed using means and standard deviations, with a mean of 3.00 and above

accepted as an affirmed perception and below 3.00 rejected. The hypothesis was tested using chi-square inferential statistics at a significance level of $\alpha = 0.05$. Qualitative data from the key informant interviews were transcribed and analysed thematically, with emergent themes triangulated against the quantitative findings.

Data Presentation and Analysis

A total of 350 questionnaires were distributed, of which 320 were retrieved and found usable for analysis, representing a response rate of 91.4%. In addition, eight Key Informant Interviews were conducted with purposively selected stakeholders.

Demographic Profile of Respondents

Table 1

Distribution of Respondents by Gender

	Frequency	%
Male	211	65.9
Female	109	34.1
Total	320	100.0

Note. Source: Fieldwork, 2025.

Table 1 shows that 65.9% of respondents are male and 34.1% are female, reflecting the gender composition typical of registered farming cooperatives and agro-export trading associations in Nigeria.

Table 2

Distribution of Respondents by Stakeholder Category

	Frequency	%
Farmers / Cooperative members	142	44.4
Agro-exporters / Traders	79	24.7
Government trade & agric. Officials	56	17.5
Academics / Researchers	43	13.4
Total	320	100.0

Note. Source: Fieldwork, 2025.

Table 2 shows farmers and cooperative members as the largest stakeholder group (44.4%), followed by agro-exporters and traders (24.7%), government officials

(17.5%), and academics and researchers (13.4%), ensuring the dataset captures production, trade, policy, and research perspectives.

Research Question One: Benefits of the WTO Agreement on Agriculture (Objective i)

Table 3

Stakeholders' Perceptions of the Benefits of the WTO Agreement on Agriculture for Food Production in Nigeria (N = 320)

Statement	Mean	SD	Decision
The WTO Agreement on Agriculture has improved Nigeria's access to international agricultural markets	2.71	1.09	Rejected
The Agreement has facilitated technology transfer and adoption of improved agricultural practices	2.84	1.14	Rejected
The Agreement has encouraged diversification into export crops such as cocoa, sesame, and cashew	3.42	1.05	Accepted
The Agreement has enhanced foreign exchange earnings through agricultural exports	3.08	1.11	Accepted

Note. Decision rule: Mean $\geq$ 3.00 = Accepted; Mean $<$ 3.00 = Rejected. Source: Fieldwork, 2025.

Table 3 shows that two of the four benefit items were accepted by respondents, with export crop diversification (Mean = 3.42, SD = 1.05) and foreign exchange earnings (Mean = 3.08, SD = 1.11) recording mean scores above the acceptance threshold of 3.00. Conversely, improved market access (Mean = 2.71, SD = 1.09) and technology transfer (Mean = 2.84, SD = 1.14) were rejected, indicating that stakeholders perceive the AoA's benefits as concentrated in a narrow band of export-oriented commodities rather than broadly distributed across the food production sector. These perceptions are supported by secondary data: the Nigerian Export Promotion Council (2023) reported that

non-oil agricultural export receipts, driven predominantly by cocoa, sesame, and cashew, grew from approximately USD 620 million in 2019 to over USD 890 million in 2022, reflecting genuine export diversification gains. However, the NBS (2024) simultaneously records that Nigeria's total food import bill rose to USD 3.8 billion in 2023, underscoring the asymmetric distribution of AoA-related benefits. The World Bank (2023) similarly notes that while agro-export value chains in Nigeria have benefited from market liberalisation, the absence of complementary technology extension services has limited productivity gains for staple food producers, consistent with the

rejection of the technology transfer item in

Table 3.

Research Question Two: Costs and Challenges of the WTO Agreement on Agriculture (Objective ii)

Table 4*Stakeholders' Perceptions of the Costs and Challenges of the WTO Agreement on Agriculture for Food Production in Nigeria (N = 320)*

Statement	Mean	SD	Decision
Import surges of subsidised staple foods have undermined local food production	4.31	0.81	Accepted
AoA domestic support limits constrain government's ability to subsidise farmers	3.86	0.97	Accepted
Unequal subsidy practices among developed economies disadvantage Nigerian farmers in price competition	4.19	0.88	Accepted
Tariff reduction commitments have reduced government revenue available for agricultural investment	3.64	1.02	Accepted

Note. Decision rule: Mean $\geq$ 3.00 = Accepted; Mean $<$ 3.00 = Rejected. Source: Fieldwork, 2025.

Table 4 reveals that all four cost-related items were accepted, with import surges of subsidised staple foods (Mean = 4.31, SD = 0.81) and unequal subsidy practices among developed economies (Mean = 4.19, SD = 0.88) recording the highest mean scores, while constrained domestic support capacity (Mean = 3.86, SD = 0.97) and reduced tariff-related government revenue (Mean = 3.64, SD = 1.02) also exceeded the acceptance threshold. These findings indicate a strong and broad consensus among stakeholders that the costs of AoA implementation have weighed heavily on Nigerian food production. Secondary data from the NBS (2024) substantiate the import surge finding: rice imports alone rose from approximately 1.2 million metric tonnes in 2005 to over 2.9 million metric tonnes in 2023, even following the introduction of

prohibitive import tariffs under the Anchor Borrowers’ Programme, indicating that WTO tariff binding ceilings constrain the government’s ability to sustain protective rates indefinitely (FMARD, 2023). The FAO (2022) confirms that total agricultural support in OECD economies averaged 18.8% of farm receipts in the 2019–2021 triennium, compared with less than 2% in Nigeria, a disparity that directly underlies the unequal subsidy practices affirmed at Mean = 4.19. Furthermore, the World Bank (2023) reports that Nigeria’s Amber Box domestic support has remained consistently below its de minimis ceiling of 10% of the value of production, reflecting fiscal rather than regulatory constraints, a finding corroborated by respondent affirmation of the constrained domestic support item (Mean = 3.86).

Interview Findings

Key Informants across stakeholder categories consistently identified import competition and limited domestic support capacity as the dominant costs of AoA implementation. A senior trade policy official acknowledged that Nigeria has historically utilised only a fraction of the Amber Box support permitted under its de minimis allowance, attributing this to fiscal rather than policy constraints, while exporter association leaders reported that diversification into tropical export crops had generated genuine, though geographically concentrated, gains. Agricultural economists attributed

Nigeria's underutilisation of special and differential treatment to weak institutional representation in WTO negotiations, and farmers' cooperative representatives described recurring difficulty competing with imported rice, poultry, and dairy products. These qualitative findings corroborate the quantitative results, reinforcing the conclusion that the costs of AoA implementation have, on balance, outweighed its benefits for the majority of Nigerian food production sub-sectors.

Test of Hypothesis

H₀: The WTO Agreement on Agriculture has no significant effect on food production in Nigeria.

Table 5

Chi-Square Test Results: WTO Agreement on Agriculture Provisions and Food Production Outcomes

Response Category	Observed (O)	Expected (E)	(O – E) ² / E
Strongly Agree	142	64	95.06
Agree	88	64	9.00
Undecided	41	64	8.27
Disagree	31	64	17.02
Strongly Disagree	18	64	33.06
Total $\chi^2 = 162.41$	320	320	—

Note. df = 4; critical χ^2 value at $\alpha = 0.05 = 9.49$. Source: Fieldwork, 2025.

Decision: Since $\chi^2 = 162.41$ exceeds the critical value of 9.49 at df = 4 and $\alpha = 0.05$, the null hypothesis is rejected. There is a statistically significant relationship between the WTO Agreement on Agriculture and food production outcomes in Nigeria. The direction of this relationship, as indicated by the mean scores in Tables 3 and 4, shows that the costs of implementation are more strongly

and consistently affirmed than the benefits, indicating a net adverse effect on the majority of Nigerian food production sub-sectors.

Discussion of Findings

With respect to the benefits accruing from the WTO Agreement on Agriculture (Objective i), the findings reveal a bifurcated pattern: export crop

diversification (Mean = 3.42) and foreign exchange earnings (Mean = 3.08) were affirmed, while improved market access (Mean = 2.71) and technology transfer (Mean = 2.84) were rejected. This bifurcation is theoretically coherent within the Ricardian comparative advantage framework: Nigeria holds a demonstrable relative cost advantage in tropical export crops such as cocoa, sesame, and cashew, and stakeholders in those value chains have recorded tangible gains from market liberalisation. The Nigerian Export Promotion Council's (2023) data, showing non-oil agricultural export receipts rising from approximately USD 620 million in 2019 to over USD 890 million in 2022, corroborate these perceptions of export growth. This finding is consistent with Diao, Hazell, and Thurlow's (2010) cross-African analysis, which found that trade openness generates the most pronounced welfare gains where complementary investment in value chain infrastructure already exists, conditions partially met in Nigeria's cocoa and cashew export corridors but largely absent in the staple food sub-sector.

The rejection of improved market access (Mean = 2.71) is, however, more puzzling from a purely liberal trade theory standpoint, since market access expansion is the AoA's most direct theoretical mechanism for generating export gains. The rejection likely reflects the asymmetric reality documented by Ogunleye (2020): developing-country exporters such as Nigeria face non-tariff barriers, quality and sanitary standards, and logistical costs in developed-country markets that effectively neutralise tariff reductions, particularly for processed agricultural products where Nigeria would

capture greater value-added. The FAO (2022) corroborates this, noting that while bound tariffs on primary tropical commodities have been reduced, escalating tariff structures in major importing economies impose higher rates on processed forms, discouraging the movement of Nigerian agricultural exports up the value chain. The finding similarly aligns with Babatunde's (2020) conclusion that nominal market access improvements have not translated into tangible productivity or income gains for Nigerian smallholders lacking the institutional support to exploit them, raising fundamental questions about the sufficiency of market access liberalisation without complementary supply-side capacity building.

With respect to the costs and challenges of AoA implementation (Objective ii), the strong and consistent affirmation of all four cost items, and the particularly elevated means for import surges (Mean = 4.31) and unequal developed-country subsidy practices (Mean = 4.19), provides robust empirical support for the Structuralist Trade Theory position advanced by Prebisch (1950) and extended by Stiglitz and Charlton (2005). The Prebisch-Singer hypothesis of asymmetric terms of trade finds specific institutional expression in the AoA's domestic support architecture, wherein Green Box exemptions permit developed economies to sustain large public expenditures on agriculture under categories such as decoupled income support, environmental programmes, and food aid, while the productive fiscal space available to developing-country governments under Amber Box de minimis rules remains chronically underutilised. The FAO's

(2022) finding that OECD economies provided 18.8% of farm receipts as agricultural support compared with less than 2% in Nigeria quantifies the structural asymmetry that respondents affirmed at Mean = 4.19, rendering the “level playing field” narrative of the AoA empirically untenable in the Nigerian context.

The affirmation of import surges (Mean = 4.31) as a cost dimension echoes Akinyemi and Olawale’s (2021) documentation of the relationship between tariff liberalisation and the surge in Nigerian rice imports, which the NBS (2024) quantifies at over 2.9 million metric tonnes annually by 2023. The import surge problem is not simply a function of comparative disadvantage in rice production; it is structurally conditioned by the subsidised export prices of competitor nations. When the United States or European Union provides decoupled payments and infrastructure support to rice producers, the resulting world price does not reflect true production costs, meaning that Nigerian farmers compete against an artificially depressed price floor that domestic policy adjustments alone cannot neutralise (FAO, 2022; Stiglitz & Charlton, 2005). This mechanism explains why the import surge item achieved the highest mean score in the entire survey: it is the most tangible and directly experienced manifestation of structural asymmetry for the 44.4% of respondents who are farmers and cooperative members.

The affirmation of constrained domestic support capacity (Mean = 3.86) introduces an important nuance: Yusuf and Bello (2022) found that Nigeria’s Amber Box support has consistently remained well below the 10% de minimis ceiling

permitted under AoA provisions, implying that the country retains substantial unused policy space that is constrained not by WTO obligations but by domestic fiscal limitations. The World Bank (2023) corroborates this, observing that budgetary allocations to agriculture as a percentage of total government expenditure have declined rather than expanded since 2015, falling from approximately 3.5% to under 2% despite the Maputo Declaration target of 10%. This finding has significant policy implications: it suggests that part of the cost burden attributed to the AoA in stakeholder perceptions reflects institutional and fiscal deficits that Nigeria could address without requiring multilateral renegotiation. However, the same finding also underscores a structural constraint identified by Ogunleye (2020): Nigeria’s negotiating capacity at the WTO has been insufficient to exploit available special and differential treatment flexibilities in domestic policy design, meaning that the AoA framework has not been effectively utilised even within its existing provisions.

The qualitative findings from the Key Informant Interviews triangulate and deepen the quantitative results in important respects. The acknowledgement by a senior trade policy official that Nigeria utilises only a fraction of its Amber Box allowance due to fiscal rather than policy constraints confirms Yusuf and Bello’s (2022) quantitative assessment. Exporter association leaders’ attribution of gains primarily to cocoa, sesame, and cashew corridors, and their description of these gains as geographically concentrated, adds a distributional dimension to the aggregate export growth recorded in secondary data sources: the macroeconomic aggregate

conceals significant regional inequality in the distribution of AoA benefits, with Southern production zones benefiting more than Northern staple food belts. Agricultural economists' attribution of underutilised special and differential treatment to weak institutional representation at the WTO is particularly significant, as it identifies an addressable governance deficit rather than a structural feature of the Agreement itself. Farmers' cooperative representatives' accounts of chronic difficulty competing with subsidised imported rice, poultry, and dairy products furnish qualitative texture to the quantitative import surge finding, grounding the statistical mean score of 4.31 in the lived production realities of the study's largest respondent category.

Taken together, the quantitative findings, the secondary data evidence, and the qualitative accounts converge on a conclusion that both confirms and qualifies prior literature. The comparative advantage framework provides a partial explanation of reality: gains are real in export-oriented sub-sectors where Nigeria holds a genuine cost advantage and value chain investment has been made. However, the structuralist critique provides the more comprehensive explanation of the broader food production sector's experience: asymmetric subsidy regimes, import surges in staple foods, constrained domestic support, and underutilised policy flexibilities collectively constitute a structural cost burden that outweighs the gains realised in narrow export corridors. The chi-square result ($\chi^2 = 162.41$, $p < 0.05$) confirms that this pattern is not attributable to sampling variation but reflects a genuine and statistically robust relationship between

AoA provisions and food production outcomes in Nigeria. This finding extends the prior literature by providing a systematic, multi-stakeholder, mixed-methods assessment that moves beyond sectoral case studies (Akinyemi&Olawale, 2021; Babatunde, 2020) to a holistic cost-benefit framing anchored in the theoretical traditions that have long structured debate on this question.

Conclusion

This study undertook a cost-benefit analysis of the WTO Agreement on Agriculture and its effect on food production in Nigeria, drawing on data from 320 questionnaire respondents and eight key informant interviews, and anchored on the Theory of Comparative Advantage and Structuralist Trade Theory. The findings established that while modest benefits have accrued through export crop diversification (Mean = 3.42) and foreign exchange earnings (Mean = 3.08), these gains are outweighed by widely affirmed costs, including import surges (Mean = 4.31), unequal developed-country subsidy practices (Mean = 4.19), constrained domestic support capacity (Mean = 3.86), and reduced tariff-related government revenue (Mean = 3.64). The chi-square test confirmed a statistically significant relationship between AoA provisions and food production outcomes ($\chi^2 = 162.41$, $df = 4$, $p < 0.05$), with the substantive direction of this relationship being predominantly adverse.

The study concludes that, on balance, the costs of WTO Agreement on Agriculture implementation currently outweigh its benefits for Nigerian food production, and that realising the Agreement's theoretical promise of welfare gains will require

deliberate complementary domestic investment, more assertive utilisation of available trade policy flexibilities, and a renewed multilateral push for the rebalancing of subsidy asymmetries between developed and developing economies.

Recommendations

Finding i (Limited Market Access and Technology Transfer Benefits):

Government, through the Federal Ministry of Agriculture and Rural Development and the Nigerian Export Promotion Council, should expand targeted technology transfer and extension programmes for staple food producers, and pursue bilateral and regional trade arrangements that complement multilateral commitments by improving market access for a broader range of Nigerian agricultural products.

Finding ii (Export Crop Diversification Gains, Mean = 3.42):

Government should scale successful export crop diversification models in cocoa, sesame, and cashew value chains to additional commodities and regions, supported by deliberate investment in processing and value-addition infrastructure to capture greater export value.

Finding iii (Import Surges and Domestic Support Constraints, Mean = 3.64–4.31):

Nigeria should fully utilise its de minimis Amber Box allowance and other permitted domestic support instruments to strengthen staple food producers' competitiveness, while pursuing, alongside other developing countries, renewed multilateral negotiations to address asymmetric developed-country subsidy practices that contribute to import surges.

Finding iv (Underutilised Special and Differential Treatment, supported by interview findings):

Nigeria's trade negotiation institutions should be strengthened through dedicated technical capacity and sustained engagement in WTO agricultural negotiations to ensure that special and differential treatment provisions are fully reflected in the country's trade commitments and effectively utilised in domestic policy design.

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