

The Role of Global Trade in Stabilizing Food Systems: A Comprehensive Review

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Abstract

As globalisation has progressed exponentially over the last number of decades, countries around the world have seen substantial increases to both their exports and imports. Vehicles, cosmetics, clothes, toys, technology, essentially anything tangible has increased in its trade and travel across the world. While early limitations prevented fresh foods from doing the same, today we also see this phenomenon with what we eat and drink. Food too has seen dramatic changes in the way it is exported and imported. Fruits and vegetables from Africa and South America, fish products from Asia, and cheese and wine from Europe, once luxuries, are now consumed by many across North America and other parts of the world. This has transformed our diets, pallets, as well as how we're able to afford to purchase some products and not others. These broader comments around the global trade of food, its security, as well as price volatility, are all interconnected. Oftentimes, consequence to one, also means consequence to the others. Tariffs, shortages, price gouging, as well as anti-trade biases, can have profound effects on all three.

have taken place over the last decade or so, in order to analyse how varying developments such as the war in Ukraine, or decisions made by policy makers, have impacted trade and subsequently changed the volatility of food systems [1,2]. Varying regions are also examined, to ensure that differing circumstances are accounted for. How varying trade policies and outcomes in different African jurisdictions are likely to affect their food systems differently versus how varying trade policies and outcomes might affect North American food systems. Nonetheless, the sources attempt to find answers in their research and conclusion, on how volatility may be better stabilised and controlled for the future. In their answers, a number of insightful and well put recommendations are had. Towards the latter half of the paper, these different recommendations will be considered, as well as reflected upon more personally in an analysis and discussion section, in order to come to an independent conclusion regarding what exactly the role of global trade is in stabilising food systems. Finally, after having analyzed and developed a conclusion to this question, as well as having weighed the pro's and con's of the examined sources, a conclusion will be developed, as well as some recommended actions moving forward.

Introduction

These consequences can too also be interconnected, creating complex and nuanced situations, which may affect an entire country if not continent. The purpose of this literature review is to examine sources on these subjects, provide a synthesis of the strengths and weaknesses in global food trade, develop an agenda for future research, and conclude in answering the question of what the role of global trade is in stabilizing food systems.

Research and Methodology

The way in which the research of this paper is structured, is that of a narrative literature review; with accompanying discussion and analysis conducted after the examination of existing and relevant sources. The sources examined in this paper are primarily studies and papers written on topics relating to trade and the impact it has on that of the stability of global, regional and local food systems. Many of the sources such as Godfray and Sodji, analyse different real world situations which

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The ways in which countries trade, can have profound correlation to the stabilising or destabilising of food prices. Godfray notes not only of the significance and importance that trade has on the stability of food prices, but who in particular it can affect the most [1]. Godfray States,

"The impact of volatility on countries varies depending upon whether they are net food exporters or importers. For an individual household, the greater the proportion of income spent on food, the greater the adverse impact of food-price spikes, as was illustrated by the food riots in a number of low-income countries in 2008. Price spikes can rapidly become a major issue in domestic politics"

Godfrays "The future of the global food system," attempts to find solution and proposition to the question of how might the global food system adapt in a way that allows it to provide healthy and environmentally sustainable diets for all between now and 2050. In the process of answering this, the article requested a number of various authors to consider this question

and what might be the biggest drivers of the global food system between the time of its writing and 2050. A number of times throughout the article, discussion and reference is had as previously noted in the quote above, on how global trade can move forward as a key stabilizer of food systems, as well as how trade biases could affect food systems now and in the future.

Godfray further states, "The spate of trade restrictions prompted by the 2008 food-price spike and the failure to reach a multilateral trade deal that year shows that increasing trade liberalization is not a foregone conclusion and indeed one possible future scenario is for developing countries, as they become richer, to impose their own subsidies and trade restrictions."

Godfray further iterates on arguments others have made that if we are to be able to lower our degrees of food waste and successfully achieve the task of feeding 9 billion people by the year 2050, according to economic models and studies on the subject, these sorts of developments cannot occur. Godfray further explains,

"The studies reviewed are generally relatively optimistic about the task of feeding a global population of 9 billion, though most predict increased food prices and require trade stability to match supply and demand in different geographical regions."

As illustrated by the article, trade and diplomacy have a significant effect on the stability of food prices and their volatility, not only this, but they have the ability to determine to what degree we are able to actually feed the global population. These anti-trade biases as discussed in the article, impact under-developed countries the most, particularly due to the trends over the last number of decades which has seen global food trade take more of a privatised focus as opposed to one that sees heavily regulated government checks and balances. Because of this, Godfray claims that a number of significant consequences may arise in the future, including that of a lack of concern regarding the transmission of agritech to poorer countries, secularisation and the restriction of intellectual property when it comes to agritech, as well as a general decline in compassion towards the needs of developing countries and instead the greater exploitation of them. Godfray concludes by highlighting and analysing the general conclusions made by the various others, to provide the recommendation that for looking to the future, when it comes to maintaining the necessary yields and trade of the global food system, there needs to be a unilateral approach taken, which doesn't just look at the profitability of the overall situation and instead rather, it approaches the current and future challenges by examining them in unison from natural sciences, economics, politics and social sciences, to ensure that effective regulation and strategic policy decisions can be carried out alongside sustainable yield intensification and trade. In essence, reduce the degree of which food trade is seen and determined by private and economic driven interest and rather how it can be maximised based on our global needs while still being sustainable.

A study conducted on the small African nation of Togo and its relationship between trade and the stability of food systems, expresses a number of interesting finds, which further help corroborate the various claims made by authors in Godfrays

research. Sodji, through datasets gathered from the "World Food Index, Pandemic Uncertainty Index and World Trade Uncertainty Index over the period from 2000 M1 to 2021 M5," Sodji analyses the degree to which pandemic uncertainty as well as global trade impacts food prices, in the largely imported based country [2]. Sodji found that not only does direct trade have a substantial impact on the stability of food systems both in Togo as well as other West-African countries, but simply an overall uncertainty in trade in West Africa can also destabilise and shock the wider food system of the region. Sodji states, "Using a nonlinear Autoregressive Distributed Lag (ARDL) model, the model results show that the negative change in global trade policy uncertainty negatively affects food prices in both the short and long run."

In a similar fashion to Godfray, Sodji, through analysing data, highlights the degree to which countries within more sensitive regions may have detrimental impacts to their food systems as the result of overall negative trade implications and uncertainty. While Godfray examines a number of ways in which this can be better combated as well as avoided, how does an individual with the unique lens of experiencing this sort of phenomenon from a very small country within the region, believe it may be currently solved as well as solved for the future. Sodji claims that a great deal of the way in which this kind of issue is solved, is within the hands of policy makers. Sodji highlights and explains that, "authorities should set a specific food price stability target that takes into account shocks to global uncertainties. Specifically, special attention (strengthening information supervision) and continuous monitoring by government agencies should be given to the production costs of agricultural products that make food prices more expensive. On the other hand, the authorities can cap the prices of the main local and imported products, notably corn, rice, sorghum, oil and milk."

Sodji further elaborates that policy makers should strengthen measures to combat uncertainties within trade including strengthening specific supply channels, review tax measures on the private sector to better prevent disorderly price movement, subsidise and incentivise greater trade and import of agricultural fuels and resources and adopt measures to better level off commodity prices, to ensure better retention of important commodity resources. While a number of sources and analysis have shown the degree to which global trade effects that of more sensitive economic areas of the world, particularly Africa, as well as how it affects it, as well as how it may be avoided and the kind of repercussions it can have on the future of such a region, what might be the case when examining regions like that of Europe, or North America, regions which have much greater purchasing power and Gross Domestic Product (GDP). In undertaking this question, the first instinctive thought that comes to mind is that these kinds of regions are likely less affected and or impacted by that of global trade on the prices of their food stability. Given that these economies often greatly exploit sensitive regions like the one previously examined, rational would point that if that region suffers more, then another profits. While this may be an initial thought, then why are food prices soaring in countries like our own, as well as those which have a similar economic composition. The following sources may be able to provide insight to this, as well as ways in

which it may be righted and possible implications for the future. Brander, illustrates an explanation as to why the stabilisation and volatility of food prices by that of global trade policy, is not just a consequence of countries which are more developed and possess robust economies [3]. Brander highlights recent developments across the globe, such as the war on Ukraine, as well as the ban on wheat exports from India in 2007 and 2022, to illustrate that often times there is little to nothing which can be done in order to counter the volatility of global food prices destabilised by global trade, whether a developed country and economy or not. While less developed and more developed regions of the globe have fairly different issues in regards to that of the stability of their food systems and the factors which influence them, with less developed countries being more susceptible often times due to a lack resources for effective of planning and restabilisation, countries in the West are often far more reliant on a complex network of food imports including those like India, Russia and Ukraine, due to the nature of which their own food system is competitively designed and able to domestically produce food for their populations. Because of this, we see the drastic effects events like that of the Indian wheat export ban and the war in Ukraine can have on the stability of western food systems. Brander notes, "As both Ukraine and Russia are major exporters of wheat, prices and price volatility have strongly increased in global agricultural markets with the start of the war."

While examples such as this one illustrate the degree to which situations out of one's control have on the stability of global food systems due to volatility in trade, Brander also highlights things within the control of policy makers, such as that of a country's own global trade policy, to explain how poorly considered or entirely politicised decisions can impact the stability of a country's food system. Brander once again notes,

"The main finding (of the paper) is that the announcement of trade policies that are expected to reduce available quantities on the world market-through either more restrictive export or more liberal import regimes-can amplify global price volatility."

Brander notes of the potential consequence of more liberal import regimes, discussing in his study the newfound evidence which contrary to previous thought, can actually bring about negative consequences to the volatility of a food system, particularly on products such as wheat and maize. Brander in discussing this, eludes to the idea that there is neither simply a liberal import or conservative export regime which is drastically more volatile to a food system than another; rather, he suggests that when stocks are low and such measures are being considered, there needs to be consideration for both and ultimately regardless of any situation, stocks maintained to the point where they aren't tight and or low, in order to mitigate the effects that implementing these measures has on the volatility of a food system, as well as the trade within it. While Brander's examination is more so on the effect to which the institution of trade measures has on a food system, it nonetheless has interesting correlations to Sodjis recommendations. While once again they represent fairly differing situations, they ultimately conclude on the importance of strengthening that of a particular country's various food stock, which both claim is the absolute

key in best containing and balancing that of the stability of a food system. Another source which helps contribute another perspective to the issue, is that of Haagblade, who notes of the extreme importance and significance of balancing trade, highlighting specific regions in Africa, where food surplus zones, as well as food deficit zones, possess little to no possibility for regional trade; in turn creating issues in their own as well as surrounding countries [4-8]. Haagblade notes, "successful expansion of regional trade in food staples holds the potential to accelerate agricultural income growth in favorable areas while simultaneously diminishing price volatility and hunger in deficit zones. Thus, regional trade in food staples constitutes one key plank in an effective agricultural development and food security strategy for the region(Malawi/Mozambique)."

Because of the underdeveloped trade networks alongside insulated import and export policy, both countries end up simply hurting themselves by not properly capitalising on the opportunity at hand. While in already examined sources we've heard of the importance of retaining food stocks, as well as balancing trade, we see now with this example, a lens which allows for the analysis of what happens when you do both of those things the wrong way. In being too heavy handed with your trade, as well as hoarding your countries food specific exports, you result with the prices for products having plummeted. Not only this, but you now have a population without access to many food products only available by import and no money to buy such products if they were even possible to acquire. Haagblade, through this examination of once again a relatively niche market as well as region, helps to illustrate the importance of taking balanced approaches to that of trade when it comes to ensuring that of the stability of a food system. Haagblade's article touches on a somewhat similar and interesting phenomenon, referred to by Ghazalian, as "Home Bias," a concept conceptualised in 1996 [9]. While Ghazalian's examination and analysis focuses on that of fairly developed Organisation for Economic Co-operation and Development (OECD) countries, the concept and wider idea is still very much comparable. Ghazalian defines "Home Bias," as, "the national tendency to purchase domestic products relative to foreign products, over and above any supply cost considerations. Home bias is the result of many potential factors. Trade policies, such as tariffs and Non-Tariff Barriers (NTBs), create a bias towards the purchase of domestic products by limiting the accessibility of foreign products to the local market and by creating price wedges between domestic and foreign products. Inherent consumers' preferences for domestic products also generate home bias and are commonly described in terms of taste bias."

Ghazalian in "Home Bias in Primary Agricultural and Processed Food Trade: Assessing the Effects of National Degree of Uncertainty Aversion," illustrates this idea in how it affects that of primary agricultural and the processed food, to determine how likely people are to purchase and consume said products based on whether they are foreign or domestic. Ghazalian in the study analyses and highlights the shortcomings of traditional assessments and explanations of this "Home Bias," what is generally assumed to be the result of specific consumers' tastes, trade policies and information costs. Godfray instead citing results indicating that much of it can be explained and the

resultant of a "National Aversion Uncertainty." This concept is a wider cultural phenomenon where the population avoids certain choices or decisions due to the uncertain outcomes of this decision; in this instance, that choice or decision is that of using, purchasing and importing foreign food products. Ghazalian concludes that the best way of mitigating and solving this sort of issue, is to in similar fashion to the other sources examined in their own respective issues, have policy makers consider this aspect of food systems and their accompanying management/policy, in order to balance liberalised trade functions and agreements. Ghazalian also notes the importance of better enhancing a country's international food trade, as well as that of their food processing sectors, in order to better mitigate and develop their food processing sectors. While not directly "Home Bias" or "National Aversion Uncertainty," Sanjuan provides further examination and analysis on the implications which insulationism can have on a country and its food systems, by investigating forms of trade restrictions such as "Non-Tariff Measures," imposed within EU countries, as well as the United States; what is by some considered the new primary form of protectionism [10]. Sanjuan in 'Pulling back the curtain on 'behind the border' trade costs: The case of EU-US agri-food trade,' attempts to explain and analyse the wider nuances of existing trade barriers between the EU and the United States, honing in on the concept of "Non-Tariff Measures," a tool which at the time of writing had become the new primary method of trade protectionism. As opposed to traditional tariffs, "Non-Tariff Measures," often lack consolidated or accurate price effect determinants, often as opposed to direct taxation of trade, create more complex and intricate ways of impacting imports/exports [11-15]. Some of the ways these measures may do so are by creating technical barriers, price measures, quota restrictions, sanitary measures, etc. They ultimately create less direct ways in which trade is hampered, thus making it difficult to assess trade implications in academic models. Sanjuan in the study analyses and models the effects of "Non-Tariff Measures" has on the corresponding food systems, to illustrate the wider implications of these measures. In doing so, Sanjuan comes to a number of conclusions and resultants for the ways in which these measures affect food systems, some of these are as Sanjuan states, "the magnitudes of the non-tariff Ad-Valorem Equivalents (AVEs) estimated for both partners suggests that in the 'cornerstone' sectors of (inter alia) meat, dairy, cereals and vegetables and fruit, substantial trade led opportunities and threats could emerge if, under the auspices of the Transatlantic Trade and Investment Partnership (TTIP), both partners arrive at a common terms of reference for the harmonisation of 'behind the border' measures [16-20]."

Further, "there is a consensus that the EU imposes more prohibitive agri-food Non-Tariff Measures (NTMs) than the US. In many sectors, the results appear to be credible (i.e., cattle meat, pig/poultry meat, fruit and vegetables, cereals). Elsewhere, the general magnitudes appear to be plausible, although it is debateable whether the EU or US AVE should be more restrictive (i.e., dairy, processed rice and sugar)."

In essence, while Sanjuan concludes to other authors on the subject that these kinds of "Non-Tariff Measures" present the possibility of developing new trade opportunities if "harmonised"

within the 'Transatlantic Trade and Investment Partnership' between the US and EU, the measures also present the possibility of sector specific risk and consequence. In recommending action and or advice in how to best go about limiting the degree of risk in this sort of situation, Sanjuan advises that further work is necessary in understanding the impacts of "Non-Tariff Measures," specifically, refining the methods used in understanding the related data, as well as addressing the inconsistencies within the data. Sanjuan notes of the lack of understanding by policy makers and researchers alike in truly knowing the real cost of these sorts of trade measures, alluding to the lack of uncertainty of it all. In similar fashion to the other sources examined, Sanjuan illustrates the importance of taking into account by that of policy makers, a well-considered and data driven balance to trade, knowing and understanding that of the potential implications that may be had if one side of the scale is improperly balanced to the other [21-25].

Discussion

Having examined a number of sources from differing jurisdictions to the varying aspects and intricacies of their respective food systems, the subsequent discussion and analysis of the role in which global trade has on stabilising food systems may be had. Although initial preconceptions upon examining this literature would have one believe that the issues and nuances of global food systems different drastically based on the geography and economy of specific nations and regions, upon closer examination of the research and data collected, it would seem as though this idea was quite different from the truth. Although certain countries and regions of the globe certainly have their own specific and unique challenges within their own particular food systems, they all nonetheless share a staggering degree of commonalities. One instance of common perspective on the impact to which trade has on the stability of food systems, are those shared by both Godfray and Sodji. Although they focus on different countries, as well as propose differing recommendations due to the nature of their situations, they both conclude that negative trade implications can have far more substantial consequences to more economically sensitive countries and peoples [26-29].

Another commonality is in the recommendation provided by Sodji, being similar to that of one provided by Brander, despite the two examining lesser developed and more developed countries respectively. Both illustrate the strength to which bolstering specific stocks can have in limiting the impact negative trade repercussions might have on a country's food system. Examined authors also concluded similarly to the risks involved in "Protectionism" and its potentially negative implications on countries' food systems. Both Sanjuan and Ghazalian come to similar conclusions on their respective topics regarding "Non-Tariff Measures" and "National Aversion Uncertainty," on how both may be of consequence to trade, as well as the volatility of food pricing, based on the degree to which a country may be isolated. Although there are many commonalities amongst the examined authors, there also exist degrees of differences and realities. What is best for one specific situation, is obviously not

best for another. There are also extremely different degrees in resources and what countries are able to accomplish, as well as envision, given their economy, location, pallets, etc. There are also some issues which are quite complex, where the desired outcome is not necessarily always guaranteed. While many authors highlight the needs of balance, there always exists a degree of uncertainty which can completely change the nature of specific product, for example, the war on Ukraine and its effects on global wheat trade, India and their export bans in the early 2000's, these on top of normal tariffs and trade, can completely disrupt the global food trade, as well as countries food stocks. Some issues are also just very difficult to counter, such as that of "National Aversion Uncertainty." A psychological predetermination is something not easily changeable by changes to trade measures and provides a unique issue which policy makers are likely to not have an easy time finding accurate means to counteract. Although there exists a number of issues which are likely quite difficult to tackle, there are undoubtedly a number of recommendations for future action within the examined research, that certainly provide excellent routes for policy makers to explore, to better stabilise food systems through global trade.

Recommendations for Future Research

A number of sources cite the need for future research on the way global trade affects food system stability, noting instances of areas lacking data, regions receiving less analysis, topics not effectively engaged, or policy/legislation which may be counterintuitive. In examining these arguments, it seems like some areas which are certainly important to have further research efforts put into them moving forward, are those relating to,

- The real and economic costs of protectionist policy
- Educational and institutional roles in promoting or preventing anti trade bias and sentiment.
- How unilateral collaboration can help solve food price stability in underdeveloped regions of the world.
- The effect that geopolitical situations like that of the war on Ukraine has on trade and subsequently food system stability.
- Historical examination of anti-trade policy and its effects on food system stability.

There are likely dozens of other areas which could be discussed and highlighted, however these seem to be the most relevant of areas noted by the examined studies in which research currently lacks. Better understanding these questions and their subsequent larger areas of research, are likely key in developing better evidence and data towards how exactly global trade affects that of food system stability. On top of this, a number of the articles emphasize the importance of policy makers considering any number of aspects imaginable when it comes to developing policy and legislation regarding that of trade and food systems. As mentioned in the introduction, there are often as a result of these sorts of decisions, a sort of cascade or ripple of effects which begins, which is oftentimes able to be prevented or better mitigated, if the proper research and

recommendations like those made by the authors of these articles, is done. This kind of research is ultimately paramount and the most important, when it comes to any sort of recommendations for future research.

Conclusion

In conclusion, there has been an array of articles examined which cover very different ways in which global trade affects food systems differently. If there was a single word to answer the question initially posed regarding what the role of global trade is in stabilising food systems, it would be "substantial." While the authors in the analysed articles highlight the ways in which trade destabilises food systems, they equally if not more explain and synthesize the way in which global trade can stabilise food systems. Many of the sources generally conclude that whether food systems are stabilised or de-stabilised because of trade, is ultimately a direct resultant of policy makers. In making these arguments, the articles lay out the ways in which global trade can effectively stabilise food systems. Some of these which are covered and discussed over the paper were through mitigating supply shocks, addressing surplus and deficits, encouraging unilateral approaches and harmonisation, supporting agriculture development and promoting efficiency. While the studies frequently critique the ways in which global trade destabilises food systems, they also emphasize the ways in which it promotes greater affordability, accessibility and availability, across the globe. Although it certainly presents a great number of flaws, global trade also presents many other benefits. Without this sort of trade helping to promote global food systems, we would have far fewer abilities to control and monitor the ways in which we stabilise and change them.

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