Chapter 2.1
Agricultural Trade Structure, Disruptions, and Competitiveness in Latin America and the Caribbean

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Introduction

Latin America and the Caribbean (LAC) has a central position in global agricultural trade, both as a major exporter of staple commodities and as a region increasingly exposed to shifts in global demand, trade policy, and geopolitical fragmentation. Recent developments show that agrifood trade is no longer shaped primarily by gradual liberalization or isolated tariff disputes. Instead, it is being reshaped by a more complex environment in which higher tariffs coexist with selective application, exemptions, and preferential treatment.

A key insight emerging from recent trade shocks is that markets can adjust, but adjustment increasingly takes place through the reallocation of trade flows rather than through smooth prices or production responses. This has important implications for LAC, where trade is often concentrated around a limited number of products and destinations. As adjustment costs rise, outcomes depend less on aggregate performance and more on structural characteristics such as diversification, bargaining power, and institutional capacity. Against this backdrop, the chapter situates LAC's experience within the broader global debate, emphasizing the need to align national and regional strategies with a changing global trade landscape.

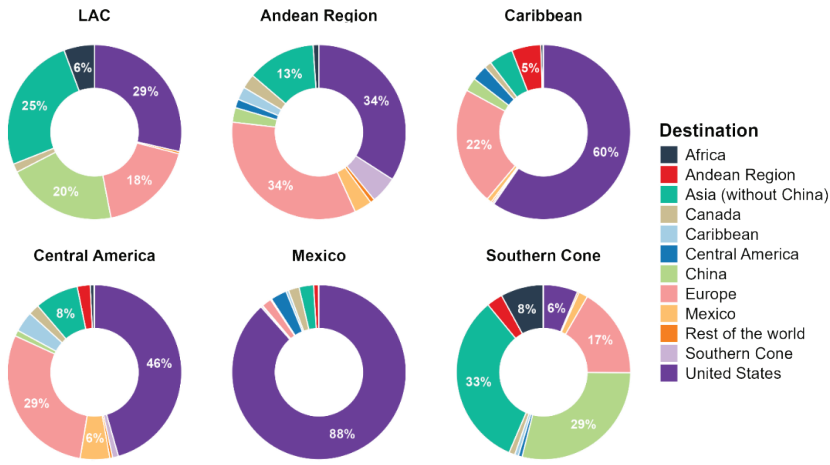
Structure of LAC's agricultural trade

LAC's agricultural trade structure helps explain why the region has been especially vulnerable to recent global trade shocks. Both its export profile and its network of trading partners are relatively concentrated, meaning that policy

changes or disruptions affecting a small number of products or economies can have amplified effects on regional trade flows.

LAC's agrifood exports vary widely across subregions (Figure 1). Three distinct export patterns emerge from an analysis of this heterogeneity: first, Mexico exhibits a highly concentrated export structure, with 88% of its agrifood exports going to the United States (US), reflecting deep production integration and longstanding trade linkages within North America. Second, the Andean region, Central America, and the Caribbean also rely primarily on the US as their main export market, although Europe constitutes a secondary but still relevant destination. Third, Asia, particularly China, absorbs the largest share of agrifood exports from the Southern Cone, while Europe remains an important, though comparatively smaller, market for the subregion.

Figure 1. LAC's agrifood export structure by subregion and destination (in 2024 USD)

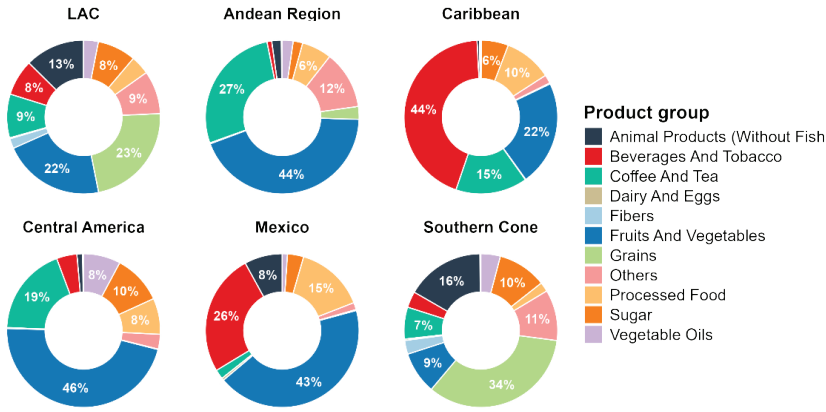


Source: Authors' calculations based on FAO 2026.
Notes: Fisheries are not included. Intra-subregional trade is excluded.

Figure 2 shows the structural heterogeneity of agrifood exports across LAC subregions, highlighting differences in product composition. As in the previous figure, three distinct patterns of specialization emerge. First, Mexico and the Caribbean display a relatively stronger concentration in beverages and tobacco, as well as in fruits and vegetables. Second, the Andean region and Central America exhibit a more pronounced specialization in traditional tropical com-

modities, particularly coffee, cocoa, and tea, alongside fruits and vegetables. Third, the Southern Cone has a strong share of grains and animal products, indicative of large-scale and land-intensive production systems.

Figure 2. LAC's agrifood export structure by subregion and product group (in 2024 USD)



Source: Authors' calculations based on FAO 2026.
Notes: Fisheries are not included in agrifood products. Intra-subregional trade is excluded.

Overall, the region's trade profile suggests limited margins for adjustment when external conditions shift. Because exports are concentrated on a handful of globally traded commodities and directed toward a small group of major markets, changes in tariffs, standards, or geopolitical relations can quickly affect domestic producers. Trade may be redirected, but the gains from diversion are uneven and depend on existing agreements, infrastructure, and competitiveness. At the same time, reliance on imported food products and key agricultural inputs exposes the region to external price spikes and supply disruptions. This combination of concentrated exports and strategic import dependence shapes how LAC experiences and responds to an increasingly uncertain global trading environment.

Climate risks and geopolitical tensions in the global food system

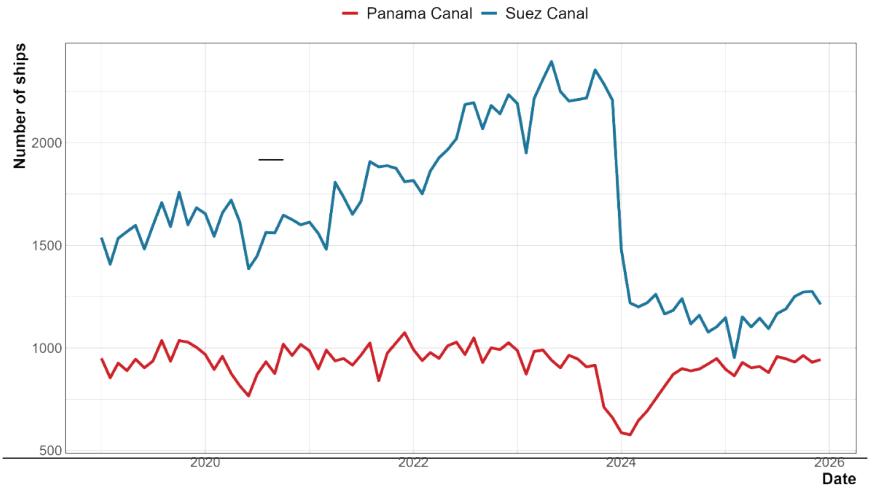
In the last decade, global agricultural trade has been operating under two simultaneous and structural disruptors: geopolitical tensions and weather variability. These forces are not isolated shocks (Han et al. 2026; Talebian et al. 2024) but instead interact with each other, input markets, logistics systems, and trade policy responses. Together, they are reshaping production patterns, trade corridors, and market relationships in ways that are likely to persist.

Geopolitical conflict has proven to be particularly disruptive because it affects several layers of the system at once. The Russian invasion of Ukraine in February 2022 triggered one of the most significant disruptions to global grain markets in decades. Ukraine's planting, harvesting, and export capacity collapsed as Black Sea ports were blockaded and logistics severely constrained. Maize production fell by 37.8% in 2022 and wheat by 35.6%, with harvesting areas reduced dramatically (FAO 2026). Countries in the Middle East and North Africa, heavily dependent on Black Sea wheat, were among the most exposed (Glauben et al. 2002; Devadoss and Ridley 2024).

Sanctions and countersanctions have amplified the disruption. At one point, up to 17% of globally traded calories were affected by trade barriers (Glauber et al. 2022). Although international prices later stabilized as other exporters expanded output, trade routes did not simply return to their previous configuration. When Russia withdrew from the Black Sea Grain Initiative in July 2023, safe passage arrangements ended again, and Ukrainian cereal and oilseed exports fell by approximately 50%. A larger share of Ukrainian maize was redirected toward Europe, permanently modifying trade flows (Glauber 2024).

Maritime disruptions reinforced these pressures. Between late 2023 and early 2024, attacks in the Red Sea reduced traffic through the Suez Canal by 80% (AXSMarine 2024; Kamali et al. 2024; Sainz 2025) (See figure 3). Ships were forced to reroute around the Cape of Good Hope, increasing transit times by up to 50% and raising transport costs by 130 to 230% (ITF 2024; Dunn and Leibovici 2024). Insurance premiums doubled and global shipping capacity declined as vessels spent more time at sea (World Bank 2025; EPRS 2024). Wheat shipments from the European Union (EU), Russia, and Ukraine to East Africa, South Asia, and China were directly affected.

Figure 3. Ships transiting through the chokepoint by month, 2019–2025



Source: Authors' calculations based on IMF 2026.

These developments show how agricultural trade remains dependent on a limited number of corridors and insurance markets. When those corridors are disrupted, markets adjust, but not without cost.

Climate variability and associated extreme weather events—such as droughts, storms, and floods—are taking an increasingly heavy toll on global agricultural production, logistics, and trade. This is particularly acute in low- to lower-middle-income countries, where agricultural losses accounted for more than one-quarter of overall disaster-related losses between 2008 and 2018 (Blackman et al. 2025). The LAC region alone lost approximately USD29 billion during that period due to reductions in crop and livestock production following climate-related disasters (FAO 2021).

More recently, the impacts of climate variability have been exemplified by prolonged droughts in the Rio de la Plata basin (2019–2023) and the Panama Canal (2022–2023) (See figure 3). The former severely depressed agricultural productivity and increased transportation costs for exports from Argentina, Paraguay, and Uruguay (WMO 2022). The latter, driven by record-low water levels in Gatun Lake, forced authorities to drastically reduce daily vessel transits, constricting one of the world's primary maritime corridors linking the Atlantic and Pacific (UNCTAD 2024a, 2024b; Muñoz et al. 2025). These restrictions resulted in protracted waiting times, elevated freight costs, and significant deliv-

ery delays (Ruiz and Shintani 2024). For agricultural commodities, particularly bulk grains and oilseeds, these bottlenecks disrupted trade flows and heightened uncertainty in international markets (Goyal et al. 2024).

The trade policy response has further complicated the adjustment of trade flows to this era of fragmentation. As the multilateral trading system weakens, nations are increasingly justifying trade-distorting measures on non-trade grounds, even when such actions are clearly rooted in protectionism.

Geopolitical motives are frequently invoked to justify not only historically high tariffs but also discriminatory increases that represent a clear departure from the most favored nation (MFN) principle. Discrimination compounds the economic costs of protection, particularly when trading partners retaliate. For instance, economy-wide modeling indicates that when protectionist measures are combined with distortions and retaliation, the contraction in agrifood and total trade is significantly larger than under uniform tariff increases alone, even when aggregate effects on gross domestic product (GDP) and welfare appear modest (Figure 4) (Piñeiro et al., forthcoming).[19]

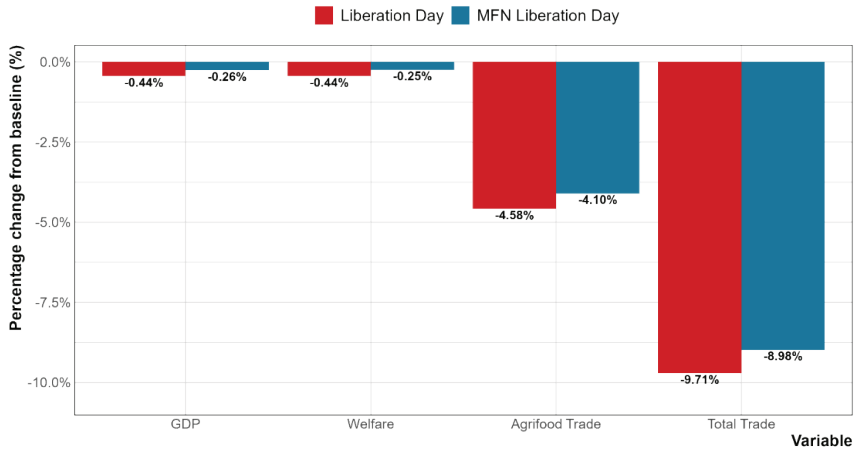
These costs are further exacerbated by non-tariff measures, specifically export restrictions, which disproportionately impact the agrifood sector (IFPRI 2026). Ranging from outright prohibitions and quotas to licensing requirements and minimum export prices, these measures reached a peak in 2024, concentrated in essential commodities such as rice, wheat, maize, and soybeans (OECD 2025).

Similarly, climate objectives are cited as justification for a growing array of unilateral, trade-distortionary actions—the so-called trade-related climate measures (TrCMs). These encompass carbon border taxes, enforceable environmental chapters in preferential trade agreements (PTAs), and complex sustainability regulations. Between 2009 and 2022, approximately 18,000 trade-related environmental measures were reported to the World Trade Organization (WTO), including 3,460 TrCMs (WTO 2023). While the climate objectives behind these regulations are legitimate, for low- and middle-income exporters in LAC

19 The scenarios draw on the framework developed in Piñeiro et al. (forthcoming), which evaluates alternative US tariff configurations introduced in 2025. The Liberation Day scenario reflects selective, non-MFN tariff increases consistent with the April 2, 2025 announcement, combined with symmetric retaliation by trading partners. The "MFN Liberation Day" scenario applies equivalent trade-weighted tariff increases on an MFN basis, preserving existing relative preferences across countries. Both scenarios are simulated using the MIRAGRODEP model, which relies on detailed bilateral trade, production, and tariff data to evaluate how alternative policy configurations affect trade flows, welfare, and sectoral performance

and Africa, they often entail unnecessary and discriminatory increases in trade costs. The ongoing controversies surrounding the EU Deforestation Regulation and the Renewable Energy Directives serve as primary examples of the structural challenges ahead (Blackman et al. 2025).

Figure 4. Impact on world macro variables,% change from baseline (%)

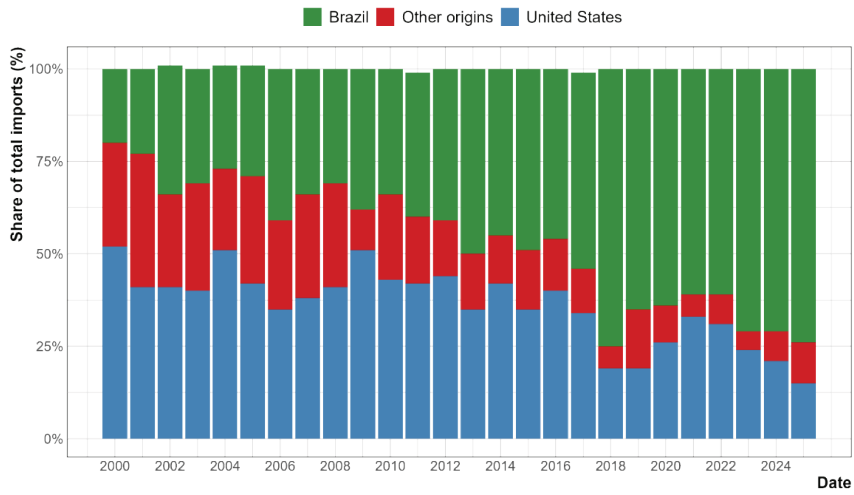


Source: Piñeiro et al. (forthcoming).
Notes: Trade variables are constructed as the sum of imports and exports. See footnote for details about the scenarios. The United States announced its Liberation Day on April 2, 2025. MFN = Most favored nation.

These dynamics increase uncertainty, amplify trade diversion, and shift competitiveness away from productivity and toward policy-driven advantages. As a result, adjustment processes become slower, and shocks leave more persistent effects on trade patterns.

The 2018 soybean dispute provides a clear illustration. Trade flows did not collapse but instead were reconfigured. China reduced its reliance on US soybeans and expanded imports from Brazil and Argentina, while US exporters redirected shipments to alternative markets, often at discounted prices.

Figure 5. China's soybean import shares by origin, 2000–2025



Source: Authors' calculations based on TDM 2026.

As shown in Figure 5, China's shares of soybean imports shifted following the onset of trade tensions. Importantly, these changes were not fully reversed once tensions eased. A temporary policy shock resulted in longer-lasting shifts in sourcing relationships, logistics, and market shares.

This same pattern—reallocation rather than collapse, but with significant adjustment costs—reappeared during the post-pandemic recovery and the war in Ukraine. Commodity prices surged, and many governments introduced export restrictions to shield domestic consumers. According to IFPRI (2026), a significant share of globally traded food was affected at some point by such measures. While individually rational, these defensive policies amplified volatility at the global level, reinforcing uncertainty and accelerating trade diversion.

The fertilizer market became a critical transmission channel linking geopolitical shocks to agricultural production and trade. Sanctions on Russia and Belarus, shipping disruptions, and reduced natural gas supplies sharply curtailed fertilizer availability. Belarusian potash exports fell by 50%, Russian ammonia shipments declined by 63%, and global fertilizer use dropped by 5% due to high prices and scarcity. For fertilizer-dependent regions in Africa, South Asia, and LAC, this directly increased risks to food production (Glauber and Laborde 2022).

The connection to the soybean case, and to broader trade reallocation, is direct. Just as tariffs reshaped sourcing decisions in 2018, input market disruptions reshaped production decisions after 2022. Higher fertilizer prices squeezed margins for producers and raised food prices for consumers. Some farmers shifted toward lower-input crops, altering cropping patterns and, consequently, trade flows. In this way, shocks that begin in trade policy or geopolitics spread through input markets, production systems, and ultimately global trade structures.

Markets eventually adjust, but the transition is costly. Exporters must find new buyers and often accept lower prices, while importers scramble to secure alternative suppliers and manage disruptions. In agrifood systems, where production is seasonal and input-dependent, these frictions are amplified. Reducing these costs requires timely information, analytical capacity, and coordinated policy; without them, repeated fragmentation can weaken competitiveness and erode food system resilience.

Productivity challenges in a changing trade environment

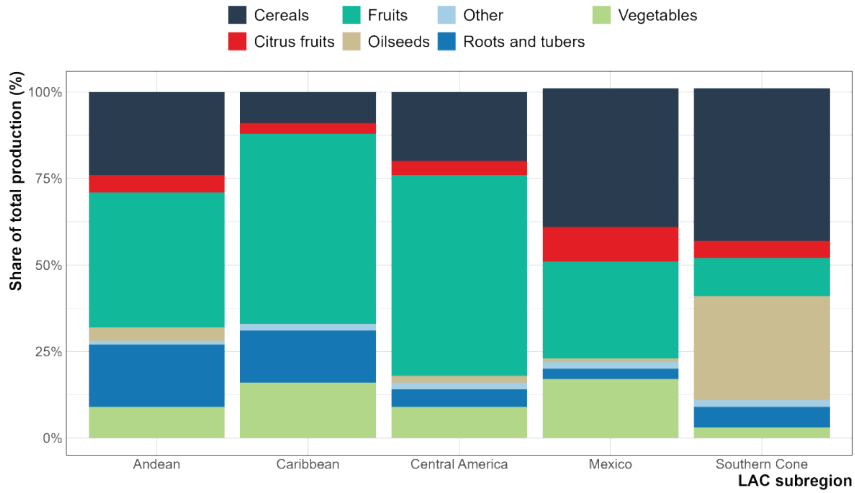
Agricultural production in LAC has expanded continuously since the early 1960s, reflecting a long-term expansion in scale rather than discrete episodes of growth accelerations. Between the 1960s and the 2010s, average annual growth rates remained within a relatively narrow range—approximately 2.5 to 3.1% per decade—indicating a stable capacity to increase production over time. This pattern, however, has shifted in recent years. During the 2020–2023 period, average output growth slowed markedly to around 1.7%, departing from historical trends and revealing the growing sensitivity of agricultural performance to structural constraints, including disruptions to trade, logistics, and market access (USDA 2026a; Salazar et al. 2025).

The evolution of total factor productivity (TFP) helps explain this behavior (USDA 2026b; Salazar et al. 2025). While output growth remained stable for several decades, productivity followed a much less even trajectory. Between the 1960s and the 1970s, average TFP growth was modest (around 1.0–1.3%), but it strengthened from the mid-1990s through the 2000s (reaching rates between 2.0 and 2.3%) before decelerating again more recently and falling to about 0.8%. This pattern suggests that short-run output expansion has relied primarily on input accumulation, with productivity gains occurring sporadically.

Importantly, these dynamics have not been homogeneous across LAC (Salazar and Martel 2025; Perego et al. 2020), revealing regional variations that in turn reflect structural differences in production environments and varying degrees of market integration. Between the 1960s and 2000s, the Southern Cone and Mexico recorded relatively stable output growth, averaging around 3.0–3.5% annually, while Central America expanded rapidly in the 1960s (above 5%) before slowing. The Caribbean showed weaker performance, averaging about 1.1% since the 2000s and experiencing contractions in the 1990s. During the 2020–2023 period, output growth slowed across all regions, dropping to around 1.4–1.5% in the Southern Cone and Central America, compared to 2.8% in the Andean region. Productivity trends reflect similar disparities. Mexico achieved sustained TFP growth of 3–4% from the 1990s onward, while the Southern Cone recorded gains of about 2–2.5%. Central America and the Caribbean experienced lower, more volatile, and sometimes even negative productivity growth. These patterns of agricultural output and productivity are associated with the consolidation of agricultural value chains across the region (Nin-Pratt 2025). In Central America, fruit-based production has increasingly dominated since 1990 and, together with cereals, now accounts for more than 75% of output, indicating a highly concentrated structure. The Andean region is more diversified, with fruits representing about 35–40% of output, while cereals and tubers each retain shares above 10% (Figure 6) (FAO 2026).

The Caribbean has seen fruits and vegetables exceed 50% of output, with vegetable production expanding notably since the 2000s. Mexico and the Southern Cone are more scale-oriented: cereals account for roughly 40% of output in Mexico, while in the Southern Cone, cereals and oilseeds have jointly represented more than 60% since the 1990s, even rising to around 70% after 2010, reflecting strong export specialization (FAO 2026).

Figure 6. Share of total agricultural production by food group, LAC, 2020–2024 Average



Source: Authors' computation based on FAOSTAT 2026.

Recent evidence suggests that competitiveness gaps are becoming more binding in a fragmented global context. After decades of steady expansion driven largely by scale, agricultural growth slowed between 2020 and 2023 amid trade disruptions, logistical constraints, fertilizer volatility, and climate shocks. At the same time, TFP growth weakened after a period of strengthening in the 1990s and 2000s, indicating greater reliance on factor accumulation rather than efficiency gains. In the context of selective tariffs and corridor disruptions, weak productivity raises adjustment costs and reduces resilience to shocks.

These constraints vary across subregions. The Southern Cone and Mexico, with stronger productivity performance, are better positioned to adjust, though export concentration heightens exposure to policy shifts. Central America and parts of the Andean region combine lower and more volatile productivity with narrow specialization, limiting flexibility. The Caribbean, marked by irregular productivity and dependence on perishable value chains, faces even tighter adjustment margins. Strengthening long-term competitiveness requires reinforcing the technological and institutional foundations of productivity growth.

Strengthening competitiveness through innovation

LAC's agricultural trade remains highly concentrated in both products and markets. Export baskets are dominated by a small group of commodities, including soybeans, maize, beef, sugar, coffee, and selected fruits, while a limited number of destinations absorb most exports. This concentration supports export revenues but reflects limited diversification and slow movement into higher value-added activities such as processing and branding, leaving the region focused on primary or minimally processed goods. As a result, trade performance remains exposed to price cycles, demand shifts, and regulatory changes in a few key markets.

Climate variability and geopolitical fragmentation intensify these structural vulnerabilities. Greater climate variability affects yields, production stability, and infrastructure reliability, raising costs and uncertainty. At the same time, evolving sustainability standards, carbon-related trade measures, and environmental traceability requirements are reshaping access conditions in major markets. Geopolitical tensions further complicate the landscape through export restrictions, shifting alliances, and the strategic use of food trade. For a region with concentrated export structures, these distortions magnify exposure and limit room for maneuvering, especially where production systems lack adaptive capacity and technological depth.

These challenges are rooted in slowing productivity growth. Decelerating TFP, uneven technology diffusion, and persistent gaps between large and small producers constrain competitiveness, limit diversification, and hinder movement into higher value-added activities. As a result, trade diversification remains reactive. In this context, innovation—technological, organizational, and institutional—emerges as the strategic link between trade structure, distortions, and competitiveness, as illustrated by the transformation pathways of Argentina, Peru, and Brazil. (Piñeiro et al. 2026).

In Argentina, agricultural transformation was associated with profound productive reorganization based on integrated technological packages and new business models (Anlló et al. 2015; Bisang 2017). The diffusion of no-tillage systems, promoted through coordination with the National Agricultural Technology Institute and producer organizations such as Asociación Argentina de Productores en Siembra Directa—Aapresid (Trigo et al. 2009; Anlló et al. 2015), allowed producers to address soil degradation while simultaneously improving efficiency and sustainability. The adoption of biotechnology, alongside special-

ized services, silo-bag storage, and precision agriculture, increased the technical complexity of the production system and strengthened export competitiveness.

In Peru, transformation was primarily driven by public policies aimed at promoting non-traditional agricultural exports. Land reforms, tax incentives, investments in irrigation and logistics, and sector-specific innovation programs supported the expansion of high-value crops such as asparagus, grapes, blueberries, and avocado (Damonte et al. 2016; World Bank 2017; Piñeiro et al. 2025). Technological modernization (drip irrigation, integrated pest management, improved traceability, and sanitary compliance) enabled producers to access demanding international markets.

In Brazil, the dairy sector transformation was associated with a cooperative-based model. Market liberalization and growing competition triggered productive restructuring, in which cooperatives acted as vehicles for technological transfer, logistical coordination, and strengthened bargaining power for small producers (Beber et al. 2018; Beber et al. 2021). Supported by specific regulatory frameworks and credit policies, these organizations facilitated investment in infrastructure, sanitary compliance, and managerial professionalization.

Beyond national experiences, LAC's regional innovation architecture, including research networks and mechanisms such as Fontagro, demonstrates the importance of regional public goods and collective financing to sustain transformation. Coordination among national institutes, international centers, and regional platforms has supported joint responses to shared challenges such as pest control, climate adaptation, and genetic improvement.

These experiences show that reducing trade concentration and strengthening resilience require robust innovation systems, not just product diversification. Technological advances such as climate-resilient seeds, digital agriculture, improved logistics, and low-emission systems (Perego et al. 2020) must be complemented by organizational and institutional innovation. Given the region's heterogeneity, strategies must adapt to diverse constraints. Ultimately, productivity-driven innovation is central to reducing vulnerability, meeting environmental standards, and strengthening LAC's competitive position in global trade.

Policy priorities: Moving forward and concluding remarks

This chapter shows that the current global agricultural trade environment reflects a structural break rather than a cyclical downturn. Trade fragmentation, selective tariffs, export restrictions, disruptions to logistics, fertilizer volatility, and more frequent climate shocks are increasing uncertainty and raising adjustment costs. These shifts are significant for LAC, where agriculture is central to growth and external balances. Even when aggregate GDP effects appear moderate, trade reallocation is uneven and disproportionately affects trade-dependent and less diversified economies.

Two priorities stand out. First, diversification of products and markets is essential, as recent trade tensions show that tariffs reshape trade relationships rather than halt trade. Countries with broader export bases adjust more smoothly. Second, competitiveness and logistics are critical. As adjustment occurs mainly through trade flows, investments in infrastructure, connectivity, and institutional capacity are needed to reduce frictions and lower transition costs.

The contrast highlighted in the modeling exercise comparing uniform and discriminatory protectionism underscores the importance of coordinated and rules-based frameworks. Selective measures, exemptions, and non-MFN practices amplify trade diversion and increase uncertainty, particularly for smaller economies that often lack the negotiating leverage and lobbying resources required to secure favorable treatment from major trading partners. In this context, governance and transparency are not abstract principles; they are mechanisms that reduce risk and improve predictability.

These mechanisms represent the fundamental reason why low- and middle-income economies should not abandon the multilateral trading system and its core principles of reciprocity and non-discrimination. Furthermore, there is no clear alternative to institutions such as the WTO for addressing systemic global issues such as domestic subsidies and climate-related externalities. While its current shortcomings are substantial, they are not insurmountable. The institution's mediation capacity was indeed severely undermined by the impairment of the Appellate Body; in addition, its ability to mitigate distortionary measures is constrained by the fact that both the General Agreement on Tariffs and Trade (GATT, Article XX) and the Agreement on Technical Barriers to Trade (TBT) permit unilateral measures for non-trade objectives, including national security and environmental sustainability.

Yet there is a pragmatic basis for optimism. First, the Multi-Party Interim Appeal Arbitration Arrangement—established by major members including the EU, China, and Japan—has enabled the WTO to preserve its mediating function, at least partially. Second, recent WTO dispute resolution recommendations (notably DS600) regarding EU biofuel regulations have reaffirmed the "balancing" principles of the GATT and TBT. These rulings clarify that the pursuit of legitimate non-trade objectives must be conducted with the least disruptive impact on trade. This precedent serves as a powerful tool to minimize distortions and align regulations with the diverse resources and capabilities of developing partners.

A renewed commitment to multilateralism, however, does not imply neglecting other complementary approaches. As a matter of policy, countries should aggressively negotiate and update agreements at the regional, interregional, or plurilateral levels to create a more predictable sub-environment within the broader global fragmentation. Modern PTAs—equipped, for instance, with enforceable TBT and sustainability chapters—can serve as powerful tools to prevent the arbitrary use of trade policy for non-trade objectives. For a region like LAC, which already possesses an extensive and sophisticated network of PTAs, this dual-track strategy offers the best opportunity to hedge against multilateral uncertainty while maintaining high-standard market access.

Regardless of the chosen strategic path, institutional preparedness is equally critical. Continuous trade monitoring, scenario analysis using tools such as economy-wide models, and early validation with observed data can help governments anticipate disruptions and design proactive responses rather than reacting once costs have materialized. In an era of "just-in-case" supply chains and rapid geopolitical shifts, the ability to quantify risk in real-time is no longer an academic luxury but is now a fundamental requirement for maintaining regional competitiveness.

Ultimately, markets will continue to adjust. However, adjustment is becoming slower, more costly, and more uneven. Without stronger regional coordination, improved competitiveness, and more effective governance, transition costs may become persistent, weakening inclusion and food security and widening gaps across subregions. As the international community reflected around MC14 and the future of agricultural trade rules, it became clear that aligning national strategies with regional initiatives and strengthening institutional capacity is essential to ensure that agricultural trade remains a source of resilience and sustainable growth in an increasingly fragmented and climate-constrained global system.

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