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FOOD AND ENERGY PRICES

POLICY LESSONS DRAWN FROM THE RECENT FOOD AND FUEL PRICE INFLATION

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During the twelve months ending in June 2008, global food prices surged at alarming rates and the price of crude oil reached new highs. The rapid pace of food and energy price inflation in turn fed through to bring measures of overall consumer price inflation to undesirably high rates in a wide range of countries. Through the first half of 2008, food was seen as a global crisis, riots broke out in several countries, and debate raged over how to explain this sudden development. Over the remainder of 2008, both food prices and oil prices rapidly retraced their recent gains, with prices for globally traded major foods falling to their average of May 2007 and crude oil prices dropping to levels not seen since 2004.¹ At the present time, the global economy remains caught in a dramatic economic slowdown, and prices of food and energy are helping to bring down headline inflation rates.

In light of the importance of food and energy and their respective prices to all participants in the global economy, it is essential that we come to an understanding of the forces at work in the present episode and draw some lessons for policy going forward. We must evaluate the debate concerning the causes of rising commodity prices in light of their rapid turnaround. And we must take care to extend our time horizons, both backwards and forward, to a sufficiently long view that does not allow us to prematurely conclude that energy and food price inflation have disappeared and are no longer possible problems.

This paper will focus primarily on developments in the prices of globally traded foods and the implications of these prices for a range of countries and their policies. Many of the issues discussed are also relevant for energy prices, but the paper will not discuss issues that are purely energy related. Global food and energy price inflation interact in that energy prices are a cost in the production of food and the incentives for biofuel production that arise from high energy prices have implications for food production and hence food price inflation. On average, global food prices shifted to an upward trajectory in 2003, and my discussion will review the basic facts of food and energy price developments since then. The five-year interval 2003–2008 marked a period in which food prices accelerated, reversing a trend decline in relative food prices that had been occurring for many years. The discussion will then examine the elements of global demand and supply for major food crops and the factors that have been at work since 2003. Careful consideration of the behaviors behind demand and supply should shed light on the fundamental forces responsible for the sharp rise and then partial reversal that we have seen in prices. No single economic development or group of economic agents is responsible for the spike in food (and energy) prices. Rather, a combination of factors brought about the conditions that led to rapid inflation and then reversal in food and energy prices. These events cannot be blamed on speculators. They are also not simply the consequence of exchange rate shifts, such as the fall in the value of the dollar during much of 2008. Understanding the history of the relevant demand and supply factors should provide insight into likely future developments and policy needs.

Food (and energy) price inflation bears directly on several components of economic policy. Central banks around the world are charged with the responsibility of maintaining stable overall consumer prices. The extraordinary events of 2008 raise questions as to how central banks should react to food and energy price inflation in setting monetary policy so as to achieve broad price stability. Food production is regarded as an appropriate sector for public



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¹ Price quotes are from the IMF commodity database.

policy in almost all countries. The recent sharp changes in food prices may suggest that many countries should rethink how they have been designing agricultural policy. Agricultural products constitute a major and important component of global trade. The events of the food crisis of 2008 are closely tied to agricultural trade practices. The concluding section of this paper will seek to extract from the understanding developed of food and energy price inflation a set of constructive policy recommendations for monetary policy, agricultural policy and trade policy for the world's advanced countries and emerging market economies.

The development of food prices

The evidence on food price inflation over the past five years is complex in that there are several different ways one can measure food prices. The IMF publishes an index of primary food prices in dollars that includes items that are produced and traded worldwide.² That index shows that from June 2007 until June 2008 prices for these food items on average rose more than 40 percent, an astonishing rate that triggered the perception of crisis. This spike came at the end of a five-year period over which this index of food prices had risen at an average annual rate of nearly 15 percent. This rapid rate of food price inflation contrasts with an average rate of increase in this same index of about 1.6 percent per year from 1957 to 2003. The sharp change in global economic conditions in the last several months has resulted in food prices retracing their spike, and the IMF index in December was at a level last recorded in May 2007, but still well above its 2003 average value.

An essential part of the explanation of the behavior of food prices is that they are determined in world markets and influenced by events throughout the world economy. A measure calculated in any one currency, such as the US dollar, includes effects not just from food prices but also from swings in the exchange rate of the dollar in terms of other currencies. To minimize these effects, the IMF calculates an alternative index measured in Special Drawing Rights (SDRs), a unit of account that averages across four currencies, the dollar, the euro, the yen and the pound and so largely nets out the effects of changes among those exchange rates. The average

annual rate of increase in the index of food prices measured in SDRs from 1972 to 2003 was about 1 percent. In the twelve months to June 2008, this index rose nearly 35 percent, and in the five years from 2003 to mid-2008 it rose at an annual average rate of about 11 percent. By December 2008 its value had fallen to its level in May 2007.

To understand the process of food price inflation, we need to ensure that food prices were not just rising along with ALL prices, in many currencies. Hence we need a measure that compares food prices over time to non-food prices. One such measure is a calculation of food prices relative to the IMF index of prices of exports of manufactured products by all advanced economies. From 1957 to 2003 this relative price reflected a downward trend in food prices of more than 2.5 percent per year. From 2003 to 2008, this measure switched to increasing more than 4 percent per year. So in 2003, the long-established trend of a relative decline in food prices reversed, and these prices rose through the middle of 2008, when market conditions abruptly changed.

The recent pattern of energy price inflation is similar to that for food price inflation. In July 2008, the IMF index of dollar energy prices peaked at a level more than 80 percent above its year-earlier value: the index measured in SDR prices had risen only slightly less. By December both indexes were below their 2005 averages.

The role of demand

Given that global food prices were pushed up over the five years through mid-2008, it is likely that demand was increasing over that time. A wide range of data on global food consumption confirms the view that consumption of the major food crops rose significantly during those five years, a time when world growth of output intensified (see Johnson 2008).³ The period from 2003 through the middle of last year witnessed strong, sustained growth of world GDP, although that growth has since clearly slowed sharply. This period of global expansion allowed standards of living to rise in many countries – a welcome outcome. Moreover, the composition of that growth changed importantly. For many decades, emerging market and developing countries have been growing faster than the more advanced, indus-

² The IMF food price index is an index of selected cereals, vegetable oils and protein meals, meat, seafood, sugar, bananas and oranges. Data prior to 1980 were taken from the IFS and rebased to link to post-1980 data, which use world export weights from 2002 to 2004.

³ Data on global food consumption can be found in the database provided by the US Department of Agriculture.

trialized countries. But their economies, even taken together, remained small. Since the recovery from the 2001 recession, however, their aggregate size has reached a magnitude that, along with their more rapid growth, has resulted in their contribution to the change in world output accounting for about two-thirds of the total (IMF 2008, 25). Although data are not yet complete to reveal the details of world growth during the second half of 2008, it is widely expected that during the global slowdown nearly all growth has arisen in emerging market economies. As a result, the features of these economies and the patterns of their growth are now important determinants of developments on world markets.

This change in the pattern of world growth matters because food consumption is a higher share of household spending in the emerging market and developing countries than is the case in the advanced countries. The weights used in consumer price indexes reflect this difference, with the weight on food for the United States a bit below 14 percent whereas on average in Latin America it is over 20 percent and in China and the rest of emerging Asia it is about 30 percent.⁴ In addition, as households achieve higher incomes, the mix of food consumed changes, with meat and, to some extent dairy products, becoming a larger share of diets. Since it requires several pounds of grain to produce one pound of meat, total demand for grains, in particular, rise with this change in composition.

Are speculators to blame?

Although subsequent events have moved sharply in the opposite direction, in spring 2008 there was much debate that “speculators” were driving up food prices. This was in response to investments by financial firms, such as investment banks and pension funds, in commodity-based securities and the emergence of mutual funds focused on commodities that allowed investors to buy into commodity markets in a more diversified way than buying individual contracts. Substantial sums were invested in instruments such as commodity futures contracts, and there was debate about how much speculators were to blame for the run-up in food prices. Most recently, money has flowed out of these markets as many investors have sought only the safest investments and as some of these financial firms have sold whatever they

could to improve their liquidity position. Although these trades either way can and do move prices temporarily, they do not represent final demand for the consumption of the food product (or crude oil). Because they can influence prices for a time, such trading can change incentives, especially for inventory holdings of the various commodities, but they cannot influence a long-term trend in price.

What about the supply side?

Data clearly tell us that over the five years since 2003, the supply produced of the major food crops has risen (see Johnson 2008).⁵ The crop year 2004/2005 saw a particularly sharp rise in production and in subsequent years, output was about flat. Even in spring 2008, while prices were rising rapidly, expectation was for a further increase in supply. Several negative factors affecting supply have been at work. Drought in Australia resulted in a large reduction in wheat production in 2006/2007, and output there has not really recovered yet. Diversion of resources away from growing food and into the production of biofuels has been controversial and been pointed to by many as a major reason for higher food prices. In the United States, the issue is the use of corn for ethanol production. Elsewhere, it is the use of vegetable oil crops, including soybeans, for the production of biodiesel. US corn production has risen significantly over the past five years, but 25 percent of US production is now devoted to ethanol (Faiola 2008, A13). Almost all of the increase in total corn production over the recent past has been used for ethanol and not food and feed. However, the supply of corn available for food and feed for animals has been maintained since 2003: this supply has not declined as a result of biofuel activity (OECD and FAO 2008, 40). No change in biofuel policy has been part of the recent downward pressure on corn prices. Moreover, the supply of rice has risen in recent years, rice is not a crop used in biofuel production, yet the price of rice at one point had risen the most dramatically; and rice was the focus of some of the greatest public concern during spring 2008.

Available world land for agricultural production has been stable since 1990, and the scope for increasing the total amount of land under cultivation seems to be limited, especially in light of pressures on land use to expand urban and suburban development.

⁴ Data on CPI weights are from national sources.

⁵ Data on global food production can be found in the database provided by the US Department of Agriculture.

However, yields on the various acres under cultivation differ markedly. According to officials at the OECD, one third of harvested land lies within the countries that are its members, essentially the advanced countries, with two thirds in the developing world. Yields per hectare within the OECD are 4.5 tons, with yields in the United States even higher at 6.5 tons. But yields in developing countries average only 2.4 tons (OECD and FAO 2008, 39). There would seem to be substantial potential for raising world food production by improving yields in many countries up to those reached in OECD member countries. There are challenges in achieving this. Costly crude oil and natural gas can raise the costs to farmers of fertilizer, an input into raising yields. In addition, higher fuel prices raise transportation costs, and infrastructure bottlenecks pose major problems in many developing countries. Overall, many of these factors impeding greater supply are transitory.

Food prices are primarily driven by demand

We know from data on crop inventories that despite the overall increase in supply during the past five years, inventories have fallen (Wolf 2008). Thus in the five years through mid-2008 demand for food rose more than did supply, inventories were allowed to fall, and yet prices still rose. Stocks of the major crops are now significantly lower than they were in the 1990s, a development that increases the volatility of price in the face of demand surprises. With supply being maintained or rising for the major food crops and yet inventories falling, it appears that the strength of demand was the major, but not only, determinant of high and rising food prices. More recently, the very abrupt collapse in the growth of world overall demand and the sharp drop in food prices confirm the central role of demand as the driving force behind changes in global food prices.

Since 2003, the world has evolved from a condition of chronic excess supply of the major global food crops, with price subject to various policies largely intended to provide support to farmers while limiting the costs of storing the excess supply, to one in which demand fluctuations play a dominant role in moving food prices. The heightened role of demand in influencing price reflects the growing importance of emerging market economies in overall world output growth and the feedback onto the sensitivity of price to demand coming from reduced world inventories. The result has been an extended period of

food price inflation followed by deflation. Fluctuation in food prices, in turn, has contributed to sharp acceleration and then deceleration of broad consumer price indexes in many countries.

Clearly, world demand will be driven for some time by the current global recession. Accordingly, food price inflation is likely to remain subdued. But when global economic growth recovers, the emerging world will once again exert significant influence on overall activity, and the trend in the relative price of food could again become positive. We need to recognize the demand-driven market nature of the movement in food prices and to design policies that use price to create appropriate incentives to guide food demand and production decisions. Policies that work by controlling food prices are now more unwise than ever.

Monetary policy responses

At present, most central banks see food and energy price inflation as restraining overall inflation, and monetary policy decisions are focused on returning resource utilization closer to potential. Over a longer horizon, however, food and energy price inflation raise two important issues for monetary policy. One is the potential for food and energy price inflation to influence inflation expectations. Ensuring that inflation expectations remain anchored is an important element of controlling inflation, as a rise in these expectations quickly adds to the cost of controlling inflation. With households shopping in food markets very frequently and thereby updating their information about food prices, a return to a positive trend in the relative price of food has the potential to feed back onto inflation expectations and then to upward pressure on nominal wages. Once a wage/price spiral begins, it is very costly to end. So over time, central banks need to pay close attention to the links between food and energy price inflation and inflation expectations.

The second issue concerns the tactic of the Federal Reserve and some other central banks to focus not on headline inflation but on core inflation, that is headline inflation less food and energy prices. This approach has been used for some time for pragmatic reasons, as core inflation gave a clearer view of inflation pressures going forward than did headline inflation because of the volatility of food and fuel prices. But if the fundamentals moving food prices

have changed, as this paper argues, and are now more closely a reflection of overall demand in the global economy, then the risk of focusing on core inflation has increased. Core inflation omits precisely the price elements whose behavior has changed. Although the central bank may want to seek some other way to smooth some of the very short-term volatility in headline inflation that owes to food and energy price inflation, it should move away from relying on core inflation as a primary signal.

Agricultural policy

With respect to agricultural policy, we need to recognize that the chronic surpluses in several of the most important food crops were the core of humanitarian food aid and drove the decision process with respect to agricultural policy. We now need to rethink. From 2003–2008, supply failed to keep up with demand. We need policies that are designed to let price have a positive impact on supply.

Price controls should be avoided as they send negative signals to producers and blunt the incentives the rise in global prices is trying to create. In addition, price controls on particular foods are essentially arbitrary and distort the decisions made both by consumers and producers about buying or growing one food rather than another. Given the complex linkages across the globe in food production, it is essential that we use the price mechanism to direct markets to the true trade-offs on both production and consumption of food and related issues with respect to the use of scarce water and scarce energy. There are still calls for providing subsidies to agricultural production and, to some extent, consumption. Those policies that work through income mechanisms rather than price mechanisms at least avoid distorting the market signals that are working to encourage more and more efficient production. Policies that directly reduce supply by holding some acreage fallow were adopted as a way of reducing the cost of managing the surpluses. The United States still has millions of acres enrolled in such programs. Those policies must be reconsidered in a world in which inventories have dwindled and critical food shortages can emerge and go unmet, as they did last year.

Policy efforts to raise yield, particularly in the world's poorest regions, would be helpful, especially if they can be done in a way that does not distort

choices by farmers. Efforts to improve the infrastructure so that seeds and fertilizer can get to farmers and crops can get to markets are an appropriate use of public resources and could be very helpful.

As the food crisis unfolded in 2008, many countries responded with changes to their trade policies with respect to agricultural products. In some cases, import restrictions or tariffs were lowered or removed so as to allow for additional food to reach the country. Steps in this direction should help global markets respond to the pressures on price. But some countries responded by placing limits on exports, in an effort to retain more food for their population. These actions introduce new distortions, create gaps between domestic and world prices, and lessen the incentives for farmers in the country imposing the restriction to increase their production. Trade in agricultural products has been manipulated by the industrial and the developing countries for decades, driven by artificially elevated prices in advanced countries and the desire of world producers to have access to markets. With the fundamentals of food demand and supply now changing, and prices responding more sharply to demand shifts, it should be possible to do away with the old distortions and find ways to let food be produced efficiently and traded globally. Unfortunately, the Doha Round of trade negotiations, which had agricultural trade as a major element of its agenda, ran aground. At present, there is little likelihood that trade liberalization in the agricultural sector will happen anytime soon. Policy officials need to find a way to address again mutually beneficial moves that could contribute to the efficiency of world food production, benefit some of the world's poorest people, and lessen the risks of another episode of a spike in food price inflation.

Conclusion

The basic economics of supply and demand are at the root of the acceleration in global food prices in the five years through mid-2008 and the subsequent sharp decline. The rapid moves recorded in food price inflation in the past several quarters confirm the pronounced role of demand fluctuations in moving food prices. Going forward, we need to make the overall supply of global food crops more responsive to price. The financial crisis will overshadow any other global economic event for some time and are

likely to restrain prices, thus limiting inflation. But the UN World Food Program still perceives a global food crisis in many poor countries. The forces moving to increase demand for food faster than global food production and hence food prices are likely to return and to persist over the long run. We need to reconsider the policies I have highlighted once the present crisis subsides; particularly those policies that distort price and so hinder incentives that would lead to a better balance between future demand and supply.

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