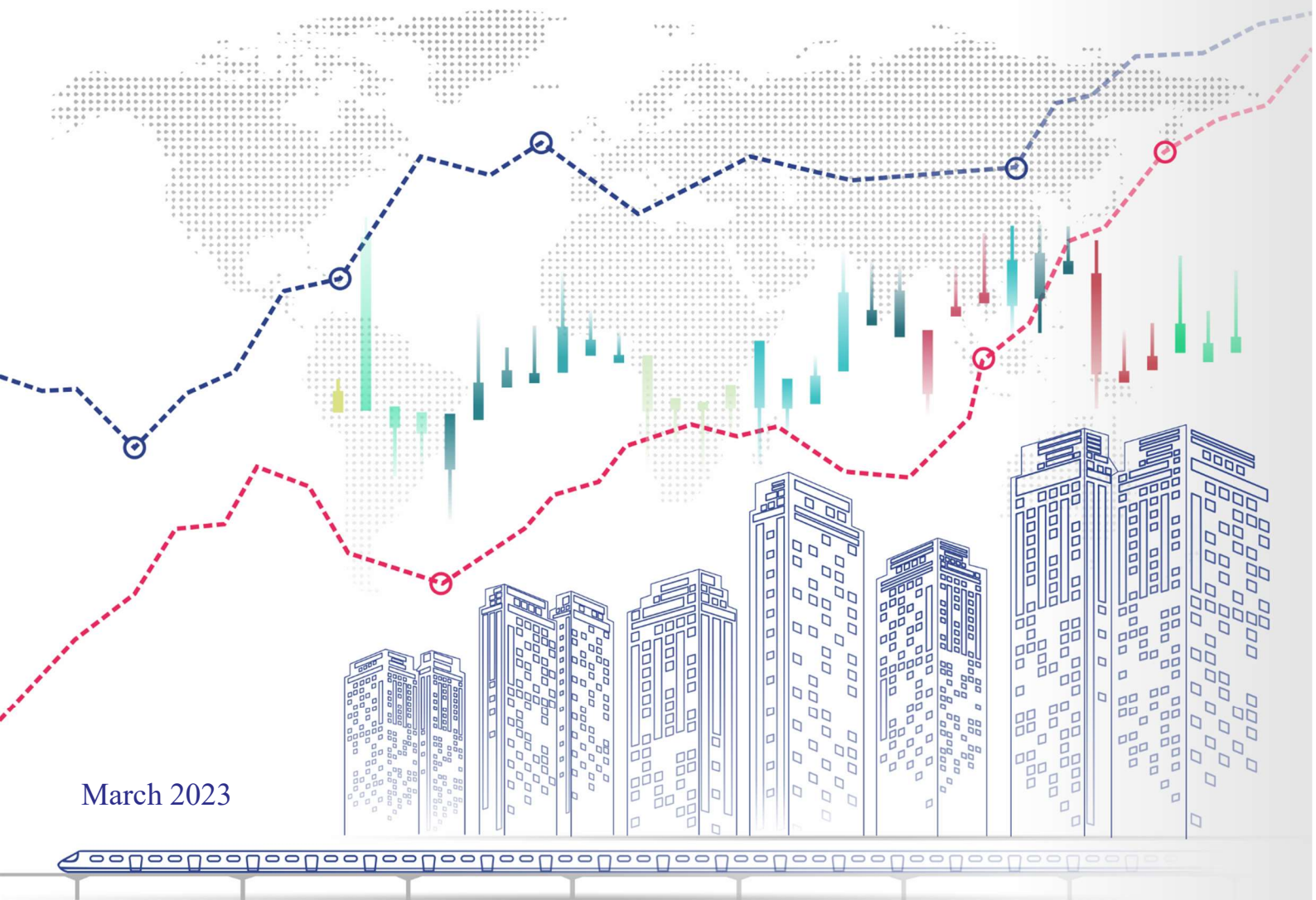


Research and Policy Insights on Financial Markets and Economy

Global Food Price Shocks and Trade Policy: An Assessment and Policy Implications

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March 2023

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» Overview «

In what the World Bank termed the ‘worst food crisis in a decade’, 2021-22 saw a steep rise in food prices globally. While the price rise occurred across all food groups; cereals and oils contributed the highest to the surge. The food crisis was a result of several factors including heat waves and droughts in many major food-producing countries and the Russia-Ukraine war. Shortly after the war commenced, a slew of wheat exporters such as India, Turkey, and Indonesia placed bans on their exports. The wheat export ban triggered fears with respect to a potential ban on rice exports by India, the largest exporter of rice to the world market. On August 8, 2022, India banned the exports of broken rice and imposed a 20 percent duty on the exports of various grades of rice. The rice export restrictions by India tightened food security concerns across Asia and other major importing countries. This policy brief analyses the reason for the surge in global food prices, country responses, and implications of the country’s responses on domestic prices and food security.

Global Food Price Shocks and Trade Policy: An Assessment and Policy Implications

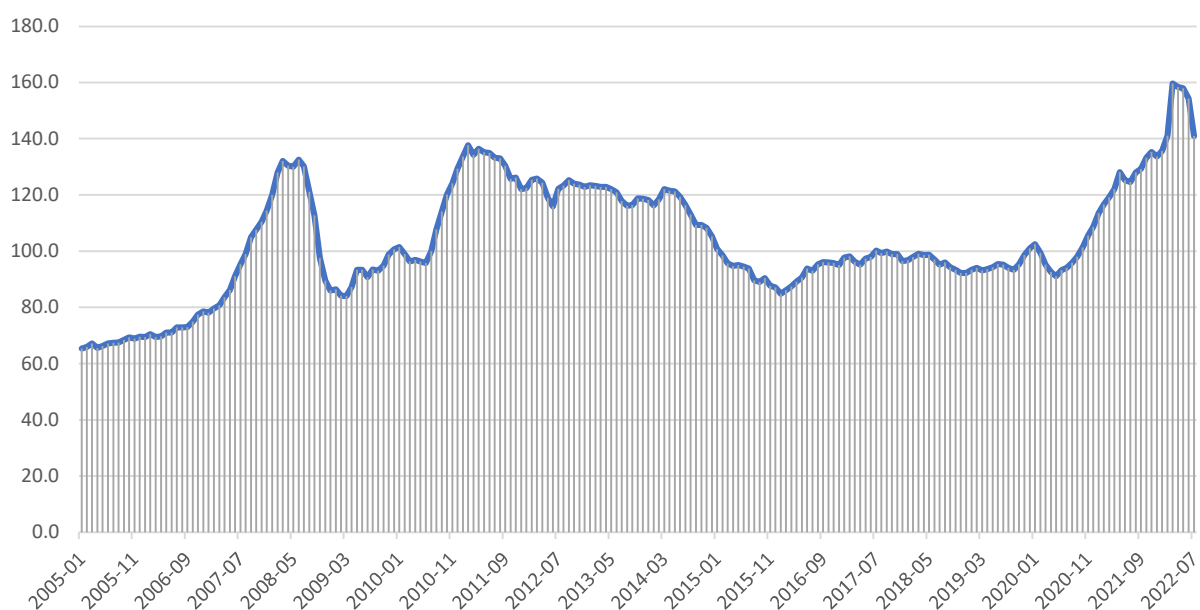
1. Introduction

In what the World Bank termed the ‘worst food crisis in a decade’, 2021-22 saw a steep rise in food prices globally (Pangestu & Trotsenburg, 2022). This food crisis came at the heel of a waning Covid-19 with prices peaking in April 2021. While the price rise occurred across all food groups, cereals and oils contributed the highest to the surge. The food crisis was a result of artificial scarcity – its epicentre being the Russia-Ukraine war. Together, in recent years Russia and Ukraine contributed to nearly a quarter of world exports in wheat and are major suppliers of oil, fertilizers, and corn (Baffes & Nagle, 2022). The war-induced blockage of supply led to an immediate upshot in the prices of these commodities. Further, export curbs of large net exporters such as India, Turkey, and Kazakhstan fed into the rising inflation (Pangestu & Trotsenburg, 2022).

The objective of this policy brief is to analyse the factors that influenced the surge in global food prices, the way countries (net food exporters and net food importers) responded to the rise in prices, the rationale for the country responses, and its impact on food prices of a set of net food importing and net food exporting countries. For the purpose of analysis, we make use of the data obtained from the Food and Agriculture Organisation (FAO) of the United Nations and the International Food Policy Research Institute (IFPRI).

The policy brief is organised as follows: The first section discusses the reason for food inflation and country responses. The second section briefly discusses the reason behind the export ban and the possible impact of the export ban and food inflation on food prices and food security of both the net food exporting and importing countries. The third section makes the discussion more specific to India by discussing the rationale for export restrictions. Finally, the fourth section provides a conclusion and the way forward.

Figure 1: FAO Monthly Price Index between 2005-2022



Source: FAOSTAT, FAO

Previously, the world had witnessed two food crises in 2008 and 2011. During this period, there was a secular rise in the prices of all major commodities such as wheat, rice, oils, and maize. Between 2005-08, maize prices tripled while wheat and rice prices rose by 127 percent and 150 percent (Mitchell, 2008). Shortly after, the 2011 crisis saw a 40 percent year-on-year rise in the food index, with cereals and oils contributing the highest towards this rise (Calculated using FAO data, Figure 1).

1.1 What spurred the food crisis of 2008 and 2011?

The crisis periods were an amalgamation of poor harvests, a rise in oil prices, and distortionary policies such as export bans, export subsidies, and food subsidies (FAO-UN, 2009). While crops such as wheat and maize experienced a supply shortfall, crisis in the rice market was a result of large net exporters placing export restrictions. The rise in oil prices during that time also fed into food prices, further fuelling the crisis.

In the case of wheat, there was a drop in harvests across major net exporters such as Australia and Ukraine throughout the two crisis periods in 2008 and 2011 (Mittal, 2009; World Bank, 2019). Similarly, maize prices shot up due to demand outstripping supply during the crisis periods where US biofuel subsidies resulted in cereals like maize being used in fuel production (World Bank, 2011; Loewenberg, 2008). In the first food crisis, maize prices shot up driven by ethanol production targets in the US in response to an increase in fuel prices (Wright, 2011). The second time round, it was due to a fall in maize production in 2011 (World Bank, 2019).

Unlike the other two crops, rice prices increased despite an ample supply of rice (FAO-UN, 2011). The price surge in rice markets was due to export restrictions introduced by major producers (e.g., India and Vietnam) motivated by food security concerns, panic buying by several large importers, a weak dollar, and record high oil prices which is a major input into food production (Baffes & Haniotis, 2016).

1.2 Country Responses

Governments across the world implemented trade policies in the aftermath of such food crises. This could be in the form of export bans for net-exporting countries and relaxing import restrictions for net importers. For instance, of the 81 developing countries surveyed by FAO to assess their responses to the crisis, 43 reduced import taxes, and 25 (mostly in Asia) either banned exports or increased taxes on them during the 2008 crisis (Demeke et al., 2009). These policies are put in place to stagger the effect of a global rise in food prices on domestic food inflation. While net importers must succumb to global fluctuations in food inflation, net exporters shield their domestic supply and prices through export bans. The interplay of restricted exports and relaxed imports in turn feeds into the initial price surge of these key commodities. Research shows that such restrictive trade practices accounted for up to 60 percent of the price spike in the international market for rice in 2008 (Anderson, Ivanic, and Martin, 2014).

In addition to trade policies, long-term determinants of price fluctuations in commodities markets include low stock-to-use ratios, upward fuel prices, and exchange rate volatility

(Baffes & Haniotis, 2016).¹ As Baffes & Haniotis (2016) show, these elements concurred during the previous two food crises. A concurrence of these forces can also be seen in the current food crisis. For instance, the Ukraine shock came when most agricultural commodity markets were already very tight, with wheat and maize stock-to-use ratios at levels comparable to the lows of the 2007-08 global food price crisis (Glauber et al., 2022). The second predictor of price surges, fuel prices, had already seen an upward surge due to supply disruptions caused by Covid-19 and a recovery of demand in 2021 (World Bank, 2022b; Glauber et al., 2022). The third element – exchange rate volatility – has been a recurring theme in 2022, which has further put pressure on the food markets (World Bank, 2022a).

With regards to distortionary policies that worsened the crisis, the Russia-Ukraine war spurred trade restrictions by 34 countries in 2022. In general, the extent to which an export ban can affect the price of a commodity depends on factors such as the elasticity of import demand to changes in trade costs and the market power of the exporting country (World bank, 2022b). Current estimates by the World Bank show that India – which supplies 1 percent of global wheat exports, contributed to nearly a 4 percent price surge in the international wheat market. The share is far larger at 84 percent for Russia, which is the second largest wheat exporter (Espitia et al., 2022).²

After a gap of a decade, on September 9th, India imposed a ban on its broken rice exports and placed a 20 percent duty on its non-basmati rice exports (GOI, 2022c). Being the largest supplier of broken rice across the world, this ban comes as an aftermath of a 90 percent surge in year-on-year exports of this category of rice. The primary driver of this surge is China's growing demand for broken rice. India's non-basmati exports contributed to 64 percent of total rice exports in 2021-22.³ Export duty of 20 percent is likely to wash away India's consumer base towards close competitor countries such as Thailand, Vietnam, and Pakistan.

2. Reasons behind export bans across the world

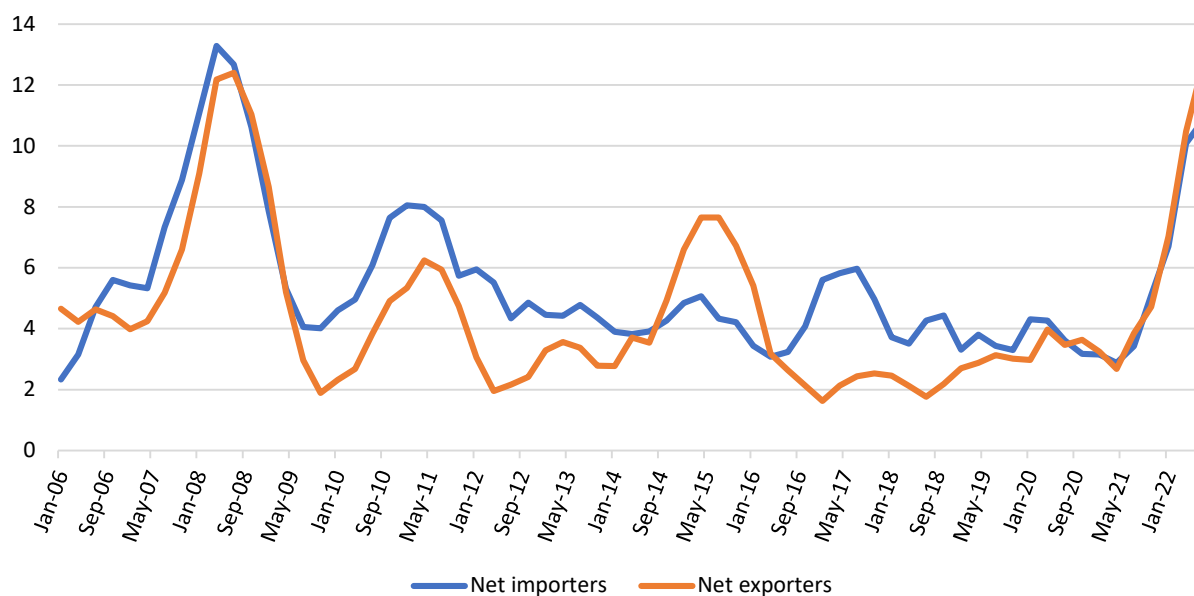
Price stability is a guiding force behind export bans (Timmer & Dawe, 2012; Lele et al., 2021). Generally, domestic inflation is not volatile as global food inflation (Martin & Anderson, 2012). Export bans are seen as ways to suppress the volatility that may arise from a global spike in prices. Figure 2 looks at CPI-food inflation of countries that are either the top 5 net food exporters or the top 5 net food importers. As the figure shows, during the global food crisis that lasted between 2008-12, net exporters experienced lower inflation due to trade policies that guaranteed sufficient domestic supplies. Price stability is especially imperative for low to middle-income net exporters whose population spends a large portion of their expenditure on food (Lele et al., 2021). After 2012, on average, net food importers' CPI inflation remained at lower levels compared to the previous period. This could be due to the softening of food prices globally post 2012, which led to net-exporting nations opening their markets and allowing domestic prices to catch up with global counterparts (Nigatu et al., 2020).

¹ Stock-to-use ratio is a rough measure of demand relative to supply ([World Bank, 2021](#)). Lower stock-to-use ratios indicate an increase in demand.

² To know more about the calculation method, refer [World Bank \(2022\)](#).

³ Calculated using Ministry of Commerce data

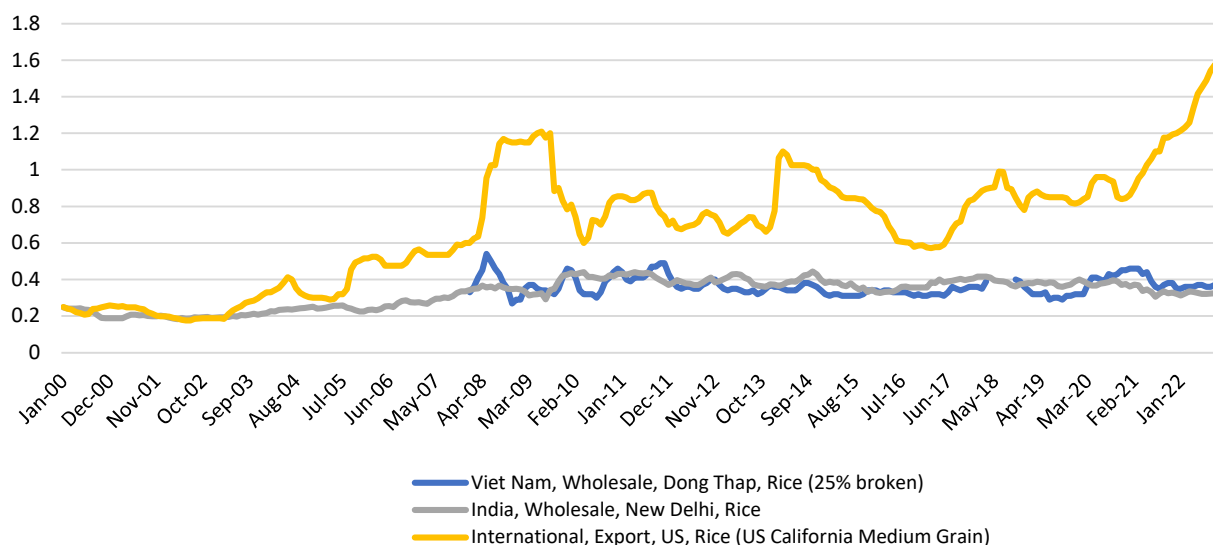
Figure 2: Inflation for net food exporters and net importers between 2006-2022



Source: FAOSTAT, FAO

Circumstances in developing countries vary greatly, in terms of population sizes, prevailing per capita food availability, food policy histories, and degrees of external orientation (Lele et al., 2021). Further, the degree of price transmission to domestic inflation decides the responsiveness to global fluctuations in prices. For example, while large net exporters of rice such as India and China imposed export bans in 2008, Thailand continued its liberal rice trade policy. This could be explained by the high domestic surpluses reaped in the Thai rice market (Shigetomi et al., n.d.). Even so, in general, the developing countries of Asia have a preference for protectionist food policies that render price stabilization (Timmer & Dawe, 2012). Asia remains home to 67 percent of the world’s hungry population (Organisation for Economic Cooperation and Development, 2017). The severe water crisis faced by several grain exporting countries from the Asian region such as India, Pakistan, and Vietnam also forces them to come up with export restrictions when global food prices rise. While the Asia-Pacific region has only 36 percent of global water resources, it contains 60 percent of the world’s total population (Kumar, 2013). Figure 3 shows the price trends for large rice-exporting nations such as India and Vietnam. As can be observed, rice prices have been less volatile domestically for both India and Vietnam as compared to global rice prices (represented by US port prices). India’s price volatility can be seen to be the least, even during crisis periods such as 2008 and 2011.

Figure 3: Rice prices expressed in USD/kg across two major exporters: India and Vietnam and internationally traded prices at the US port.



Source: Food Price Monitoring and Analysis (FPMA), FAO

Export bans are also dependent on the nature of the market. For instance, rice markets have been historically thin and unstable (Dawe and Timmer, 2012). Rice is the staple food crop for the Asia-Pacific region, and around 90 percent of rice is produced and consumed in the Asia-Pacific region (Food and Agriculture Organization (FAO), 2019). Out of the world’s total 167 MT ha area under rice, around 146 MT ha is from Asia contributing around 705 MT of production which is around 90 percent of the total world’s production (Surendran et al., 2021). Due to Asia centric nature of the production and consumption of rice only around 8 percent of the rice produced forms global exports. Staples such as wheat and rice in general, therefore, trigger spontaneous trade interventions. This is not necessarily the case with markets such as soybean where the elasticity of price transmission is 0.72 as it is a heavily traded commodity (Gouel, 2014; Anderson & Nelgen, 2012).

India’s wheat ban is estimated to have contributed to a 4.3 percent surge in international wheat prices (Espitia et al., 2022). Upon the Ukraine-Russia war, India was emerging as a leading wheat exporter, with exports in April 2022 being 7.5 times larger than that of the same time, last year.⁴ New export destinations such as Yemen, Qatar, Afghanistan, and Indonesia emerged, contributing to the surge in India’s competitive wheat exports.

India’s wheat ban was predicated on low harvest and procurement levels for 2022 (GOI, 2022a). The heat wave brought down harvests by 3 percent compared to target levels for 2022 and reduced the quality of the grain.⁵ In the month of April, international wheat prices soared to nearly double the levels at which wheat was sold domestically, thus encouraging private traders to buy wheat at prices higher than the Minimum Support Price (MSP) (Kumar & Mandal, 2022). Together with a meek harvest and high private purchases, government procurement dropped by 57 percent compared to the levels seen in 2021-22 (FCI database, 2022). In a press statement, the government emphasized the decline in domestic wheat stocks and rise in prices as the reasons behind the ban (GOI, 2022b). It further included the provision

⁴ Calculated based on monthly commodity level data provided by the DGCIS

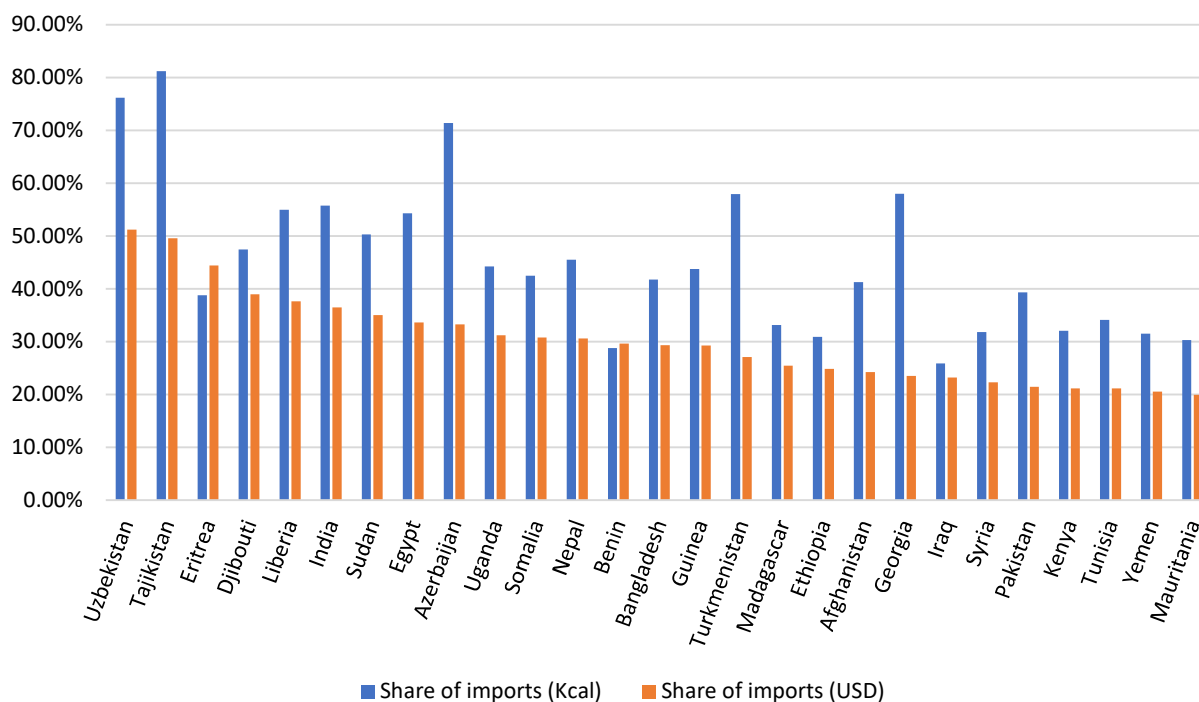
⁵ Calculated based on Govt data

of government-to-government purchases, allowing underdeveloped countries to purchase India’s wheat stocks at a competitive price.

2.1 Can the ban and food inflation worsen the food security of Net-Food importing countries?

The Ukraine crisis ensued a suite of food trade bans which impacted net importers adversely. Figure 4 shows the impact of 2022’s trade restrictions on net importers of food commodities. It shows peak levels of food imports as a percentage of total imports (both in USD and calorific terms) during the crisis period in 2022. As can be observed in Figure 4, the highest share (both in terms of USD imported as well as calorific value of import) of dependents falls in the developing and underdeveloped parts of the world. In a recent analysis of 44 low and middle-income countries, the IFPRI shows that the global food crisis can threaten to cause a global nutrition crisis by causing acute malnutrition in these countries (Headey & Ruel, 2022).

Figure 4: Share of peak food imports affected due to Russia-Ukraine war (percentage of total imports in both Kilo-calorie as well as USD terms)

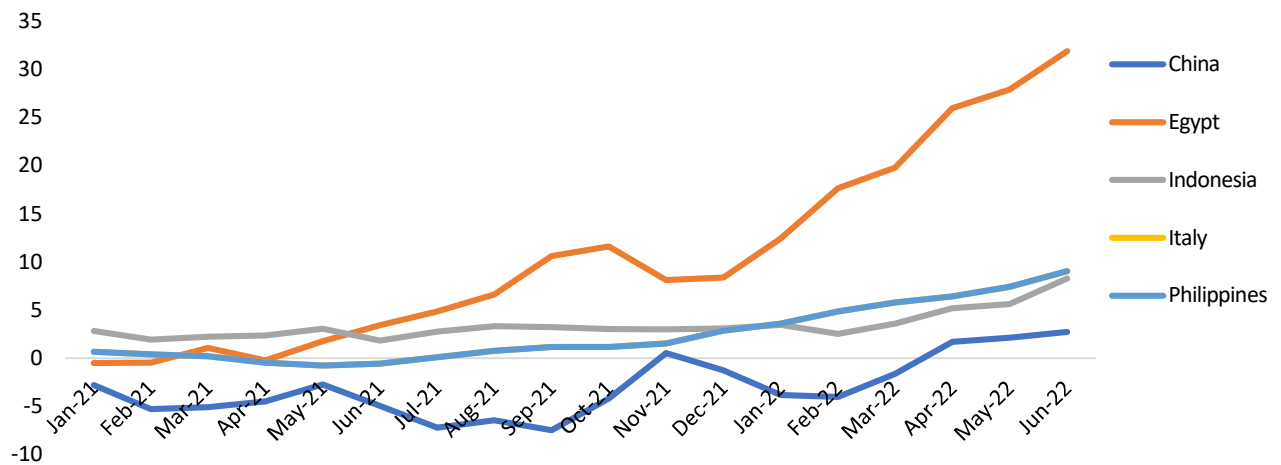


Source: IFPRI

These nations also spend a high proportion of their budget on food expenditure at an individual level, as can be understood by the heavy weights placed on food CPI in their CPI baskets.⁶ Figure 5 shows food inflation in top net importers of wheat.

⁶ For instance, Food CPI has a weight of above 40 percent for countries such as India (45.86%), Nigeria (64%) and Bangladesh (58%)

Figure 5: Food inflation in top 5 wheat importing nations between Jan 2021- June 2022



Source: FAOSTAT

For net food exporters, bans are generally rationalized as a way of securing domestic demand and stabilizing prices at home. Many developing countries have used export interventions as a tool to ensure food security and price stability (Timmer et al, 2012). This has led to food prices remaining below world prices in the short run and displaying lower volatility.

However, price stabilization, which should ideally lead to domestic prices being equal to world prices on average over the medium run, can also lead to domestic prices being consistently above world prices for extended periods, which hurts the poor because most of the poor are net buyers of food (FAO, 2011). In the Philippines, for example, price stabilization has turned into price support for farmers, even though it worsens poverty (Balisacan et al., 2012).

India's policies have been very effective in stabilizing the domestic wheat price, but their high costs raise concerns about whether the costs are exceeding the benefits (Gouel et al, 2016). Also, the welfare implications of export restrictions may vary across farmers and consumers (Martin and Anderson, 2012). Mitra & Josling (2009) show that bans on staples such as wheat and rice produce detrimental welfare effects on the domestic economy. This is because the demand for these commodities is inelastic and accompanies a larger decrease in prices domestically (as compared to commodities that have elastic demand). Therefore, to what extent farmers get affected due to the export restrictions as a tool of domestic price stabilisation policies needs detailed empirical scrutiny. Available studies argue that these policy responses—reductions in import protection or increases in export restraints—exacerbate the initial increase in the international price (Martin and Anderson, 2012).

3. Food policy in India – are export bans sensible?

Rising prices hurt consumers by reducing their purchasing power but benefit producers. In India, 86% of farmers are small and marginal farmers (Department of Agriculture, 2020). Therefore, a large majority of farmers are also net food buyers. Therefore, any rise in prices can have an adverse impact on the large sections of producers. A small section of producers and exporters will be able to take advantage of the increase in prices. The impact of rising international commodity prices, therefore, depends on the netted welfare gains between net sellers and consumers of food in the country. Empirical research on the aftermath of the 2011 commodity price shocks in developing countries shows that while the experience of poverty

due to price shocks varies by country and commodity, on average poverty is worsened due to price increases (Ivanic & Martin, 2008; Ivanic et al., 2011). This explains the general thrust for price stabilization policies in developing countries using a combination of instruments such as Minimum Support Prices (MSP), food procurement and distribution, and trade policies (Lele et al., 2021).

India has been largely successful in containing international food shocks through a combination of safety nets (such as MSP and food procurement), storage and price stabilization policies (using export bans and taxes) (Gouel, 2014; Timmer & Dawe, 2012; Basu, 2011).

For instance, while world rice prices increased by 160 percent between June 2007 and June 2008, in India this increase was only 7.9 percent (World Bank, 2010). However, these consumer-centric price stabilizing policies come at the expense of a few farmers and exporters who are looking for lucrative opportunities. For example, farmers suffered the trade-off during the recent wheat ban by accepting lower wheat MSPs even when international prices soared. Given the shortfall in production for 2022, farmers could have benefitted from a higher price. In the long run, export bans can also dent India's credibility as a key market player and in turn place a stake in long-run farmer incomes.

It is optimal for countries to react using safety net policies and less so to use trade interventions (Gouel, 2014). India's safety net and storage policies are effective in pinning down prices, however, there is scope for improvement. For instance, Food Corporation of India's (FCI's) storage costs are four times higher than long-run costs estimated for other countries, which points out stark inefficiencies in the system (Gouel et al., 2016). There is also criticism for reduced emphasis on safety net policies in the face of a food price shock. In the current case, farmer income could have been bolstered by increasing MSP by an additional Rs 200-300 per quintal (Kumar and Mandal, 2022). This is an example of a counter-cyclical safety net policy in action.

Export bans are perhaps here to stay as this is the result of a non-cooperative equilibrium where it makes sense for countries individually to pursue domestic price stability through trade policies even though collectively this is self-defeating (Gouel, 2014). This causes the world market to become thinner and more unstable (Martin and Anderson, 2012). Further, as Anderson et al. (2012) show India's rice ban resulted in a collective rice measure across the world. In turn, while the domestic price did not increase as much as the world price, it increased more than it would have in the absence of worldwide insulation.

4. The way forward

What are the long-run policies that can effectively stabilise domestic grain prices? Policymakers should focus on supply-side measures that can prevent a rise in prices. Such measures include increasing investments in crop productivity improvement, soil and water conservation, and reducing post-harvest losses through efficient storage and processing facilities (Barrett & Bellemare, 2011). The water-intensive crops such as rice and wheat are unsustainable in several major Asian countries. Being immensely water-scarce, countries such as India, Thailand, Pakistan, and Vietnam are the largest exporters of rice in the world market. Several country-specific studies report severe scarcity and associated pollution and health risks in these countries. See Khunthongjan, (2016) Munkung et al., (2019) and Munkung et al., 2022 for Thailand and Kong, (2022) and Tran et al., (2022) for Vietnam, Sidhu et al., (2021) and Bhatt et al., (2016). Therefore, innovations are required to reduce the water usage of these crops to make production sustainable. Also, more diversified exports and movement away from grain

export to less water and natural resource-intensive commodities or high-value commodities are also important to ensure the long-run sustainability. The other long-term solutions include market-based risk management instruments which are supposed to provide farmers, traders, food agencies, and even individuals with access to instruments that allow the sharing of price and weather risks and the smoothing of income fluctuations (Gouel, 2014). A few scholarly studies also suggest a mix of storage and trade policies to stabilize prices (Gouel & Jean, 2015).

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