Thought for Food Revisited: Causes, Consequences and Policy Dilemmas

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Food is special...

- Most basic of basic needs; for the poor, food has no substitutes; energy for human survival
- There are both net food producers and net food consumers among the poor

And, with biofuels,

 Food commodities have turned into industrial commodities; energy for machines

"Voices of the Poor" and Food Deprivation (WDR, Attacking Poverty, 2000/1)

- Your <u>hunger</u> is never satiated, your thirst is never quenched; you can never sleep until you are no longer tired. —Senegal 1995
- It's the cost of living, low salaries, and lack of jobs. And it's also not having medicine, <u>food</u> and clothes. —Brazil 1995
- When I leave for school in the mornings I don't have any breakfast. At noon there is no lunch, in the evening I get a little supper, and that is not enough. I think I'm going to die of <u>hunger</u>. —A 10-year-old child, Gabon 1997
- Often she has to decide <u>who will eat</u>, she or her son. —Ukraine 1996
- In the evenings, eat sweet potatoes, sleep. In the mornings, eat sweet potatoes, work. <u>At lunch, go without.</u> – Vietnam, 1999

Rising Food Prices

- Causes: what do think we know? What do we need to know? Will we ever know?
- Consequences: does the debate of whether the poor benefit or get hurt from higher food prices really matter?
- Policy responses: macro policies vs. targeted interventions to insulate domestic prices; should the latter really be shunned?

Figure 3.1. World Commodity Prices, 2000–11

(In real terms, as deflated by U.S. consumer price index)

Food and fuel prices have risen dramatically since 2000. Food and fuel prices peaked in 2008 at levels 80 percent and 250 percent above the levels in 2000. Current prices are 75 percent and 150 percent above 2000 levels, and there are concerns that structural forces will push prices higher over coming years.



Sources: Haver Analytics; and IMF staff calculations.

Figure 3.2. World Commodity Prices, 1957–2011

(In real terms, as deflated by U.S. consumer price index)

In a long-term historical context, 2000 was a low point for both food and fuel price Current fuel prices are at historical highs (at least in real U.S. dollar terms), but food prices are at or below levels that prevailed before the mid-1990s.



Sources: Haver Analytics; and IMF staff calculations.

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Experts were expecting prices to rise, but not at the observed pace...

WDR (2008)

- Although standard models predicted that food prices would rise due to supply-side constraints, the orders of magnitude bear no resemblance with what happened to food prices in the past few years.
- The models predicted that cereal prices would rise at 0.26 percent a year to 2030 and 0.82 percent a year from 2030 to 2050.
- In contrast, from January 2002 to June 2008, the price index of internationally traded food commodities prices increased by 130 percent, or about 20 percent per year or 100 times more than the predictions (!).

Volatility has become very difficult to predict...

- IMF (WEO, 2011):
- Food prices are 80 percent higher than they were in 2000.
- In 2000, food prices were at their lowest in decades.
- Volatility high, which makes it hard to predict.

Figure 3.3. Food Price Forecasts

The history of forecasts demonstrates the difficulty of determining whether any given price movement is likely to be permanent or temporary. This is particularly evident in the performance of forecasts over the period of increased volatility during the past five years.



Source: IMF staff estimates.

Searching for a cause

- From commodity-specific framework to aggregate factors:
 - —the "China effect"-- no evidence of surge in demand; demand for food consumption and supply rose at the same pace (1.7%/yr)
 - —dollar depreciation-- prices rose in all major currencies
 - –higher energy costs could account for less than 20 percent

Commodity Prices in Major Currencies, January 2000-June 2008 (cont.)

Non-Fuel Commodity Price Index (January 2000=100) 220 200 180 160 140 120 100 80 60 Sep-00 Jan-01 May-01 Jan-02 May-02 Jan-03 Jan-03 Jan-04 Jan-05 Jan-05 Sep-05 Jan-05 Jan-06 May-05 Sep-06 Jan-07 Sep-06 Sep-07 Sep-07 Sep-07 Jan-08 May-08 Jan-00 Vlay-00 US dollars Canadian dollars Euros Yen

Source: Author's construction with data from IFS, IMF for prices and OECD Stat for exchange rates.

cont.

Searching for a cause

- From commodity-specific framework to aggregate factors:
 - developing countries response;
 defensive and do not seem to be a general cause (rice might be the exception)
 - -biofuels
 - -monetary easing in US

Export Restrictions and the Price of Rice, June 2007-July 2008



Source: IMF Primary Commodity Prices Database. Export policies from Slayton and Timmer (2008) and Timmer (2008). Based on a graph by Slayton and Timmer (2008).

Two Major Drivers

- Biofuels: structural shift in demand since 2004; for maize, it grew at around 40 percent a year and accounted for 70-80 percent of increase in demand
- Macroeconomic Factors: monetary easing => inflationary expectations, depreciation of dollar and assets (Great Recession) and securitization of food commodities (price increase acceleration 2007-2008)

Surge in demand for industrial (biofuels) use of corn and oilseeds

• Between 2004 and 2007

- Feed use of corn grew by 1.5 percent a year and food use of oilseeds grew by 3 percent a year
- Industrial use grew by 36 percent and 11 percent, respectively

=>Demand for corn- and oilseeds-based biofuels is a major driver of food commodities price increases.

=>Estimates range from a third to 60 percent (Collins, 2008; Mitchell, 2008; Rosegrant, 2008).

Corn and Soybeans prices and U.S. Ethanol Production, 1995-2007 (Elliott, 2008)



Source: Author's construction based on IMF Primary Commodity Database and Renewable Fuels Association. Notes: Ethanol production is for the United States. Prices refer to Maize (corn), U.S. No.2 Yellow, FOB Gulf of Mexico, U.S. price (average of daily quotations); Soybeans, U.S. soybeans, Chicago Soybean futures contract (first contract forward) No. 2 yellow and par (average of daily quotations).

Biofuels

- "Discovery" of biofuels
 - => converted food crops into cash crops on a large scale; structural shift
 - => from an income elasticity below unity to one above unity; if energy prices remain high, demand pressure for raw materials used in biofuels will remain high
 - =>existing estimates from 30 to 60% of the increase in food commodities prices due to biofuels
 - => higher oil prices get transmitted to food commodities not because of higher costs (small contribution) but because now food crops and oil are "substitutes"

Implications

- The surge in demand for food commodities for industrial purposes (biofuels) represents a structural break with the past.
- Food commodities prices will be:
 - Secularly higher (income elasticity for energy is around one while for food is below one): level effect.
 - More sensitive to the same forces that affect the prices of nonrenewable energy sources such as oil: increased volatility.
 - In contrast to the past, demand for food commodities will fluctuate with the business cycle and be affected by policy-related supply shocks in the oil market.

What is at Stake?

- Because of biofuels, the relative price of food may stay much higher and for much longer than it was anticipated
 - =>negative effects on poverty reduction in the developing world
 - =>negative effects on economic growth in poorest countries (Fogel in reverse)
- A rules-based trading system is more at risk than before
 - =>negative effects on global welfare from "beggar-thyneighbor" policies

Policy response in developing countries may exacerbate pressure on international prices

- Developing countries will continue to go their own way (restricting exports, subsidizing home production) because biofuels subsidies create a huge negative externality on food prices
- How and on what grounds can this tendency be stopped? Moral imperative is low; leverage is low

Macroeconomic Factors: Monetary Easing in the US

- Curious fact: Since mid-2007 to mid-2008 commodity price rises accelerated while the global economy started to slow-down:
 - =>for food commodities a third of the increase occurred in 15 percent of the time.
- Explanation: as US Fed started to lower interest rates in the wake of subprime crisis, investors shifted resources away from dollar instruments into everything else: foreign currencies, foreign stocks and commodities.
 - => foreign currencies appreciated, foreign stock markets boomed and commodity prices soared.

Monetary Policy in the U.S. and Food Commodities Prices, June 2006-November 2008



Source: Author's construction based on data from the IMF Primary Commodity Prices Database and Federal Reserve. Notes: Vertical lines shows periods in which the Fed's primary credit rate was lowered as specified in the graph's text. The primary credit rate fell from 6.25 in June 2007 to 2.25 in June 2008 (the discount rate is the interest rate charged by the Fed to commercial banks and other depository institutions on short-term loans (overnight)). The federal funds rate started to fall in August 2007 (after stability since mid-2006) from 5.02 to 2.01 by July 2008 ("the federal funds rate is the interest rate at which depository institutions lend balances at the Federal Reserve to other depository institutions overnight"; for more information visit www.federalreserve.gov). IMF prices for each product refer to: (i) Maize (corn) U.S. No.2 Yellow, FOB Gulf of Mexico, U.S. price (average of daily quotations); (ii) Soybeans, U.S. soybeans, Chicago Soybean futures contract (first contract forward) No. 2 yellow and par (average of daily quotations); (iii) Wheat, No.1 Hard Red Winter, ordinary protein, FOB Gulf of Mexico (average of daily quotations).

Real Interest Rate and Commodity Prices, January 2007-August 2008



Source: Author's construction with data from the IMF Primary Commodity Database, IMF International Financial Statistics and Federal Reserve Bank of Cleveland. Notes: Real interest rate is the Federal Funds Rate adjusted for expected inflation.

- Unclear whether this process was driven by:
 - Inflationary expectations. (Frankel, 2008; Calvo, 2008)
 - Expectations based on what in retrospect were misperceptions about global economy (i.e., belief in "decoupling").

-Price bubble.

 This process came to a halt with the realization that crisis was global and the dollar became a safe-haven in the wake of Lehman's collapse.

Impact of rising food prices on poverty

- An "old" debate: are higher food prices good or bad for the poor?
- Answer: both
 - Net sellers (rural poor with land and agricultural workers) benefit.
 - Net buyers (landless peasants and urban poor) get hurt.
- Majority of studies show that those who get hurt outnumber those who benefit:
 - Headcount ratio higher.
 - Severity of poverty (the squared poverty gap) higher.

[for example, Ackah and Appleton (2007); Barrett and Dorosh (1996); Deaton (1989); Lustig (1986); Mellor (1978); Pinstrup-Andersen (1987); Ravallion and van de Wall (1991); Ravallion (1990); Trairatvorakul (1984)]

Impact of rising food prices on poverty: empirical analysis of recent food prices rise

=>in spite of all the differences in methodology and assumptions, studies suggest that in the majority of countries, higher food commodities prices increase poverty —at least in the short-run--.

=>although poverty increases considerably more in urban areas, in many instances rural poverty goes up as well.

=> in some countries, however, the net effect on poverty is positive (i.e., poverty falls).

Percentage points change in poverty rates from 2005-7 price changes



Source: Ivanic and Martin (2008)

Impact of rising food prices on poverty

 Some poor benefit (net producers and agricultural workers) and some poor lose (net consumers) as a result of higher food prices

 Even if aggregate poverty measures show a decline (most don't), shouldn't we protect the extreme poor from becoming poorer as a result of higher food prices?

Standard policy recommendations

- To contain inflationary pressures:
 - If country has large international reserves, currency can be appreciated (e.g., Central Bank sells dollars).
 - If reserves are not large or if exchange rate appreciation has already been too large, tighten fiscal policies
- To mitigate the impact on the poor:
 - Use targeted safety nets (cash transfers, food stamps, school feeding programs, food-for-work, food distribution programs)

Policy dilemmas are significant

- An appreciation of the local currency creates disincentives to exporters and hurts import-competing sectors and, in more extreme cases, it can slow down growth.
- Tight monetary (i.e., raising domestic interest rates) and fiscal (i.e., cutting down on expenditures) policies have a dampening effect on economic activity.

In addition, existing safety net system inadequate

- Safety net programs are often nonexistent or small (about half of developing countries do not have safety net programs)
- Safety nets often not designed to respond to shocks (no "insurance component"):
 - Do not increase the size of the transfer automatically when a shock (such as food price increases) occurs.
 - Do not expand the number of beneficiaries to include those who become poor as a result of the shock.

Should targeted interventions be shunned?

 Most countries respond by "intervening" in the specific markets

 Reducing taxes and tariffs on food, price controls, price subsidies, export taxes, export bans, etc.

Targeted Measures to Contain Price Increases: 2007/8 episode



Source: Author's construction with information from the World Bank (2008d) and expanded with Trostle (2008), ADB (2008) and World Bank (2008e).

Policy response exacerbated upward pressure on prices

- Ivanic, Martin, Mattoo and Subramanian (2008) show that if developing countries try to offset a fifty percent increase in the world prices of rice, corn, wheat and soybeans applying policy responses aimed at restoring individual countries' domestic prices, world market prices will rise by 10 to 30 percentage points.
- But, developing countries are likely to succeed in not only lowering their market prices by a few percentage points but also in lowering their market price volatility.
- Safety nets to the poor may not avoid the former.
- Are there some interventions less damaging than others?

Sources

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Thank you! **Nora Lustig** nlustig@tulane.edu

APPENDIX

The Main Drivers of Rising Food Commodities Prices: A Summary of the Literature

	Demand	Supply	
	Excessively low prices in the past; market- and agricultural support and R&D policy driven	Excessively low prices in the past; market- and agricultural support and R&D policy driven	
Policy Driven	General subsidies, price controls, reduction of import barriers and out-of-the ordinary purchases on the part of	Diversion of food to biofuels production; market and biofuels policy driven	
	response which exacerbates pressure on tight markets	Soaring energy prices; market and oil policy driven	
	Dollar depreciation; macroeconomic policy	Slowdown in output growth of agricultural commodities; sectoral and R&D policy driven	
	Reduction in US interest rates; macroeconomic policy	Bad weather and crop disease; natural causes and policy(climate-change and disease-prevention) driven	
	Expansive macroeconomic policies resulting in too high global economic growth; <i>macroeconomic policy</i>	Export bans and export taxes; <i>defensive policy</i> response which exacerbates pressure on tight markets	
	Increase in food demand due to rising living standards; market-driven	Diversion of food to biofuels production; market and biofuels policy driven	
Market Driven	Excessively low prices in the past; <i>market- and agricultural support and R&D policy driven</i>	Excessively low prices in the past; <i>market- and agricultural support and R&D policy driven</i>	
	Speculation; market-driven and regulatory policy	Soaring energy prices; market and oil policy driven	
	Food hoarding and panic buying; <i>defensive response which</i> exacerbates pressure on tight markets		

Poverty Impacts of Recent Increases in Food Prices: A Summary of Available Studies

	Ivanic and Martin (2008)	Wodon et al. (2008)	ADB (2008)	IADB (2008)	CEPAL (2008)
RESULTS	Poverty increases in all countries with the exception of Peru. The 2005-2008Q1 price increase scenario increases national poverty rates by 4.5 percentage points on average (calculating estimates for all low income countries: additional 105 million people in poverty).	Poverty increases . A 50% increase in prices leads to an average increase of the headcount poverty of 4.4 percentage points (or 2.5 with producer impacts). An average increase of 3.5 percentage points at the national level in SSA would lead to to around 30 million people in poverty	Poverty and inequality increase in the short-term. In the medium-term it depends. A 20% food price increase in Philippines and Pakistan increases the number of poor by 5.65 and 14.67 million, respectively.	Poverty increases by 4.3 percentage points or 21 million additional poor individuals (net effect)*. For example, total income poverty increases by 8 percentage points in Guatemala (net effect of intl. price increase), 6.9 in Mexico and 6.5 in El Salvador	Indigence increases from 12.7 (68.5 million people) to 14.7 (79.1 million people) with income effects. Poverty increases from 35.1 (189.5 million people) to 37 (199.6 million) with income effects
COUNTRIES	Bolivia, Cambodia, Madagascar, Malawi, Nicaragua, Pakistan, Peru, Vietnam and Zambia	Burkina Faso, DRC, Ghana, Gabon, Guinea, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo	Short-term Pakistan and Philippines; medium-term China and Indonesia	Nineteen countries in LAC	Estimates are for Latin America and the Caribbean as a whole
METHOD	Short-term impact; Deaton's framework and GTAP for wage effects	Short-term impact; Deaton's framework	Short-term/partial application of Deaton's framework with budget shares only and no income shares; medium term impacts with CGE model which incorporates supply response	Upper bound increase poverty line by 30% (multiplication of increase in world prices of commodities (.68) times average share of six food commodities (.435) while rest of prices are assumed unchanged). Lower bound assumes an increase in agricultural workers' income equal to world price increases	Not described in note (will be published shortly)

Poverty Impacts of Recent Increases in Food Prices: A Summary of Available Studies (cont.)

	Ivanic and Martin (2008)	Wodon et al. (2008)	ADB (2008)	IADB (2008)	CEPAL (2008)
INCLUDES NET SELLERS	Yes	Upper bound estimates include net- buyers only; lower bound estimates assume net-sellers receive price increase in full	Short-term estimates includes buyers only; medium- term CGE should include effects on net sellers	No	No
WAGE EFFECTS	Yes	No	Medium-term CGE yes	Assumes agricultural workers' incomes rise	Assumes everybody's income rose 5%
SUBSTITUTION EFFECT	No	No	Medium-term CGE yes	No	No
PRICE INCREASE	Three simulations: 1. 10% uniform increase/pass through equal to 1; 2. 2005-07 actual FAO/pass through .66; 3. 2005- 2008Q1**	Simulate price increases of 25% and 50%; price increases are the same for all countries and all food items	Simulate food price increases of 10%, 20% and 30%	Simulates the impact of the IFS estimate of price increases for six commodities from Jan 06 to March 08 (68.1%); full pass through to domestic prices. Also, simulates price increases estimated by central banks	Assumes a 15% increase in food prices
POVERTY LINE	1 dollar a day in PPP	1 dollar a day	Country-specific poverty lines	Country-specific poverty lines	Country-specific poverty lines for moderate and extreme poverty
POVERTY MEASURE	Headcount ratio and poverty gap ratio	Headcount ratio	Change in absolute number of poor; Gini coefficient	Headcount ratio and poverty gap ratio	Headcount ratio and number of poor individuals
ROBUSTNESS CHECKS	Poverty line; price increases; labor market segmentation	Simulation of two levels of price increases and upper and lower bounds	Simulation of three levels of price increases	None that are mentioned	None that are mentioned

Impact of rising food prices on poverty: empirical analysis

- Ivanic and Martin (2008a) show that about 105 million people in the least developed countries have been added to the world's poor since 2005 because of rising food prices. This is equivalent to about 10 percent of the people living on less than a dollar a day and, according to the authors, equivalent to approximately seven lost years of progress in poverty reduction.
- Robles et al.(2008) estimate that for LAC the increase in world food prices between January 2006 and March 2008 resulted in an increase of 4.3 percentage points in the headcount ratio or 21 million additional poor individuals.
- CEPAL (2008)—the UN Economic Commission for Latin America and the Caribbean-- estimates that the ranks of the extremely poor and the moderately poor increased by 10 million each.

Impact of rising food prices on poverty: empirical analysis

- Asian Development Bank (2008) suggests that a 20% increase in food prices would raise the number of poor individuals by 5.65 and 14.67 million in Philippines and Pakistan, respectively.
- Wodon et al. (2008) estimate that a 50% increase in food prices leads to an average increase of the headcount ratio of 4.4 percent. pts. In Sub-Saharan African countries (2.5 if producers are included)
- Haq et al. (2008) found that food price increases in Pakistan might have increased urban poverty by 44.6 percent and rural poverty by 32.5 percent.
- Valero-Gil and Valero (2008) find that moderate consumption poverty increased from 25 to 33.5 percent and extreme poverty from 10.58 to 15.95 percent with the spike in food prices during 2008 even after taking into account the positive effects of reduced taxes and tariffs and higher cash transfers to the poor.
- Warr (2008) finds that higher food prices, especially staple grains, worsen poverty incidence in Thailand despite the presence of large numbers of poor farmers, many of whom benefit from higher prices.