

Agricultural Trade and Food Security

By Will Martin

Summary

The second United Nations Sustainable Development Goal (SDG2) includes the goal to: “End hunger and achieve food security and improved nutrition” by 2030. While such an ambitious goal will clearly involve a wide range of policies and actors, this policy brief focuses on the role of trade policies in affecting food and nutrition security.

Extensive and frequently contentious, debate swirls about whether trade in agricultural products is beneficial or detrimental for food security, particularly in developing countries (Diaz-Bonilla 2015). Food self-sufficiency proponents argue that global trade in food products can hurt smaller and poor producers in developing countries by exposing them to increased price volatility and competition (Edelman et al. 2014). For those on the pro-trade side, trade in food products is an important channel for improving consumers’ access to food, and agricultural exports are an important source of income for many small farmers worldwide.

This brief first examines the relationship between trade and food security. It then turns to how specific agricultural trade policies can impact food security and hunger.

I. The Relationship between Trade and Food Security

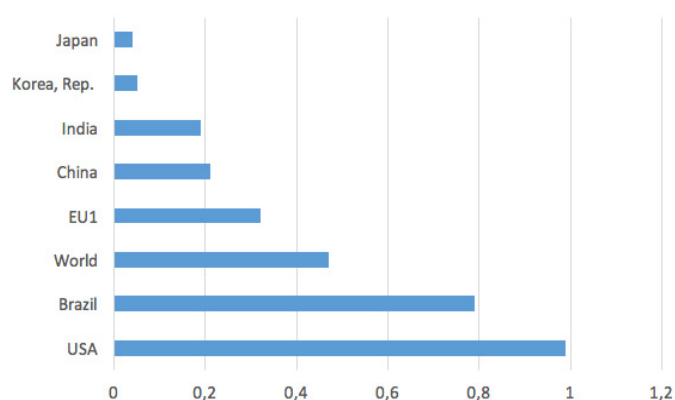
There are five major channels through which trade impacts food security: (i) income changes resulting from opening to trade, (ii) impacts on food price volatility, (iii) productivity gains from trade, and (iv) changes in dietary diversity and quality.

Income changes from trade

Economic theory shows that both poor and rich countries can both benefit from trading with each other. There are three main reasons for these income gains. The first is that some countries have much more land and other agricultural resources per person than others. As we see from Figure 1, Brazil has almost twenty-five times as much

agricultural land per person as Japan. Absent trade, food prices would be enormously high for consumers in Japan and—for farmers—devastatingly low in Brazil. Trade allows countries with lots of land and suitable climate to supply those whose resources are much more limited—raising real incomes in both countries. A second source of income gains from trade is differences in the productivity of agriculture in each country. If their agricultural productivity is high enough relative to productivity in other sectors, even countries with relatively limited land can become exporters. Since adopting modern agricultural techniques, India has become a major exporter of many agricultural products, despite limited agricultural land per person. A third reason for trade is the gains from improved variety. With trade, consumers can diversify their diets to incorporate products not available locally. The quality of consumers’ diets in Europe is improved by access to tea, coffee and fruit from Africa and vegetables from Morocco.

Figure 1. Agricultural Land per Person, ha/person



Source: Fukase and Martin (2016)

These income gains have important implications for food security. Higher incomes make food a smaller share of total consumption expenditures providing a buffer against threats to food insecurity if incomes should fall.

Food Price Volatility

In the absence of trade openness, price shocks can have particularly severe effects on a country's economy and on poor populations' food security. Until the introduction of modern transportation, trade in food was relatively rare, and most people relied on food produced locally. A key—and frequently fatal—problem with this mandatory locavorism is that food output in any one region is typically highly volatile. Bad harvests, in the absence of trade, result in severe food shortages, high prices and vulnerable people becoming food insecure. In India, prior to the coming of the railways, local declines in output due to drought resulted in severe local food shortages and frequent famines. Once food could be transported at low cost by rail, consumers could obtain their food from a much more diversified set of suppliers and the incidence of famine fell dramatically (Burgess and Donaldson 2010). The basic economic principle is quite simple, that diversification of sources of supply reduces volatility—the old, but good, advice of Cervantes about not putting all your eggs in one basket.

Many who worry about trade openness are concerned that volatile international markets may shake up traditional local markets. But local markets are typically much less diversified and much more volatile than world markets. A drought in one country is unlikely to be associated with drought in other major suppliers around the world. If trade

does cause volatility, this can be managed. If trade is cut off absolutely, or restricted using unpredictable trade policies, the outcome is likely to be much more volatility than with open trade—a phenomenon frequently seen in African maize markets (Chapoto and Jayne 2009).

Productivity Gains from Trade in Goods and in Ideas

Recent research has also shown that more open trade has the potential to increase the productivity of a variety of sectors, including agriculture. Liberalizing trade in agricultural inputs such as seeds or irrigation equipment can also be important in helping farmers adapt and modernize their farming techniques, increasing productivity.

"Importing soybeans from countries abundant in land and water, such as Brazil, has allowed China to develop a much more efficient, modern livestock sector that can better meet its growing demand for livestock products."

As consumers become richer, their diets shift towards livestock products such as milk and meat that cost much more to produce than the starchy staples that dominate the diets of poor people. This dietary diversification can have important nutritional benefits. But how to feed the animals needed to provide this dietary diversification? One solution to this problem has been found by China. Importing soybeans from countries abundant in land and water, such as Brazil, has allowed China to develop a much more efficient, modern livestock sector that can better meet its growing demand for livestock products.

Increased trade in ideas and new plant varieties is important for stimulating agricultural productivity growth, which has important implications for poverty and hunger, particularly in developing countries. Around half of the world's poor are farmers, so improving agricultural productivity and growth can directly increase the incomes of a large swath of the world's population.

Dietary Diversity and Quality

Trade can considerably improve people's access to more diverse, nutritious, and higher quality foods, particularly in small countries where agriculture is dominated by one or a few staple crops. Poor people's diets often focus heavily on less expensive, and less nutritious, starchy staple foods (Masters et al. 2016). Introducing livestock products such

as milk and eggs can sharply reduce problems of wasting and stunting in children (Muehlhoff et al 2012).

Many concerns have been raised that availability of new products from the world market may lead to poor outcomes, particularly to problems of obesity and diet-related diseases like diabetes and heart disease (the so-called “double burden of malnutrition”). Many call for bans on imports of products deemed unhealthy, such as mutton flaps and turkey tails (Evans et al 2001). But is this the right approach?

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If people are unaware of the health damage done by these new foods, then a first response is surely to educate consumers about nutrition and the importance of eating a healthy diet? After all, if they remain unaware of the adverse impacts of high-sugar or high-fat products, they will continue to seek out the many alternative sources—both domestic and imported—of these superficially appealing but damaging products. Bans on imports will frequently result in the emergence of high cost domestic production, lowering national income and creating a lobby group likely to oppose other approaches to solving this problem.

If education campaigns are believed insufficient to solve this problem, then other approaches such as consumption taxes may make sense. A broad-based tax on sugar, for example, may have some effect in lowering consumption. Restrictions on advertising unhealthy foods may, like tobacco-control policies, have important impacts. “Nudges” based on insights from behavioral economics may also be effective (Just and Gabrielyan 2016).

II. Trade Policy and Food Security

Trade openness is not an all-or-nothing proposition. Indeed, many countries impose some type of trade barrier to protect domestic interests or to improve their terms of trade. Such barriers tend to be “beggar-thy-neighbor” policies, trade barriers protecting an interest group such as rice farmers in Japan and Korea limit the ability of poor farmers in countries like Vietnam or Thailand to supply

these markets. Agreements to reform trade between groups of countries can potentially make all countries better off.

“Since the 1990s, the extent and rate of agricultural taxation has fallen and the average rate of protection given to agriculture in developing countries has increased.”

Agricultural trade reform is particularly important in its potential for increasing incomes. While agriculture accounts for only 10 percent of world trade, the potential income gains from agricultural trade reform appear to make up around 70 percent of total potential gains (Laborde and Martin 2012). This is primarily because distortions in agricultural markets are much higher and more variable (across commodities and over time) than distortions in other markets, so reducing distortions in the agricultural sector will have particularly wide-ranging effects.

How trade policies will impact the world’s ability to achieve SDG2 depends heavily on countries’ own trade policies and on how those policies interact with one another. The remainder of this brief will focus on several specific policies and their potential impacts on hunger.

Changes in Protection Levels

As countries develop, they tend to reduce taxation of agriculture and to begin providing protection, as farmers become more influential (Anderson 1995). The taxation of agriculture in poor countries is partly due to urban bias—because urban consumers are very concerned about the price of food—and partly because export taxes are a relatively easy way to raise revenue.

Olper, Curzi and Swinnen (2017) examine the link between trade liberalization health, and more specifically, child mortality over the period between 1960 to 2010. They find that child health outcomes improved following overall trade liberalization in 19 of their sample countries, did not change significantly in 19 countries, and deteriorated in three countries. At the beginning of their sample period almost all developing countries taxed their agricultural sectors and reductions in agricultural taxation resulted in particularly large improvements in child health outcomes. Since the 1990s, the extent and rate of agricultural taxation has fallen and the average rate of protection given to agriculture in developing countries has increased. Reducing the current levels of protection world-wide would likely increase national incomes and improve

nutrition by lowering the overall cost of food production and increasing returns for low-income farmers in food-exporting developing countries. However, lowering agricultural protection could also reduce the incomes of some groups, highlighting the need for policies—such as social safety nets—to help vulnerable groups who may be disadvantaged by this change in trade policy.

Price Insulation

Policymakers in developing countries often adjust their countries' trade policies to offset changes in global food prices. Until the Uruguay Round, this approach was also common in today's rich countries, with the intervention prices and variable import levies used in the European Community being perhaps the most (in)famous example.

As we have seen, moving from reliance only on domestic food production to global food supplies helps reduce the volatility of food supply. Given that shocks to food output are the major driving force for food price volatility, this change can also be expected to reduce food price volatility. For an individual country, price insulation is often an attractive way to further stabilize domestic prices relative to world prices.

"Just as high tariffs reduce the incomes of food exporters, high price insulation makes all participants in world markets much more vulnerable to food price volatility."

Price insulation is particularly marked when world food prices increase rapidly, as they did in the 2007-2008 food price crisis. Unanticipated increases in food prices can hit the vulnerable hard and may significantly increase poverty in the short run (Ivanic and Martin 2008), so policymakers' response to price increases in international markets may seem to make sense.

The problem with this type of policy response is its beggar-thy-neighbor nature (Sampson and Snape 1980). Unlike effective storage policy or a move from autarchy to trade, insulating policies do not actually reduce volatility, but rather redistribute it between countries. An export ban, for instance, used to hold down prices in an exporting country, raises world prices by reducing the available supply on world markets. Only countries that insulate more than the average will experience reduced price volatility relative to a world market without insulation (Anderson, Martin, and Ivanic, 2016). By the laws of statistics, however,

some countries must use less than the average amount of insulation and end up with more volatile prices than in the absence of insulating policies.

Price insulation can create a vicious cycle, in which more and more countries feel the need to insulate their markets to stabilize domestic prices, which in turn only causes world prices to continue to climb. Unfortunately, there is a risk that trade policy interventions designed to protect individual countries from price shocks will, because of their beggar-thy-neighbor impacts, end up destabilizing world prices and forcing more countries to respond in the same way.

Price volatility created by price-insulating policies is a collective-action problem. Just as high tariffs reduce the incomes of food exporters, high price insulation makes all participants in world markets much more vulnerable to food price volatility. A collective agreement to reduce this type of intervention is perhaps the only way to reduce it. An important step was taken in the Uruguay Round, with the abolition of Variable Import Levies, the mechanism by which the European Union—one of the richest trading blocs—magnified price shocks in world food markets.

Dealing With These Collective Action Problems

The Uruguay Round of the WTO (Martin and Winters 1996) took an initial, major step towards dealing with the collective action problems in world agricultural trade. Agricultural protection in the rich countries was capped and reduced, and volatility-increasing measures such as variable import levies prohibited. Unfortunately, ambitious attempts to build on this progress in the Doha Agenda negotiations stalled (Martin and Mattoo 2011).

Some of the remaining proposals from the Doha Agenda would make the situation worse. The price-based Special Safeguard Mechanism would allow countries all developing countries, including countries such as South Korea, to insulate almost completely against changes in world prices. Its quantity-based safeguard would destabilize both domestic and world markets.

While the near-term prospects for collective action on these pressing problems are not promising, policy debate about how to deal with them remains extremely important both for national policies and for policies that might be implemented through future trade negotiations.

Conclusions

This brief has given a short overview of the channels through which trade can impact food security and hunger, and the impacts of trade policies. In summary, trade can be a powerful force for improving food security both by raising income and by reducing volatility.

Overall, policies aimed at stabilizing domestic prices remain very popular and widely used in developing countries. While effective at stabilizing domestic prices in individual countries relative to world market prices, they are in fact beggar-thy-neighbor policies that merely transfer price volatility from one country to another, creating a vicious cycle that leads to excessive insulation and greater volatility in world market prices.

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