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TRADE BARRIERS AND FOOD SECURITY: A SYSTEMATIC REVIEW OF IMPORT TARIFF EFFECTS IN DEVELOPING COUNTRIES

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Abstract

Background: Import tariffs are widely used in developing countries to manage food systems; however, their effects on the core pillars of food security under real-world shocks and institutional constraints remain debated.
Purpose: To evaluate how higher versus lower (including zero) import tariffs on major foods influence food availability, access, and stability, and to draw implications for diet quality (utilization).
Design/methodology/approach: A PRISMA-guided systematic literature review of Scopus-indexed, English-language journal articles (2020–2024). Twenty-five studies that met the predefined quality and relevance criteria were synthesized using a theory-driven narrative approach that describes how tariff settings shape trade and price channels, and, in turn, food security outcomes. Export restrictions are treated as exogenous stability shocks.
Findings/Results: Lower tariffs generally expand market-level availability, reduce consumer prices, and dampen routine domestic volatility through import diversification. Benefits are uneven without producer upgrading and fragile during global shocks. Utilization improves when barriers to nutrient-dense foods are removed; however, openness can accelerate ultra-processed food penetration without strong nutrition governance. The effects are conditioned by logistics performance, domestic competition and pass-through, governance quality, policy space, and commodity mix.
Conclusion: The most food-secure configuration is calibrated openness: liberalize where social welfare rises, pair reforms with farmer adjustment and productivity support, strengthen logistics and competition, preserve nutrition policy space, and operate a rules-based stability architecture.
Originality/value (State of the art): Provides an up-to-date, developing-country synthesis that centers import tariffs, integrates utilization and governance into the trade–food security nexus, and translates evidence into operational policy guidance.

Keywords: developing countries, food security, import tariffs, nutrition, trade liberalization.

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INTRODUCTION

Developing countries face a persistent challenge: ensuring adequate, affordable, and stable food supplies amid a structural reliance on global markets and recurrent shocks. The COVID-19 pandemic disrupted supply chains and border flows (Udmale et al. 2020), the Russia–Ukraine war triggered sharp spikes in grain prices (Nasir et al. 2022), and large exporters adopted ad hoc restrictions, such as India's curbs on non-basmati rice, which reverberated across import-reliant nations (H. G. Valera et al. 2022). In this setting, import tariffs on major food products remain one of the most frequently used yet contested policy instruments. Higher tariffs can shelter domestic producers and aspire to self-reliance, but they risk elevating consumer prices and constraining supply in net importing contexts. Lower or zero tariffs can expand on-shelf availability and reduce food costs, but may compress farm-gate margins and transmit external volatility more swiftly. Therefore, policymakers need an integrated, nutrition-sensitive evidence base clarifying how tariff choices affect the three pillars of food security: availability, access, and stability under real-world constraints.

This study employs a systematic literature review focused on developing countries and contemporary conditions. Inclusion prioritizes studies that identify or plausibly infer the effects of import-barrier settings on at least one food security pillar and provide transparent empirical strategies or theoretically grounded qualitative insights. A theory-driven narrative synthesis is used to (i) contrast higher versus lower tariff regimes on availability, access, and stability; (ii) trace causal channels prices, incomes, supply diversification, pass-through, and volatility transmission; (iii) examine heterogeneity by commodity, geography (ASEAN, Pacific, wider Asia), and institutions; and (iv) integrate nutrition-sensitive considerations and governance capacity into the interpretation. While the focal lever imports tariffs, export restrictions are treated as exogenous stability shocks that condition how tariff settings translate into domestic volatility. This review aims to assess how higher versus lower (including zero) import tariffs on major food products affect the availability, access, and stability dimensions of food security in developing countries and to derive concise, policy-relevant implications for calibrating tariff settings accordingly.

METHODS

This study uses a qualitative Systematic Literature Review (SLR), drawing exclusively on secondary data from peer-reviewed journal articles that analyze the relationship between import tariffs/trade policy and food security outcomes in developing countries. Bibliographic records were harvested from Scopus using the PRISMA-guided search and screening protocol. The core query combined trade-policy and food-security terms with developing country filters. To ensure thematic relevance and minimum academic quality, only English-language journal articles within the recent five-year window (2020–2024) were considered eligible at the identification stage; items older than five years were filtered out. Priority was given to publications in Scopus-indexed journals, with emphasis on Q1–Q3 quartiles; where topic coverage was critical, rigorously executed Q4 studies were retained if the

Given the heterogeneity in study designs and outcome metrics, the analysis followed a theory-driven narrative synthesis coupled with evidence mapping rather than a quantitative meta-analysis. Each study was coded for the direction of effect on the three food-security pillars: positive, negative, mixed, or null, using the study's identified exposure (level or change in import tariffs, including tariffication or liberalization episodes that alter effective protection). The operationalization of outcomes was standardized for comparability: availability (per-capita food supply; import volumes/diversification; agricultural output or producer-price/value-added proxies); access (retail/consumer prices; household food expenditure; calorie/protein intake; poverty/welfare indicators); and stability (price-volatility indices; stock-to-use or import-source concentration; shock transmission during pandemics, conflicts, or export restrictions treated analytically as exogenous stability shocks conditioning how tariff settings translate into domestic volatility).

Studies were then grouped by commodity (e.g., rice, palm oil, cassava, and aquatic foods) and geography (ASEAN, Pacific, and wider Asia) to assess the consistency and heterogeneity of the effects. Causal channels consumer price pass-through from border to basket; producer incentives and agricultural value added; import-source diversification and logistics performance; domestic market structure/competition; and volatility transmission were traced to explain

observed outcomes. Moderators (governance quality, policy space for nutrition regulation, logistics/cold-chain capacity, buyer concentration/contracting, and commodity characteristics) were catalogued and used to interpret between-study divergences. A weight-of-evidence approach informed the synthesis, emphasizing identification clarity (e.g., panel estimators, policy simulations, comparative policy analysis) and robustness checks where available, while integrating qualitative insights to illuminate institutional mechanisms and feasibility. Sensitivity reading considered whether conclusions held under a narrower geographic focus (ASEAN-only) or staple-specific subsets (e.g., rice). The findings were organized to answer the research question directly: how do alternative import-tariff settings affect availability, access, and stability in developing countries, and what policy-relevant mechanisms and conditions shape those effects?.

The research framework applies PRISMA 2020 to organize a systematic review of how import-tariff regimes in developing countries affect the pillars of food security (availability, access, stability, and utilization). As shown in Figure 1, the workflow proceeds from identification (Scopus search using tariff/food-security terms and developing-country filters), through screening (title–abstract checks against predefined eligibility and full-text retrieval), to inclusion (studies meeting methodological quality and direct relevance to the tariff–food-security nexus). This phased narrowing yields an evidence base that is both methodologically robust and tightly aligned with the study focus.

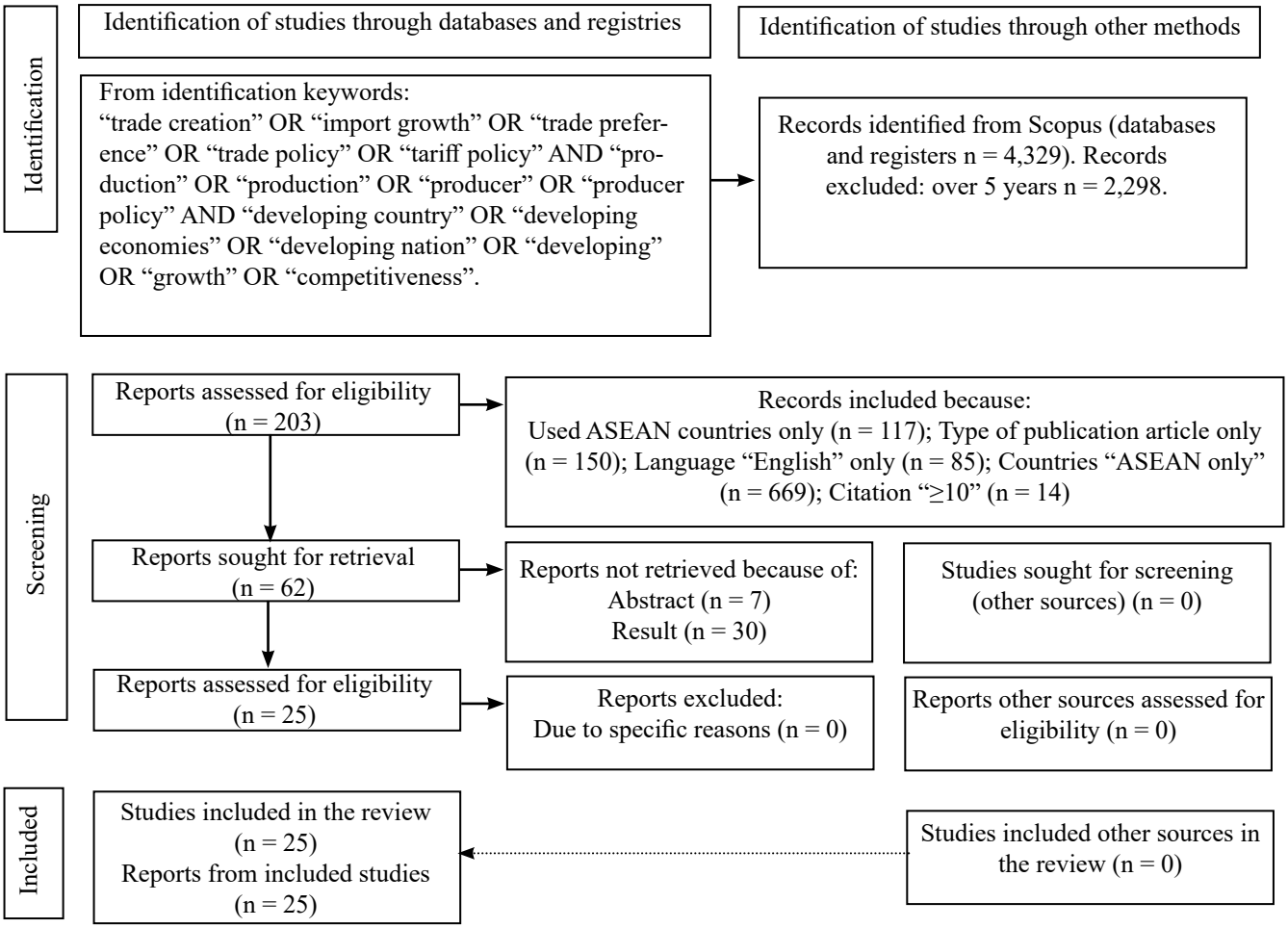

Figure 1. PRISMA 2020 flow diagram for study selection

The research framework combines a PRISMA-guided evidence identification pipeline with a causal lens linking tariff settings to food-security outcomes. Records were identified in Scopus (n = 4,323) and time-filtered to the last five years (excluded n = 2,292), leaving 2,031 items for title and abstract screening. Exclusions at this stage reflected closed access (n = 1,117), non-article types (n = 162), outside-region scope (n = 668), non-English (n = 8), and insufficient metadata quality (n = 14) articles. Sixty-two reports were sought for full text; 37 were not retrieved due to abstract-only availability (n = 7) or missing/non-extractable results (n = 30). No additional sources were included. The final evidence base comprised 25 studies. These were then synthesized using a theory-driven narrative approach that traces the pathway import tariffs → trade/price channels (border prices, pass-through, diversification, producer incentives) → food security pillars (availability, access, stability), with logistics, market structure, governance, and policy space as moderators and export restrictions treated as exogenous stability shocks.

RESULTS

Drawing on twenty-five studies published between 2020 and 2024, this section compares the effects of higher import tariffs on staple foods with lower or zero tariffs on the three pillars of food security availability, access, and stability in developing countries. Across the corpus, tariff reduction and broader trade integration generally expand market-level food supply and improve consumer affordability while dampening routine, domestic supply fluctuations. However, these benefits are neither automatic nor universal; they depend on producer adjustment support, logistics and market institutions, governance quality, and policy space to protect nutrition. Simultaneously, greater openness increases exposure to external shocks, which requires buffers and coordination to avoid transmitting volatility into domestic markets (Balié et al. 2021; Fusacchia et al. 2022; Harris et al. 2022; Le, 2021; Ly et al. 2020). Table 1 summarizes the 25 selected articles included in the SLR, listing the author, year, and title, which constitute the evidence base for the subsequent analysis.

Table 1. Selected articles

Author	Year	Article Title
Andrew, N. L., et al.	2022	Continuity and change in the contemporary Pacific food system
Balié, J., Minot, N., & Valera, H. G. A.	2021	Distributional impacts of the rice tariffication policy in the Philippines
de Leon, T. J. P., & Manalo, J. A.	2024	Affordances in crop diversification: Three cases from the Philippines
Esquivias, M. A., et al.	2023	The Nexus between Food Security and Investment, Exports, Infrastructure, and Human Capital Development
Farmery, A. K., White, A., & Allison, E. H.	2021	Identifying policy best-practices to support the contribution of aquatic foods to food and nutrition security
Fusacchia, I., Balié, J., & Salvatici, L.	2022	The AfCFTA impact on agricultural and food trade: A value added perspective
Harris, J., et al.	2022	Tensions and coalitions: A new trade agreement affects the policy space for nutrition in Vietnam
Le, D. N.	2021	Globalisation, Logistics and Food Supply: Evidence from Vietnam
Ly, T. D., et al.	2020	The effect of international trade on food security at Southeast Asian countries
Montolalu, M. H., et al.	2022	The Analysis of Trade Liberalization and Nutrition Intake for Improving Food Security across Districts in Indonesia
Nash, K. L., et al.	2022	Trade and foreign fishing mediate global marine nutrient supply
Nasir, M. A., Nugroho, A. D., & Lakner, Z.	2022	Impact of the Russian–Ukrainian Conflict on Global Food Crops
Nguyen, A.-T., van Huellen, S., & Newby, J.	2023	Price volatility across scales and farmer maneuvering in Lao cassava markets
Nonthapot, S., & Watchalaanun, T.	2023	Effects of Deglobalization on Food and Energy Insecurity in the GMS Countries
Nugroho, A. D., Bhagat, P. R., Magda, R., & Lakner, Z.	2021	The impacts of economic globalization on agricultural value added in developing countries

Table 1. Selected articles (continue)

Author	Year	Article Title
Nugroho, A. D., Cubillos T., J. P., et al.	2022	Effects of Corruption Control on the Number of Undernourished People in Developing Countries
Nugroho, A. D., Istvan, F., Fekete-Farkas, M., & Lakner, Z.	2022	How to improve agricultural value-added in the MENA region? Implementation of Diamond Porter's theory in agriculture
Nugroho, A. D., Ma'ruf, M. I., et al.	2024	Impact of global trade agreements on agricultural producer prices in Asian countries
Rosyidi, I. M., Irianto, H., & Purnomo, S. H.	2021	An Analysis of Factors Influencing Indonesia's Leading Agricultural Commodities Export to India
Sugiharti, L., Purwono, R., & Esquivias, M. A.	2020	Analysis of determinants of Indonesian agricultural exports
Sulaiman, A. A., et al.	2024	New Challenges and Opportunities of Indonesian Crude Palm Oil in International Trade
Thow, A. M., et al.	2022	Food trade among Pacific Island countries and territories: implications for food security and nutrition
Udmale, P., et al.	2020	Global food security in the context of COVID-19: A scenario-based exploratory analysis
Valera, H. G. A., Mishra, A. K., Pede, V. O., Yamano, T., & Dawe, D.	2024	Domestic and international impacts of rice export restrictions: The recent case of Indian non-basmati rice
Valera, H. G., Mayorga, J., Pede, V. O., & Mishra, A. K.	2022	Estimating food demand and the impact of market shocks on food expenditures: The case for the Philippines and missing price data

Effects on Food Availability

Lowering tariffs reliably increases the volume and variety of food available in domestic markets by allowing imports to supplement shortfalls and diversify sources. In ASEAN, trade openness is positively associated with per-capita food supply and composite food-security scores, indicating that international integration strengthens the quantity dimension of food security (Ly et al. 2020). Vietnam's experience shows how openness paired with better ports, storage, and transport secures and diversifies the national supply, enhancing the system's capacity to source food when needed (Le, 2021). Indonesia's liberalization likewise lifted two-way agricultural trade, with particularly fast growth in processed food imports that expanded consumer-facing availability and product variety (Sugiharti et al. 2020). Conversely, maintaining high tariffs constrains the buffer function in net importing settings. The Philippines' move from quotas to tariffs on rice rapidly expanded imports and eased domestic supply tightness, exemplifying how liberalization raises on-shelf availability even in politically sensitive staples (Balié et al. 2021).

Availability is also about tomorrow's supply domestic production capacity. Here, the effects are mixed and commodity-specific. Earlier multilateral liberalization (GATT implementation) in Asia coincided with higher agricultural producer prices, strengthening incentives to produce, whereas subsequent WTO membership is, on average, associated with lower farm-gate prices, consistent with intensified import competition in some segments (Nugroho et al. 2024) where openness catalyzes exports and foreign direct investment, agricultural value added rises, supporting the domestic base that underpins sustainable availability (Esquivias et al. 2023; Nugroho, Cubillos T., et al. 2022). By contrast, when import competition bites in staples, national shelf-availability can improve while localized production contracts unless productivity is upgraded and transition support is provided; the Philippines' rice case illustrates this trade-off (Balié et al. 2021). Commodity structure and downstream capacity also matter: Indonesia's palm oil maintains a strong revealed comparative advantage, but translating that into resilient domestic availability and rural welfare depends on downstream development and smart external agreements (Sulaiman et al. 2024). In short, tariff reduction generally increases market-level availability; whether it weakens or strengthens capacity-level availability depends on flanking investments and policy design. Table 2 synthesizes evidence on food

availability, detailing how tariff settings influence on-shelf supply and import diversification, their effects on domestic production capacity/incentives, the mechanisms involved, key moderators, and succinct policy implications.

Effects on Food Access

The most consistent access effect of lowering tariffs is the lower consumer prices for staples and broader baskets. In the Philippines, replacing quantitative restrictions with tariffs on rice reduced retail prices and raised real incomes for the vast majority of net buyer households, nudging poverty downward and delivering especially large gains to the poorest quintile (Balié et al. 2021). At the district level in Indonesia, higher exposure to import tariffs is associated with lower calorie and protein intake, implying that protection raises food costs and depresses consumption; liberalization reverses this pattern (Montolalu et al. 2022). These micro- and meso-level findings align with regional evidence linking trade openness to stronger food-access indicators (Ly et al. 2020). Crucially, restrictive trade measures do not always deliver affordability gains: India's 2022 export controls on non-Basmati rice did not materially lower average retail prices, suggesting that macro-inflation and distribution bottlenecks can overwhelm the intended protective effects of unilateral restrictions (Valera et al. 2024).

Table 2. Effects on food availability

Study (Year)	Country/ Region	Commodity / Scope	Tariff or Policy Setting Assessed	Availability (Market-Level)	Production Capacity / Incentives
Ly et al. (2020)	ASEAN (10)	Aggregate food	Higher trade openness (lower barriers)	↑ Per-capita food supply; better food-security scores	Mixed/indirect
Le (2021)	Vietnam	Agri-food (aggregate)	RTA participation + improved logistics	↑ Supply diversification, import capacity	Neutral–positive (via competitiveness)
Sugiharti et al. (2020)	Indonesia + partners	Raw agri & processed foods	Deep liberalization/FTAs	↑ Two-way trade; processed food imports ↑	Pressure in some domestic segments
Balié et al. (2021)	Philippines	Rice	Quotas → tariffs (tariffication)	↑ Imports; eased domestic tightness	↓ Incomes for some net-seller rice farmers
Nugroho, Saghaian & Nakamura (2024)	Asia (28)	Agriculture (PPI)	GATT/WTO milestones	Market availability: context-dependent	↑ Producer prices after GATT; ↓ after WTO on average
Nugroho et al. (2021)	Developing countries (17)	Agriculture (value added)	Economic globalization/ export growth	Indirect ↑ via sector growth	↑ Agricultural value added
Esquivias et al. (2023)	Indonesia (34 prov.)	Aggregate food / intake	Net exports, investment	Indirect ↑ through investment & exports	↑ Output where investment rises
Sulaiman et al. (2024)	Indonesia	Palm oil (CPO)	Trade competitiveness, barriers	Stable external supply; domestic linkage depends	Capacity ↑ if downstream develops

Notes: "Availability outcomes" refer to on-shelf supply and product variety via imports/diversification, and medium-term domestic capacity (producer incentives, agricultural value added). Arrows indicate ↑ increase/improvement and ↓ decrease/ deterioration.

Access also depends on household income. Liberalization can raise purchasing power where export-linked agriculture expands and value added grows (Esquivias et al. 2023; Nugroho, Istvan, et al. 2022), but it can reduce net sellers' earnings in import-competing staples, creating a consumer–producer trade-off that policy must navigate (Balié et al. 2021). Bilateral evidence further shows that importer tariffs are not always the binding constraint on exporters' earnings; in Indonesia–India trade, partner demand and exchange rates mattered more than India's tariff in explaining Indonesia's export performance (Rosyidi et al. 2021). Micro demand elasticity magnifies vulnerability: rice is highly price-inelastic for Filipino households, so income or price shocks force the poor to cut nutrient-dense foods to maintain staple consumption, degrading diet quality even when calories remain adequate (Balié et al. 2021; H. G. A. Valera et al. 2024). Taken together, tariff reduction tends to improve affordability for net buyers and can raise income in competitive regions. However, targeted transfers, adjustment assistance, and productivity programs are indispensable for protecting smallholders and preventing access losses among net sellers. Table 3. It summarizes food access outcomes, showing how tariff reform and related trade conditions affect retail prices, household welfare, and diet affordability through price pass-through and income channels under varying logistical, macro, and market structure contexts.

Effects on Stability

In "normal" years, openness stabilizes supply by diversifying sources and pooling risks. ASEAN evidence shows that trade openness improves the stability pillar of food security, consistent with imports smoothing seasonal and idiosyncratic domestic shocks (Ly et al. 2020). Vietnam's integration, reinforced by logistics upgrades, has bolstered reliability by lowering internal trade costs and improving timely access to supplies (Le, 2021).

Table 3. Effects on food access

Study (Year)	Country/Region	Commodity / Scope	Policy or Exposure	Access Outcomes (prices, welfare, diet affordability)
Balié et al. (2021)	Philippines	Rice	Quotas → tariffs (rice tariffication)	↓ Retail rice prices; ↑ real incomes for most households; largest gains for poorest; slight poverty reduction
Montolalu et al. (2022)	Indonesia (districts)	Food basket (calories & protein)	Higher exposure to import tariffs	↑ Food costs; ↓ calorie & protein intake; liberalization reverses pattern
Ly et al. (2020)	ASEAN (10)	Aggregate food	Greater trade openness (lower barriers)	↑ Food access indicators alongside availability & stability
Valera et al. (2024)	India (+ importers abroad)	Rice	Export restrictions (non-basmati)	No meaningful ↓ in India's average retail prices; ↑ prices abroad; modest volatility reduction in some Indian states
Esquivias et al. (2023)	Indonesia (34 provinces)	Aggregate food / intake	Net exports & investment dynamics	↑ Calorie/protein intake in more export-oriented, investment-rich provinces
Nugroho et al. (2021)	17 developing countries	Agriculture (value added)	Economic globalization, ag exports, FDI	↑ Agricultural value added → potential ↑ rural incomes and food purchasing power
Rosyidi et al. (2021)	Indonesia–India	Leading ag exports	Importer tariff vs. demand & FX	Importer tariff not binding; partner GDP & exchange rate drive export earnings
Valera, Minot & Balié (2022)	Philippines	Major food groups	Demand system (price/income shocks)	Rice price ↑ or income ↓ → budget shifts to rice; ↓ intake of nutrient-dense foods
Le (2021)	Vietnam	Agri-food (aggregate)	RTAs + logistics performance	Better import capacity & market access → improved consumer availability/affordability

Notes: 'Access outcomes" cover retail/consumer prices, household welfare, and calorie/protein affordability. Arrows indicate ↑ increase/improvement and ↓ decrease/deterioration.

During systemic shocks, integration can quickly transmit volatility. COVID-19 scenarios warned of transitory but sharp food insecurity in import-reliant developing countries if cereal trade was curtailed, highlighting the fragility of just-in-time global supply (Udmale et al. 2020). The 2022 Black Sea conflict raised world grain prices and threatened the availability and access of low-income importers (Nasir et al. 2022). Some Mekong economies became more food insecure as deglobalization reduced trade flows, although price-driven effects temporarily benefited others, underscoring heterogeneity in transmission channels (Nonthapot & Watchalaanun, 2023). Unilateral export controls tend to reallocate instability rather than remove it: India's rice restrictions slightly reduced intra-India price volatility in some states but exported volatility abroad, raising prices for import-dependent countries (H. G. A. Valera et al. 2024). Stability is also mediated by domestic market institutions. In Lao cassava, the presence of buyer competition, contracts, and credit arrangements shaped how global swings reached farm-gate prices, affecting income stability and thus food access (Nguyen et al. 2023). The upshot is that tariff reduction reduces routine domestic volatility via diversification but heightens exposure to global shocks. Resilient stability requires balanced openness, credible buffers, transparency, and regional coordination. Table 4. maps food stability effects, contrasting routine risk-pooling benefits of openness with volatility transmission during systemic shocks, and highlighting the mechanisms, moderators, and policy tools that shape price volatility and supply reliability.

Table 4. Effects on food stability

Study (Year)	Country/Region	Shock / Policy / Exposure	Stability Outcomes (price volatility, supply reliability)
Ly et al. (2020)	ASEAN (10)	Higher trade openness (lower barriers)	↑ Stability via imports smoothing seasonal/ idiosyncratic shocks
Le (2021)	Vietnam	RTA participation + logistics upgrades	↑ Reliability; ↓ internal frictions and delays
Udmale et al. (2020)	Global (developing regions focus)	Pandemic scenarios (COVID-19)	↑ Risk of transitory but sharp insecurity if cereal trade curtailed
Nasir et al. (2022)	Global; low-income importers	Russia–Ukraine conflict (Black Sea shock)	↑ Global grain prices; threatened availability & access
Nonthapot & Watchalaanun (2023)	Greater Mekong Subregion	Deglobalization (reduced integration)	↑ Food insecurity in small trade-dependent states; mixed price-channel effects elsewhere
Valera et al. (2024)	India (+ importing partners)	Export restrictions on non-basmati rice	Slight ↓ volatility in some Indian states; ↑ prices and instability risk abroad
Nguyen et al. (2023)	Lao PDR	Commercialization of cassava (export-linked)	Farm-gate price volatility shaped by local institutions
Andrew et al. (2022)	Pacific Island Countries	Rising import dependence; COVID-19 exposure	↑ Systemic vulnerability to external shocks despite adequate routine supply
Thow et al. (2022)	Pacific Island Countries & Territories	Intra- vs. extra-regional food trade patterns	Limited intra-regional trade → limited shock absorption; reliance on extra-regional imports

Notes: "Stability outcomes" refer to price volatility and supply reliability under routine conditions and during systemic shocks. Arrows indicate ↑ increase/improvement and ↓ decrease/deterioration.

Effects on Food Utilization (Nutrition Quality and Diets)

Lower tariffs reshape what people eat, not just how much. Where liberalization reduces prices of nutrient-dense foods (e.g., pulses, fish, fruits/vegetables), households can diversify diets and raise calorie/protein intake; this shows up in Indonesia, where higher tariff exposure is linked to lower calorie and protein intake, implying that tariff reduction improves utilization via affordability (Montolalu et al. 2022), and in provinces where trade and investment coincide with higher intake and better composite food-security scores (Esquivias et al. 2023). However, openness can also cheapen and expand access to ultra-processed foods, a pattern documented across Pacific Island food systems, where rising imports of refined grains, sugary drinks, and processed meats accompany deteriorating diet quality and NCD risks (Andrew et al. 2022; Thow et al. 2022). Micro-demand behavior intensifies vulnerability: in the Philippines, when rice prices rise or incomes fall, poor households reallocate budgets toward the staple and cut back on micronutrient-rich foods, degrading diet quality even if calories are maintained (Valera, Minot, & Balié, 2022); thus, stabilizing staple prices and protecting real incomes are prerequisites for nutrition gains from trade. Beyond terrestrial foods, international fish trade and foreign fishing reallocate seafood nutrients away from nutrient-deficient countries, limiting local utilization benefits unless access agreements and value chains explicitly safeguard domestic nutrient availability (Nash et al. 2022; Farmery et al. 2021). Finally, policy space matters: nutrition regulations (e.g., front-of-pack labels, marketing restrictions) can be constrained by trade commitments unless designed with health carve-outs and inter-ministerial coordination (Harris et al. 2022). Overall, tariff reduction can enhance food utilization when paired with (i) lower barriers to nutrient-dense foods, (ii) staple price stabilization and targeted transfers to avoid diet simplification under shocks, (iii) fisheries/trade provisions that retain nutrients domestically, and (iv) preserved regulatory space to shape healthier food environments. Table 5. Consolidates findings on food utilization (diet quality and nutrient intake), outlining how tariff settings and trade dynamics alter consumption patterns, the mechanisms and moderators at play, and their nutrition-sensitive policy implications.

Table 5. Effects on food utilization

Study (Year)	Country/Region	Exposure / Policy	Utilization Outcomes (diet quality, calorie/ protein)
Montolalu et al. (2022)	Indonesia (districts)	Higher import-tariff exposure vs. liberalization	Tariffs ↑ → lower calorie & protein intake; liberalization improves intake
Esquivias et al. (2023)	Indonesia (34 prov.)	Trade & investment dynamics	More export-oriented, investment-rich provinces show higher intake and better food-security scores
Valera, Minot & Balié (2022)	Philippines	Price/income shocks (QUAIDS)	Rice price ↑ or income ↓ → shift budgets to rice, reduce nutrient-rich foods
Andrew et al. (2022)	Pacific Islands	Rising import dependence	Calorie access ↑ but diet quality deteriorates; NCD risks ↑
Thow et al. (2022)	PICTs	Intra- vs. extra-regional trade	Intra-regional trade small; nutritious staples under-traded
Nash et al. (2022)	Global (SIDS, Africa)	Fish trade & foreign fishing	Nutrient leakage from deficient countries to secure ones
Farmery et al. (2021)	Global (policy review)	Policy linkages fisheries ↔ nutrition	Most policies miss nutrition focus; nutrition-sensitive designs rare
Harris et al. (2022)	Vietnam (CPTPP)	Trade agreement provisions	Potential constraints on labels/marketing rules

Notes: "Utilization outcomes" reflect diet quality and nutrient intake (e.g., calories, protein, and micronutrients). Arrows indicate ↑ increase/improvement and ↓ decrease/deterioration.

Managerial Implications

Policy should shift from ad hoc protection to calibrated openness: keep tariffs low on import-dependent staples and nutrient-dense foods, publish multiyear tariff paths, and use narrow, time-bound safeguards where producer adjustment is needed. Inside the border, lower import costs reach households by investing in ports, storage, cold chains, and rural roads, enforcing competition policy to curb mark-ups, and operating transparent stock rules instead of broad export bans during shocks. Trade gains should be converted into farm productivity and resilience through targeted support (irrigation, seeds, mechanization, extension), risk tools (index insurance, working-capital lines), and co-investment with buyers in quality and traceability. For firms, diversifying origins, adopting risk-sharing contracts, maintaining strategic inventories, and quickly passing cost declines to retail prices; in export chains, pair openness with downstream value addition and price-risk management. Make the regime nutrition-sensitive by lowering barriers on pulses, fish, fruits, and vegetables, safeguarding policy space for front-of-pack labels and marketing rules, and reserving a share of nutrient-rich aquatic foods for domestic markets. Track a small dashboard border-to-retail pass-through, stock-to-use, source diversification, farm-gate price variance, and diet quality share to steer rapid course corrections when conditions change.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This review shows that in developing countries, lowering import tariffs on major foods generally increases on-shelf availability, improves household access through lower prices, and steadies routine supply by diversifying sources. These gains are uneven without producer upgrading and fragile during global shocks when openness can transmit volatility. Outcomes hinge on four conditions: credible support for farmers to adjust and raise productivity; efficient logistics and competitive domestic markets that pass border price declines to consumers; governance capacity that turns cheaper, more abundant food into better diets; and a rules-based stability architecture that manages exposure to external crises. The most food-secure configuration is calibrated openness liberalization, which raises social welfare, insulates the vulnerable during transition, and embeds nutrition and resilience objectives into trade design.

Recommendations

Policies should shift from ad hoc protection to predictable, nutrition-sensitive tariff reforms. Prioritize lower rates for import-dependent staples and nutrient-dense foods, use time-bound safeguards for sensitive staples, and publish multiyear tariff paths to crowd in private investment. Recycle trade gains into farm productivity and resilience irrigation, climate-smart inputs, mechanization, extension, digital advisory, and risk-management tools paired with temporary income support, where needed. Build a rules-based stability system for an open regime: transparent public stocks with clear operating rules, narrowly scoped and time-limited export measures only as a last resort, regional early warning and coordination, and clear communication to markets. Cut internal frictions so that border reforms reach households by investing in ports, storage, cold chains, rural roads, and enforcing competition policy to curb mark-ups and improve price pass-through. Make trade explicitly nutrition-oriented by reducing barriers to nutrient-rich foods, safeguarding domestic access to key micronutrient sources (including through fishery provisions), and preserving space for labelling and marketing rules that promote healthy diets. Finally, strengthen governance and evidence use: ring-fence financing for transition and nutrition, upgrade targeted cash transfer systems for rapid crisis scaling, avoid broad export bans in favor of temporary fiscal relief and safety nets, and institutionalize ex ante and ex post impact assessments to recalibrate policies as real-world outcomes emerge.

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