



Andersons Policy Bulletin

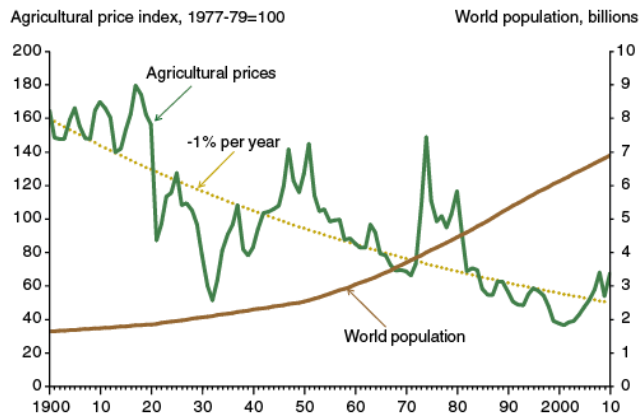


Dealing with High Food Prices: Trade Policy vs. Safety Nets

Rising Real Food Prices

Over the past century, a key characteristic in the pattern of real food prices is that they have shown a clear downward trend, even as world population growth has accelerated (see figure 1).

Figure 1
Real Food Prices, 1900-2010

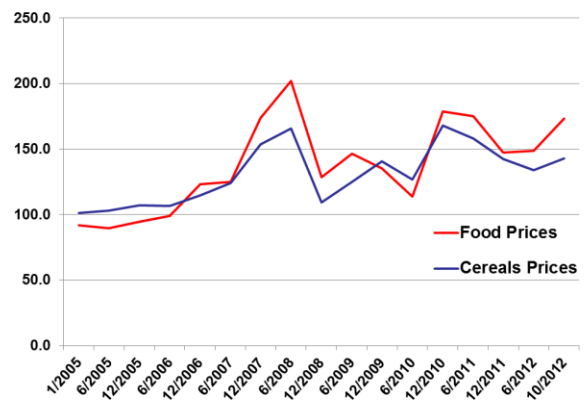


Source: USDA, Economic Research Service using Fuglie, Wang, and Ball (2012). Depicted in the chart is the Grilli-Yang agricultural price index adjusted for inflation by the U.S. Gross Domestic Product Implicit price index. The Grilli-Yang price index is a composite of 18 crop and livestock prices, each weighted by its share of global agricultural trade (Plafenzeller et al., 2007). World population estimates are from the United Nations.

The explanation for this phenomenon is very straightforward: over time, as GDP per capita has risen, consumers have spent proportionately less of their income on food compared to other goods; at the same time, agricultural productivity has increased. As a consequence, the supply of food has shifted more than demand over time, thereby driving down the real price of food.

Over the same time-period, this trend has been interrupted rather infrequently by both negative and positive price spikes, most notably the fall in prices during the 1930s, and the rise in prices during the mid-1970s. However as [Martin \(2012\)](#) and others note, this pattern has been broken over the past five years. Since 2007, the real price of food can be characterized as having been volatile around relatively high levels, and since 2008, there have been three successive positive and intense price spikes, early-2008, early 2011 and the third quarter of 2012 (see figure 2).

Figure 2
Real Food Price Indices (2002-04=100)



Source: FAO (2012)

Food price index based on average of 5 commodity groups (meat, dairy, cereals, oils and fats, and sugar)
Cereals prices index based on wheat, maize, and rice prices

A considerable amount of analysis has been conducted on why the downward trend in real food prices has perhaps been reversed. The most convincing explanation for this break in

trend is a combination of both supply-side and demand-side factors. Martin (2012) documents the decline since 1970 in the growth rate of global yields for the three grains, maize, rice and wheat, as well as some evidence of a slowdown in the growth rate of soybean yields. In combination with a substantial increase in demand from the biofuels sector for coarse grains such as maize, oilseeds and sugar, as well as strong consumption demand for maize globally, and for soybeans in China, it is clear that the world may have entered a period of rising real food prices.¹

Response to Food Price Spikes

While much of the initial discussion of the 2008 price spike focused on its major causes, more recently the focus has been on analyzing how policymakers, especially those in developing countries, have responded to rising food prices. Most commonly, developing countries have chosen to directly intervene in order to stabilize domestic food prices. In a study of 81 countries for the Food and Agriculture Organization (FAO) of the United Nations, [Demeke et al. \(2009\)](#) found that a total of 68 developing countries used border measures in an attempt to suppress domestic food price inflation. Of these countries, 25 either restricted or banned exports, while the other 43 reduced tariffs and other customs fees on imports. In addition, 35 countries also released stocks at subsidized prices.

As [Gouel \(2012\)](#) points out, use of direct market interventions goes against the typical recommendations of economists and policy analysts since the early-1980s. In the immediate post-war period, the focus of public policy was aimed at ensuring price stability for agricultural commodities through use of production, border and stock controls ([Galtier, 2009](#)). Policy instruments included, *inter alia*, input subsidies, import and export taxes, and public buffer stocks. After 1980, however, the use of direct market intervention went out of favor for both economic and political reasons. The economic argument put forward against attempting to stabilize agricultural commodity

prices was twofold: first, prices should be allowed to play their role as a signal for production, trade and storage decisions; second, following [Newberry and Stiglitz \(1981\)](#), it was argued that stabilizing prices could actually increase instability of producers' incomes. This follows from the fact that production and price levels are negatively correlated which provides a form of insurance to producers, i.e., price and production risks partially offset each other. Policies aimed at price stabilization therefore have the potential increase income instability.

As a consequence, policy advice after 1980 has recommended that direct intervention in commodity markets should be avoided ([Gouel, 2012](#)). Instead, producer incomes should be stabilized through market-based risk-management instruments such as futures and options contracts and weather index insurance, in combination with public provision of safety nets targeted at maintaining the purchasing power of vulnerable households. In addition, there should be support for long-run productivity growth in agriculture through investment, and trade and private storage should be relied on to take care of market shortages ([World Bank, 2005](#)).

What has been termed "best practice", has actually come under considerable criticism, especially in the aftermath of the 2008 food price spike ([Galtier, 2009](#); [Abbott, 2012](#); and [Timmer, 2012](#)). Specifically, it is argued that risk management tools are often unavailable in developing countries, safety nets have proven too complex to use, and, poor food importing countries have been hurt the most during food price spikes, even as they have attempted to rely on world markets ([Gouel, 2012](#)). It is not surprising, therefore, that despite the recommendations of economists and institutions such as the World Bank direct intervention to stabilize food prices is widespread among developing countries.

The Impact of High Food Prices

According to standard theory, the benefits of stabilizing food prices are relatively small, and are sensitive to both the degree of consumer risk aversion and the share of food expenditure in their budgets ([Gouel, 2012](#)). On the other hand, producers, especially those with a large marketed surplus of food, can

¹ Martin (2012) also outlines why other explanations put forward for the recent increases in real food prices, including speculation and macroeconomic factors, are not very convincing.

expect significant benefits from price stabilization. In other words, stabilizing prices might actually be regressive.

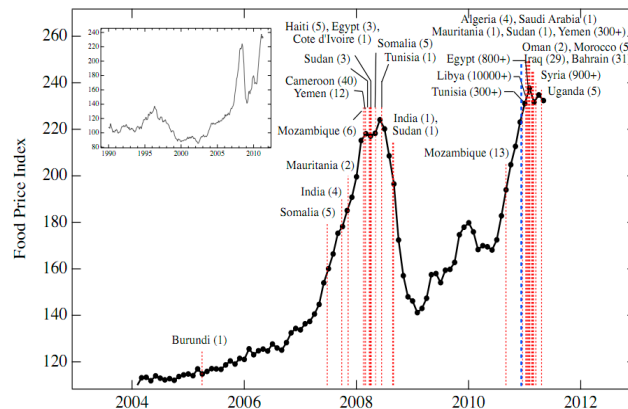
If reducing price volatility is not socially optimal, it is reasonable to ask why there has been so much focus on the issue since the 2008 price spike. For example, during France’s leadership of the G20, former president Nicholas Sarkozy specifically focused on tackling instability in global commodity markets, noting that, “If we don’t do anything we run the risk of food riots in the poorest countries.....The day there are food riots, what country at the G20 table will say this does not concern them.” ([Sarkozy, 2011](#)).

As [Barrett and Bellemare \(2011\)](#) have pointed out, Sarkozy, as well as other international leaders, makes the mistake of combining concerns about high food prices and food price volatility, and as a result makes three errors of fact: first, while it is clear that real food prices have exhibited spikes in recent years, it is not clear that there is a similar problem with food price volatility ([Gilbert and Morgan, 2010](#)); second, the effects on consumers and producers of food price spikes and food price volatility are quite different – the former hurt poor consumers by reducing their purchasing power, while benefiting producers, and the latter hurts producers; and, third, blaming political unrest on food price volatility as opposed to high food prices is not supported by the empirical evidence. In other words, for developing country consumers it is high food prices that matter not price volatility.

Casual observation would certainly seem to support this claim. In a recent working paper, [Lagi et al. \(2011\)](#) plot high food prices between 2004 and 2011 against instances of political unrest, notably in North Africa and the Middle East (see figure 3). It is clear that political unrest over this period has coincided with food price spikes, providing support for Barrett and Bellemare’s argument that they are correlated. Of course, correlation does not necessarily imply causation, as political unrest can be the result of a variety of factors including poverty, unemployment, and social injustice. However, in a recent paper, [Bellemare \(2011\)](#), using monthly data and the appropriate statistical methods, finds that food price increases resulted in increased political unrest over the period 1990 to 2011, while

food price volatility was associated with decreased political unrest.

Figure 3
High Food Prices and Political Unrest



Source: Lagi et al. (2011)
Red vertical lines correspond to beginning dates of political unrest, the death toll being reported in parentheses. Inset shows FAO Food Price Index, 1990-2011.

Why then are policymakers in developing countries so concerned about high food prices? Due to the fact that poor households spend a large share of their incomes on food, when food prices rise, their purchasing power falls more than households on higher incomes (Martin, 2012). It is important to note though high food prices are not necessarily unambiguously bad for the poor, given that 75 percent of the world’s poor live in rural areas where many are also farmers ([World Bank, 2007](#)). What matters therefore is whether rural households are net consumers or net producers of food, and also whether higher food prices eventually stimulate increased agricultural production, thereby resulting in higher wages being paid to unskilled agricultural labor ([Ravallion, 1990](#)). A recent study by [Ivanic and Martin \(2012\)](#), using a sample of 29 developing countries, finds that even allowing for increased production in the long-run, higher food prices typically raise poverty.

Not surprisingly, therefore, riots over high food prices are a signal of significant economic hardship for poor households. In addition, there can be significant long-term effects on educational outcomes, cognitive skills and adult economic achievement, when young children face reduced dietary diversity as households adapt to high food prices in order

to maintain caloric intake ([Hoddinott et al. 2008](#); [D'Souza and Jolliffe, 2012](#)). Clearly such social costs cannot be compensated for during subsequent periods of low food prices. Importantly, politicians in developing countries have to be seen to be reacting food price spikes, especially where there are large poor populations. For example, in his successful reelection campaign in 2009, Prime Minister Manmohan Singh emphasized how he had limited the impact of the 2008 food crisis on India ([Gouel, 2012](#)).

Food Prices and Trade Policy

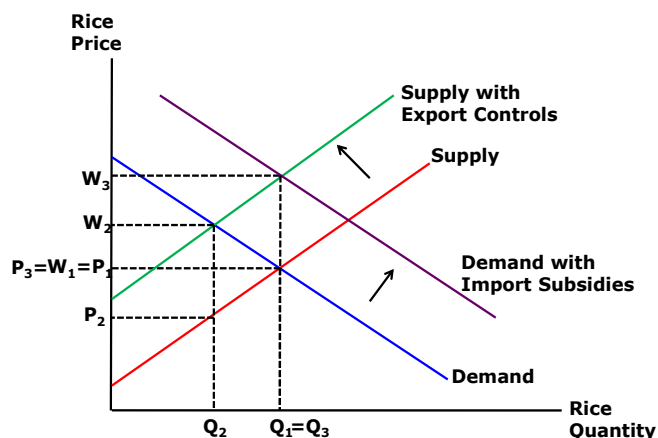
It would seem that poor households are affected not so much by food price volatility but rather high food prices. By this argument policymakers should only intervene in markets when food prices are high. However, high food prices are only one component of price volatility, i.e., volatility is only a meaningful concept if there are also periods of low prices which may hurt producers. Consequently, one would expect to observe policy interventions during periods of both high and low food prices, where in the former the concern is for consumer welfare, while in the latter it is for producer welfare. The empirical evidence certainly supports this hypothesis: [Anderson and Nelgen \(2012a\)](#) find for a sample of 75 countries that trade policies were adjusted by similar magnitudes in response to both the upward price spikes of the mid-1970s and mid-2000s, as well as the downward price spike of the mid-1980s.

In order to tie observed policy choices back to the idea that policymakers care about the impact of food prices, it is necessary to have some kind of political-economic structure. A recent paper by [Giordani et al. \(2011\)](#) puts forward a compelling theoretical framework that also finds strong support in the data from the most recent food price spikes. Drawing on work by [Freund and Özden \(2008\)](#), they argue that when consumers (producers) are averse to losses, food exporters will use border restrictions if the world food market is subject to a large positive (negative) price shock. Importantly, if countries unilaterally react to say a world food price increase by restricting exports, this will exacerbate the initial price shock, giving rise to a multiplier effect whereby exporters implement additional export restrictions. Using a sample of 125

countries and 29 food products for the period 2008-10, [Giordani et al.](#) find that changes in countries' export restrictions occurred in response to restrictions imposed by other exporters, and that these policy choices had a significant positive effect on world food prices.

This "beggar-thy-neighbor" result has been highlighted by *inter alia*, [Martin and Anderson \(2012\)](#). They suggest that in using trade restrictions, "...Insulation generates a classic collective action problem akin to when a crowd stands up in a stadium to get a better view: no one gets a better view by standing, but any that remain seated get a worse view..." (p.422) In addition, if everyone uses interventionist trade policy, it generates a global public bad through even higher world food prices (see figure 4).

Figure 4
Trade Intervention and Food Prices



Suppose after an initial shock that the world market equilibrium is given by the world and domestic price W_1 and quantity Q_1 . Following [Giordani et al. \(2011\)](#) and [Martin and Anderson](#), if enough countries unilaterally utilize export controls, it shifts up the supply curve, the new equilibrium being a world price of W_2 , a domestic price of P_2 , and quantity Q_2 , i.e., domestic consumers do face a lower domestic price, but the world price has been driven up due to restriction of exports. In addition, not only will there be multiplier effects if exporters implement additional border restrictions, but as found by [Demeke et al. \(2009\)](#), importing countries will also react by relaxing import restrictions, thereby shifting up the demand curve. If this is an

exact offset of the export restrictions, the new equilibrium is an even higher world price of W_3 , the original quantity of $Q_3=Q_1$, but also the domestic price is pushed back up to $P_3=P_1$.

Given the number of developing countries that implemented trade policies during the run-up of food prices between 2006 and 2008, it is unsurprising that there is strong empirical evidence for a serious collective action problem. [Anderson and Nelgen \(2012b\)](#) have found that of the 113, 83 and 70 percent increases in the prices of rice, maize and wheat respectively between 2006 and 2008, trade restrictions accounted for 40, 10 and 19 percent of those increases respectively.

It should be noted, however, that attempts to insulate domestic markets from world food price spikes may be partially effective if not all countries intervene, and especially if those that insulate have large poor populations. [Anderson et al. \(2012\)](#) find that for the 2006-2008 run up in food prices, the collective effect of trade interventions reduced the global poverty headcount by around 56 million, with the burden of higher food prices being exported to other developing as well as developed countries. However, [Anderson et al.](#) also point out that due to the exacerbation of the world food price spike, countries that chose to insulate through border policies would actually have experienced a lower increase in food prices if they had not directly intervened.

Food Prices and Safety Nets

The evidence that use of trade restrictions by developing countries has been largely self-defeating, has resulted in many analysts recommending that effective WTO disciplines be implemented with respect to the use of export restrictions (Martin and Anderson, 2012). In addition others appeal to the post-1980s orthodoxy that recommends use of safety nets to protect vulnerable populations in developing countries.

Safety nets are non-contributory targeted transfers designed to maintain the purchasing power of poor households and thereby prevent them falling into poverty after a price shock. Such policy instruments range from cash transfers and food stamps to food-for-work and cash-for work programs. They are often

seen as being complementary to price stabilization policies that may be insufficient in protecting the purchasing power of the poor.²

There are well-known problems in developing country governments utilizing safety nets to provide insurance to poor households due to fiscal, targeting and implementation constraints ([Alderman and Haque, 2006](#)). This compares to trade policies which are easily implemented, possibly less costly, and apparently politically effective (Gouel, 2012; Martin, 2012). Nevertheless, [Demeke et al. \(2009\)](#) found that in response to the 2006-2008 run up in food prices, 23 countries used cash transfers, 19 used food assistance, and 16 used policies to increase disposable income.

Despite evidence that many developing countries' safety nets are not adequate ([Grosh et al., 2011](#)), they have in some cases been crucial in protecting the poor from food price increases. For example, [Demeke et al. \(2009\)](#) point to programs such as *Progres*a in Mexico, where cash is provided to households conditional on children attending school and household members getting regular health check-ups. In addition countries such as India are utilizing electronic technology to identify and open bank accounts in order to transfer cash directly to their poorest citizens ([The Economist, 2012](#)).

Trade Policy vs. Safety Nets

It is important to realize that both trade policies and safety nets are being used as substitutes for private insurance mechanisms that are not being provided by the market in developing countries.³ To use the jargon of economics, a world where private, market-based contracts can be written against any future contingency is efficient, and is therefore the "first-best" outcome. If contingent contracts do not exist, any attempt by policymakers to provide insurance is likely to create market inefficiencies, i.e., trade policies and safety nets are "second-best" policy

² A reduction in the real income of households who spend a large proportion of their income on food can be set in the context of [Sen's \(1981\)](#) entitlement's approach to poverty and famines.

³ The notion that deviations from free trade may be appropriate in the absence of risk-sharing instruments is discussed in detail by [Gouel and Jean \(2011\)](#).

instruments, and should be judged accordingly.

As shown by [Do et al. \(2012\)](#), even if a social protection program could achieve the same allocation of resources as a world with contingent contracts, it is still possible for such a scheme to exacerbate a food price shock. Under such a scheme, when food prices are high, income is transferred from net food producers to net food consumers. However, such a scheme may not be consumption-neutral if income is transferred to households that have a higher propensity to spend on food. In other words, if an optimal social protection scheme could have “beggar-thy-neighbor” effects, then so will publicly supplied safety nets. Empirical evidence suggests that the size of such effects will be a function of the type of transfer, cash vs. in-kind, how responsive the supply of food is to higher prices, and how integrated into the world market is the economy in question ([Cunha et al., 2011](#)).

The key point of this discussion is that when poor consumers are unable to insure themselves against high food prices, both trade policies and public safety nets can exacerbate food price spikes. While it may be the case that trade policies tend to over-react to price spikes, and safety nets tend to under-react, the conclusion to be drawn here is that trade policies should not be dismissed out of hand as inefficient, but instead their effects should be evaluated relative to other policies that may also generate negative effects on the world market (Do et al., 2012; Gouel, 2012).

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Andersons Policy Bulletins are discussions of key trade and policy issues. The author of this bulletin, Ian M. Sheldon, is Andersons Professor of International Trade in the Department of Agricultural, Environmental, and Development Economics within the College of Food, Agricultural, and Environmental Sciences at The Ohio State University.

Questions or comments?

e-mail: sheldon.1@osu.edu

web-page: <http://aede.osu.edu/programs-and-research/andersons-program>