The Impact of Agricultural Protectionism on Global Food Supply Chain

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Abstract. The global food supply chain, constructed upon decades of trade liberalization and transportation innovation, is threatened by the revival of agricultural protectionism. This paper aims to investigate how protectionism through instruments such as tariffs, export bans, subsidies, and non-tariff barriers hinders international trade flows, reconfigure supply chains, and threatens food security. By reviewing literature and selected cases of US–China soybean trade war and Common Agricultural Policy of European Union, this paper finds that protectionism increases market inefficiencies, promotes rapid global integration to regionalization process, enlarges price volatility, and threatens food security especially in import dependent and developing countries where food access and food affordability are more vulnerable. The policy analysis suggests that facing protectionism, the international community needs to strengthen multilateral governance, diversify sourcing strategies, enhance logistics resilience, and increase support for vulnerable countries. The paper concludes that while domestic protectionism may bring short term political and economic benefits for individual countries, it also brings long term risks to global food system. Therefore, international cooperation is needed to balance national interests with global food system resilience and sustainability.

Keywords: Agricultural Protectionism, Global Food Supply Chain, Tariffs.

1 Introduction

The global food supply chain is a pillar of modern world economy which involves agricultural production, processing, and distribution in vast transnational geographical areas. Over time, decades of transportation development, technology innovation, and trade liberalization have formed an integrated global food supply chain. Such integration process has brought about benefits such as enhanced efficiencies, reduced food prices, and increased food accessibility. For example, it is impossible for Japan to produce sufficient quantities of tomatoes given its climate conditions, so the Japanese people depend on trade for their food. Also, it is possible for Brazil and Argentina to produce a large amount of grain and to provide grain to the world.

However, this integrated global food supply chain is facing increasing challenges due to the rise of agricultural protectionism. In order to protect domestic agricultural industry, countries have been adopting protectionist policies by using instruments such

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as tariffs, export bans, domestic subsidies, and non-tariff barriers. These actions are hindering international trade flows, especially in the agricultural sector. Due to economic crises, political factors, and nationalist sentiments, countries are increasingly adopting protectionism to preserve their domestic agricultural industry. Such trend brings a new set of challenges to the global food supply chain. Protectionism may lead to market fragmentation, price distortions, and impeded access to food.

The resurgence of agricultural protectionism has disrupted international trade flows. For example, the start of the trade friction between the US and China in 2018 led to tariffs on agricultural products such as soybeans being placed on these two countries, and China began to source these products from other countries such as Brazil and Argentina. Another example is the large number of export bans during the pandemic and the current decision by India to ban wheat exports in 2022.

The resurgence of agricultural protectionism has brought significant disruptions to trade flows. For example, in 2018, amid the U.S.-China trade war, tariffs were levied on agricultural goods such as soybeans, prompting China to seek alternative suppliers, including Brazil and Argentina. Similarly, the rise of export bans during the COVID-19 pandemic and India's restrictions on wheat exports in 2022 have further emphasized the vulnerability of the global food supply chain in the face of nationalistic policies.

The purpose of this paper is to explore how agricultural protectionism affects global food supply chains. In a post-pandemic world where climate change has already put pressure on food supply chains, it is vital for policymakers to comprehend this impact. The paper's understanding of the impacts of agricultural protectionism on global food supply chains will provide a better understanding of its vulnerabilities and policy recommendations to reduce the associated risks. The paper's findings would be useful for policymakers of those countries where food demand exceeds their domestic supply as agricultural protectionism would increase food insecurity and volatility in food prices. This paper investigates the impact of agricultural protectionism on global food supply chains by increasing market inefficiencies, promoting regionalism and undermining food security. The paper specifically focuses on the impact of agricultural protectionism on global food supply chains by increasing regionalization and food insecurity.

2 Literature review

2.1 Defining agricultural protectionism

Agricultural protectionism denotes government policies crafted to insulate domestic agricultural sectors from foreign competitive pressures. Such policies are often deemed necessary to ensure food security, preserve rural livelihoods or correct perceived unfair trade practices. Protectionist policies come in various forms, which in turn can impact global food supply chains by distorting agricultural trade and changing production and consumption patterns.

Tariffs refer to taxes charged on imported agricultural products, which raise their prices and make them less competitive against locally produced goods. They have a significant impact when used in sectors such as grains, dairy and meat, where trade tends to involve large volumes of low-margin goods.

Export bans are often enforced during domestic shortages to ensure sufficient food is available for local consumption. However, using them comes with risks, as they can cause significant disruptions to global food supply chains, particularly for foods consumed as staples such as wheat and rice.

Many countries provide subsidies or price support to their farmers, reducing their production costs and making domestically produced food more competitive. Such subsidies create an uneven playing field, which enables farmers in developed countries to undersell their products and distort prices, thereby reducing the competitiveness of farmers in developing countries.

Non-Tariff Barriers (NTBs) refer to a series of measures, including sanitary and phytosanitary (SPS) standards and technical barriers to trade (TBT), which affect the access of foreign producers to domestic markets.

All these forms of agricultural protectionism affect the global food supply chain by distorting market access, raising consumer costs and reducing overall food industry efficiency. This, in turn, may cause food prices to be more volatile and food security in import-dependent countries to be undermined.

2.2 The Structure of the Global Agricultural Supply Chain

A global agricultural supply chain is a complex system, which includes various stages of production, processing and distribution. It involves various players ranging from small farmers to multinational agribusinesses. Understanding this structure is critical to assessing the impact of protectionist measures.

The global food supply chain is organized around regional specialization, in which different regions of the world produce particular sets of crops or livestock for specific reasons, such as climate, soil, labor, and technology availability. For example, Brazil, Argentina, and Paraguay are major exporters of soybeans, coffee, and sugar. These countries form a key part of the global supply of raw commodities for food, with favorable climate conditions and large-scale production. The United States and Canada rank among the top producers and exporters of grains—including wheat, corn, and barley—as well as meat and dairy products. The United States has a dominant presence in many global agricultural trading relationships, with the main exporting countries and partners located in Asia and Latin America. Thailand, Indonesia, and Malaysia are among the world's major producers of tropical crops such as rice, palm oil, and rubber, which are important raw materials in food systems in Asia and worldwide. Boasting a diverse array of agricultural nations, the European Union stands as one of the world's top producers of dairy, wine, and meat. Owing to the region's high-quality standards and substantial production volumes, the EU's agricultural policies exert a significant influence on global markets.

Global agricultural supply chains can be viewed as a series of value-added stages, from production and processing through to distribution and consumption. The primary production stage of the supply chain involves producing crops or livestock in particular geographic areas. The processing and packaging stage involves transforming raw agricultural products into food (usually in developed countries with concentrated pro-

cessing sectors). The distribution stage involves transporting goods from primary production areas to markets for consumers, usually through logistics chains and global trade routes. The retail and consumption stage is the final stage of the supply chain, where food is available to consumers.

Protectionism upsets the balance of this global food system by increasing trade barriers between stages and regions of the world food system. For example, tariffs on agricultural products increase trade barriers between stages and regions. Export bans and import quotas on raw agricultural commodities can lead to supply shortages and higher prices because they disrupt the global supply of raw materials.

2.3 Protectionism and its Historical Context

Agricultural protectionism has a long history, emerging from both domestic and external forces. Many countries have adopted protectionist policies for their agricultural sectors. The United States' Agricultural Act offered long-term subsidies to domestic farmers, with a strong focus on the domestic production of grain and dairy products. Since the 1960s, the Common Agricultural Policy of the European Union has stabilized prices for farmers and reduced the impact of global market prices on farmers' incomes [1].

After World War II, efforts towards liberalization led to the creation of General Agreement on Tariffs and Trade (GATT) and subsequent rounds of World Trade Organization (WTO) agreements. Agricultural tariffs and export subsidies were reduced, but liberalization of agricultural trade was incomplete, with many countries maintaining high degrees of protection on sensitive products such as sugar and dairy [2].

After the 2007-2008 food price crisis, protectionism flourished as countries increasingly focused on food security. Both the U.S.-China trade war and Brexit played a role in boosting agricultural protectionism. When the COVID-19 pandemic began, numerous countries declared temporary bans on agricultural product exports. These restrictions, in addition to labor shortages, unveiled the vulnerability of the food supply chain, leading to protectionism's gradual transformation from a temporary crisis to a permanent feature of global agriculture.

3 The Impact of Agricultural Protectionism on the Global Food Supply Chain

Agricultural protectionism has extensive impacts on the global food supply chain. By disrupting trade flow, changing production, and causing inefficiencies, protectionism presents threats to the stability and security of the food system. In this section, this study will explore how protectionism impacts the global food supply chain: disruption in production and distribution, supply chain reconfiguration, and food security issues.

3.1 Disruption in Production and Distribution

The most apparent direct of agricultural protectionism is the disruption of traditional production and distribution systems. Under a globalized agricultural system, goods often move through multiple countries and regions for processing, packaging, and final

consumption. Protectionism, such as tariffs and export bans, distorts this system and hinders goods from crossing borders.

Impact of Tariffs on Production and Export Patterns. Tariffs affect prices through their impact on the competitiveness of prices. When tariffs are implemented, the cost of imported goods increases, making them less competitive with local goods. For instance, in 2018, China retaliated against the U.S. and imposed a 25% tariff on soybeans from the U.S., and as a result, Chinese importers saw U.S. soybean exports drop by approximately 70-80%, representing the largest decrease in Chinese imports, which comprised roughly 60% of U.S. soybean exports [3]. This disruption prompted China to seek alternative soybean suppliers, primarily Brazil and Argentina, triggering shifts in the global market and driving up soybean prices in those countries. This reallocation exerted an impact on the global supply chain for soybeans, which are widely utilized in animal feed and oil production [4].

Export Bans and Domestic Shortages. Export bans, often implemented amid domestic food shortages or price surges, further destabilize the supply chain. Take India's 2022 wheat export prohibition as an instance: it severely disturbed the global wheat market. Being among the world's largest wheat exporters, India made up close to 14% of global wheat exports in 2021, before it imposed the ban on wheat exports. The prohibition led to a notable jump in wheat prices, especially in parts of the Middle East and Africa that depend on imports from India for food security [5]. In Egypt, wheat prices increased by 30% within a few weeks, highlighting the vulnerability of the global food system to export restrictions and how protectionism can disrupt production and distribution chains.

3.2 Supply Chain Reconfiguration: Global Integration vs Regionalization

Protectionism has caused a major realignment in the global agricultural supply chain. As trade barriers rise, countries and companies are reassessing their reliance on global supply chains and moving towards regionalization, a more local model of supply, production, and consumption.

Shifting from Global Integration to Regional Self-Sufficiency. Protectionist measures like tariffs and subsidies have forced many companies to set up regional production units in order to cope with increasing trade friction. This has led to the formation of regional supply chains in areas such as automobiles and electronics; in the realm of agriculture, it is particularly apparent in the movement from global sourcing to regional production hubs. For instance, in the aftermath of the U.S.-China trade war, several multinational agribusinesses, including Cargill, adjusted by redirecting their sourcing strategies and production to Brazil and other countries less impacted by tariffs [6]. This realignment enabled them to mitigate risks associated with tariff-induced price increases on U.S. agricultural commodities. While these adaptations facilitated enterprises in maintaining market access, they also contributed to supply chain fragmentation, impeding the efficient and consistent operation of global supply chains.

Increased Reliance on Regional Markets. Protectionism also drives the restructuring of food trade patterns. When high tariffs and non-tariff barriers make international trade unfeasible, countries seek refuge in regional trade agreements (RTAs). For instance, a

comprehensive 2025 analysis published by the European Parliament Directorate-General for External Policies describes how the EU is increasingly employing strict regulations to guarantee environmental sustainability, food safety, and product quality—both for domestic consumption and imported goods. Strict border checks ensure compliance with these regulations. The report charts the EU's dependence on imports for commodities like vegetable oils (e.g., palm oil) and fruits (such as bananas) as well as its efforts to reduce this dependence through policies encouraging local production and sustainable agriculture. These results in increased costs for production and in decreased market access for both the EU and global markets [7].

Regional Trade Agreements and the Rise of Trade Blocs. When measures employed in the name of protectionism disrupt regional supply chains, states increasingly rely on the multilateral system of Regional Comprehensive Economic Partnership (RCEP) in order to maintain access to regional markets. While it further advances regional integration in the Asia-Pacific, this agreement also demonstrates the trend of inward-looking policies and economic "decoupling," which splits global trade networks into regional blocs instead of a cohesive global market. This regional focus has impacts on supply chains and global markets [8].

3.3 Food Security Concerns and Market Access

The shift toward regionalism and the disruption of global supply chains pose significant challenges to food security, especially in countries that depend heavily on imported food. Protectionist policies can increase food prices, limit availability, and create long-term instability in food access.

Rising Costs and Reduced Market Access. As protectionist measures like tariffs, export bans, and subsidies distort trade flows, the costs of food products rise. For example, when tariffs are imposed on agricultural goods, the price of imported products increases, making them less accessible to low-income consumers. This is particularly harmful in countries that rely on food imports for staples such as rice, wheat, and vegetable oils. Developing nations, in particular, face significant risks because they do not have the same capacity to produce food domestically, and any disruption in international trade can lead to food shortages and price spikes [9].

Impacts on Developing Nations. Protectionism has a greater effect on developing countries that depend on imports to satisfy food demand. In this way, sub-Saharan Africa and some countries in South Asia are particularly impacted by the collapse of the global supply chain. In these regions, countries like Nigeria and Bangladesh face an increase in food prices and a decrease in the availability of major agricultural products as a result of tariffs and bans on agricultural exports from food-exporter countries. The loss of access to food imports further reduces inequality and poverty levels [10].

Increased Vulnerability to Price Volatility. Tariffs and other forms of protectionism increase price volatility because countries with smaller agricultural bases have weaker capacity to absorb shocks to global supply chains. Japan and South Korea are particularly vulnerable to increases in import prices of grains like wheat and corn, which are subject to price volatility as a result of tariffs and other trade barriers imposed by major

exporters like the U.S., Brazil, and Russia. These countries have little domestic production capacity to buffer against price shocks in global wheat and corn markets.

4 Case Studies: Protectionism and the Disruption of Food Supply Chains

In order to understand how agricultural protectionism disrupts the global food supply chain, this study analyzes two case studies of disruption. These cases—comprising of tariffs and export restrictions—highlight the significant impact of protectionism on global trade flows, production, and food security. By analyzing these two cases, greater clarity can be found in the effects of protectionism on the global food system.

4.1 The U.S.–China Trade War and Soybean Trade

The most recent and notable example of agricultural protectionism is the U.S.-China trade friction which started in 2018 and disrupted global soybean trade. Soybeans are an important agricultural commodity used in the production of animal feed, oil, and other processed foods. The U.S. is among the world's leading soybean growers and sellers on the international market. China is the biggest purchaser of U.S. soybeans, accounting for roughly 30 percent of the United States' soybean exports.

When the U.S. imposed tariffs on Chinese commodities, China struck back by levying a 25% duty on American soybeans. This levy exerted a notable influence on U.S. soybean shipments. In 2017, soybean exports to China from the United States were worth about $14 billion. However, in 2018, soybean exports to China from the United States dropped by 75 percent. This had a massive impact on American soybean farmers by decreasing the demand for their product and causing a significant decline in farm income, disrupting the entire U.S. agricultural market.

To mitigate the impact of U.S. tariffs, China looked towards Brazil, the world's second-largest soybean exporter after the U.S., to bridge the supply shortfall. The impacts of reversed soybean trade flows were the following: While soybean production in Brazil increased to reflect the new demand from China, the increased demand for Brazilian soybeans led to higher prices. In addition, the long-standing relationship between the U.S. and China in agricultural commerce was distorted due to the increased influence of Brazil in the soybean market. U.S. soybean farmers also encountered difficulties in entering new markets for soybeans, such as in Europe and Mexico. However, these markets were typically less friendly to U.S. soybeans as they were often met with competing agricultural policies and higher production costs.

The impact of disrupted U.S.-China soybean trade was price fluctuations in global soybean prices that led to higher food prices in regions that imported soybeans for animal feed and soybean oil. Thus, countries in Southeast Asia and Africa that imported soybeans faced higher prices and, in turn, impeded their access to affordable food. In essence, the trade war highlights how tariffs and protectionism can lead to fragmented markets and higher food prices, especially in developing countries with high reliance on food imports.

4.2 The EU's Common Agricultural Policy (CAP) and its Global Impact

The European Union's CAP, founded in 1962 has been the basis of European agricultural policy ever since. The CAP subsidizes farmers in the EU with the goals of providing food security, stabilizing prices, and maintaining rural development within the EU. The CAP has been successful in achieving its domestic goals. However, the impact of the CAP on global agricultural trade has been a source of controversy.

The CAP has received criticism for distorting global agricultural markets by ensuring that EU farmers can produce everything at artificially low costs. By subsidizing European production, CAP allows European farmers to sell their goods at prices below the cost of production in farmers outside the EU. As such, EU exports of goods like dairy, cereals, and meat are sold at a price that is below the cost of production in many developing countries, thereby reducing the competitiveness of farmers in many developing countries relative to EU exports and leading to a decline in agricultural development in many regions worldwide, especially in Africa. For instance, EU export subsidies for dairy, cereals, and meat have subsidized the prices of European goods so low that they are not matched by the prices at which farmers in developing countries can produce these goods, leading to the displacement of small farmers in many developing countries, such as Senegal, where local farmers cannot compete with the low prices of European imports.

CAP also promotes regional self-sufficiency. By subsidizing European producers with large amounts of subsidies, the CAP has turned the European Union into a highly protected agricultural sector with a highly subsidized and over-protected food basket that encourages farmers in the EU to produce as much food as possible within the region to minimize reliance on food imports. This results in limited market access for highly subsidized agricultural products from non-EU suppliers and an increased reliance on regional production.

In addition, the CAP has been responsible for environmental degradation in the EU. Overproduction of dairy and grains leads to environmental degradation and environmentally unsustainable farming practices in the EU, which in turn have an impact on the global agricultural supply chain. For instance, the environmental impact of dairy farming in the EU has led to the clearing of forests and excessive water usage in other regions of the world.

In the early stages, the EU experienced little pressure from international organizations like the WTO to reform CAP and decrease trade distortive subsidies. However, since then, these pressures have been great, and the CAP has been reformed slowly. The EU still maintains protectionism to protect its own agriculture, and CAP has had a significant impact on world agricultural trade.

5 Policy Recommendations and Solutions

Agricultural protectionism has brought great impacts to the global food chain as shown in the above cases. To reduce the adverse effects of protectionism and build a more robust, efficient, and equitable global food system, comprehensive policy recommendations are urgent. These recommendations cover different intervention levels from

multilateral cooperation to enhancing supply chain resilience and developing countries' concerns.

5.1 Multilateral Approaches: Strengthening WTO Governance and Regional Cooperation

WTO plays a crucial role in advancing free and fair global trade. But the current WTO is not competent enough to deal with the current agricultural protectionism, which has caused trade disputes and divided agricultural markets. In order to better deal with these issues, the WTO should strengthen its governance and develop stricter rules against trade distortive subsidies and NTBs. In case the subsidies and NTBs need to be revised, WTO may reach a new agreement to limit the number of subsidies. And stricter rules should be developed to solve the disputes over trade protectionism.

Although multilateral systems like the WTO are important, RTAs have become more and more important in regulating agricultural trade. RTAs, for instance the RCEP and the United States-Macio-Canda Agreement (USMCA), provide more focused trade negotiations and easier access to the agricultural market.

5.2 Strengthening Supply Chain Resilience

Protectionism has revealed the weakness of agricultural supply chains in face of climate change and global health issues. It is crucial to use strategies to diversify supply chains, break the dependence on a few suppliers and solve logistics problems.

Dependence on a few countries or regions for key agricultural commodities makes the global food system vulnerable to price fluctuations and supply disruptions. The current situation of over-relying on a few regions after globalization process being interrupted into regionalization is not desirable. Countries should get agricultural products from different regions as suppliers to diversify the supply and reduce the risk of being affected by protectionism.

The COVID-19 pandemic and the U.S.-China trade friction have emphasized the importance of logistics, transportation, and infrastructure in the implementation of protectionism. Both the public and private domains need to make investments in logistics infrastructure such as ports, roads, and warehousing facilities. In addition, improving digital infrastructure for tracking and managing supply chain data will allow businesses to respond quickly to changes in trade conditions.

5.3 Recommendations for Developing Nations

Developing countries are vulnerable to the impacts of agricultural protectionism as they lack the capacity to diversify production or absorb impacts on agricultural markets. Agricultural protectionism can have significant impacts on developing countries' agricultural capacity and food security.

Developing countries with a high degree of dependence on agricultural imports need to invest in their own production capacity to become less reliant on foreign suppliers. This applies to smallholder farmers who need support for sustainable farming practices and agricultural technology investments. Developing countries need to invest in their

own food production to increase self-sufficiency and reduce vulnerability to agricultural trade impacts.

Developing countries need to establish food security policies that can provide safety nets when global trade disruptions occur. These safety nets may include strategic food stockpiles, price stabilization mechanisms, and social safety nets to protect vulnerable groups during crises. Developing countries should also strive to diversify their food imports to reduce dependence on a single source of critical agricultural commodities.

5.4 Promoting Global Collaboration on Sustainability and Trade Standards

While protectionism is often justified as a means to serve immediate national interests, recognizing the long-term global challenges such as climate change and sustainable food systems requires international cooperation and global consensus. The challenges in the agricultural sector are particularly pronounced when it comes to climate impacts and resource depletions that contribute to food insecurity.

One of the critical areas for global cooperation lies in establishing universal trade standards related to food safety, environmental sustainability, and the carbon footprints of agricultural products. Harmonizing these standards can reduce TBT and create a level playing field for agricultural producers around the world.

6 Conclusion

Agricultural protectionism presents significant challenges to global food security, economic stability, and market efficiency. The case studies in this paper have highlighted the impacts of protectionist policies on the global food supply chain. Given the trend of increasing protectionism in response to economic and geopolitical impacts, policymakers need to find strategies that balance the need for domestic protection with the need to maintain an open global food system.

This paper has made several policy recommendations to address the challenges posed by agricultural protectionism. These include strengthening multilateral trade agreements, diversifying supply chains, improving food security policies, and encouraging global cooperation towards sustainability and trade standards. Through these strategies, it is hoped that the global community can work together to create a more equitable, sustainable, and resilient food system in the face of increasing protectionism.

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