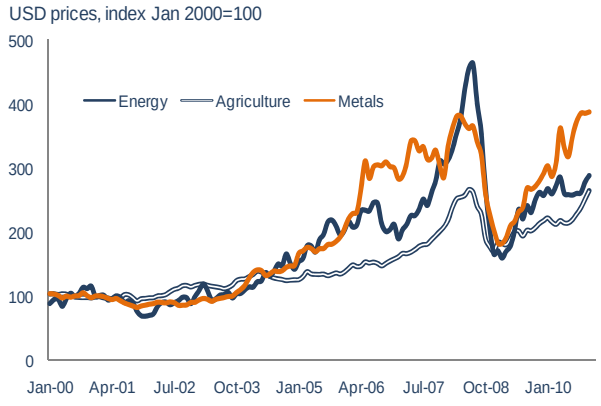
Prospects for global commodity markets

The $U.S. price of commodities continued to rebound in 2010 from the post-financial crisis lows, with price changes varying from a relatively small increase in energy to larger gains in metals and agriculture (Figure S4.1). Oil prices have been stable on opposing forces of supply cuts and strong demand versus surplus capacity and high stocks. Base metals prices have risen 43 percent since December 2009 supported by relatively strong demand, with continued strong (yet easing) demand in emerging markets that was partly buttressed by recovering demand in developed countries.

Although the downturn in industrial production during the second half of 2010 caused demand momentum to slow, dollar denominated commodity prices were given a boost in the fourth quarter by strengthening demand in China and expectations of tightening supplies in the medium term. Agriculture prices were up 17 percent in 2010, with some commodities rising much higher on extreme weather events. For example, severe drought in Russia and surrounding countries led to a sharp rise in wheat prices. Corn and soybeans prices followed, in part due to expected competition for acreage. Heavy rains in Asia affected several tropical commodities, as did drought concerns in South America. Interestingly, Africa faced the least weather-related problems during the past year.

Figure S4.1 Commodity prices rebound



Source: World Bank

Other key developments during 2010 include acceleration of food price inflation in several low and middle income countries where consumers often spend more than half of their income on food. Food prices in China (world's largest producer and consumer of many commodities) increased 7.5 percent between August 2009 and August 2010 (by contrast, non-food price inflation increased by a meager 0.5 percent). In response, the government lifted quantitative restrictions on several commodities and released publically-held reserves while it is accelerating efforts to increase domestic production by expanding the use of biotechnology in maize and rice with the expectation that it will significantly increase crop yields. Food price inflation has been a key concern in other countries as well. During the 12 -month period ending in August 2010 (just before world grain prices began spiking), food price inflation in India, Indonesia, and Bangladesh run at an annual rate of 10.4, 13.2, and 9.6 percent, respectively, as opposed to non-food price inflation of 3.7, -0.7, and 3.4 percent.

On exchange rates, the $U.S. appreciated almost 10 percent against the euro (from 1.46 $US/euro in December 2009 to 1.32 $US/euro in December 2010) amid considerable volatility. However, it appreciated much less against other major currencies and against the broader group of trading partners. Lastly, there have been concerns that the US$600 billion quantitative easing announced by the US in November may induce higher commodity price volatility as some of the "new money" may find its way to commodity futures exchanges through hedge and investment fund activity (it may also increase the physical demand for commodities). As of mid-2010, $320 billion were invested in commodities (more than half in energy), representing about 1 percent of the assets of global pension and sovereign wealth funds.

Moving forward, energy prices are expected to strengthen in 2011, despite slower demand growth and large surplus capacity as OPEC now prefers a wider price range of $70-90/bbl. Base metals prices, on the other hand, are expected to rise by 15 percent on continuing strong demand

by China, falling stocks, and supply constraints. Agricultural commodities are expected to decline 8 percent (they increased 17 percent from 2009 to 2010), assuming a return to normal crops and rebuilding of stocks. Large declines are expected in beverages (11 percent) while grain prices will decline 5 percent.

There are long-term upside risks for some commodities, especially those in the extractive industries. Because of strong developing country growth, demand for some commodities may be entering into a phase during which commodity prices will continue to rise (or, at least, remain elevated) as supply growth struggles to meet demand. As discussed in World Bank (2008), China is clearly in an extremely metals-intensive phase of its development, and has become the world's largest consumer of most metals and minerals. Compared with other developing countries at similar income levels, the metals intensity of China's GDP is well above average. China's copper and aluminum intensity was 1.8 and 4.1 kgs per $1,000 of real GDP for 2007-09, compared with world averages of 0.4 and 0.7, respectively. If China continues to follow the pattern experienced during the past decade, it may put strong upward pressure on metals and mineral prices—particularly those in which China is a net importer, and/or ceases to be a net exporter. More importantly, such pressure may be intensified if other developing countries, say, India, follow suit.

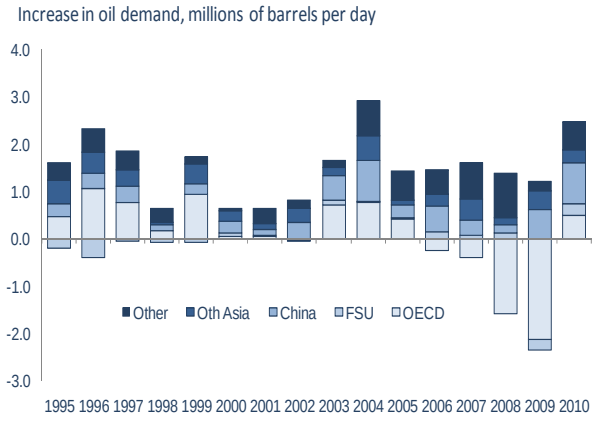
Such up-side risk has been described in the context of a super-cycle, i.e., a period during which commodity prices can stay elevated for a long time (perhaps as much as two decades) due to strong import demand as one or more economies go through a major industrial transformation phase. Super-cycles of this nature have taken place in the past rather infrequently (e.g., industrial revolution in the UK and early 1900s in the US). Several authors have argued that some metals (especially copper and iron ore) may be going through such a super-cycle period because Chinese demand. While Chinese demand has been very strong and metals prices are expected to remain firm, they are not expected to continue rising because they are already substantially above production costs. As a result, there are large incentives for producers to step up supply, while at the same time, high prices are leading to substitution with other materials, notably from copper to aluminum — a market currently in surplus.

Crude Oil

Despite an uptick toward the end of the year, world oil prices were relatively stable during 2010 compared with the extreme volatility of 2008-09. Prices, which averaged $U.S. 79.04/bbl in 2010 (up from $US 61.76/bbl in 2009), were supported by OPEC supply cutbacks and recovery in global demand which grew by an estimated 2.9 percent or 2.3 mb/d in 2010 following two years of declines (Figure S4.2).

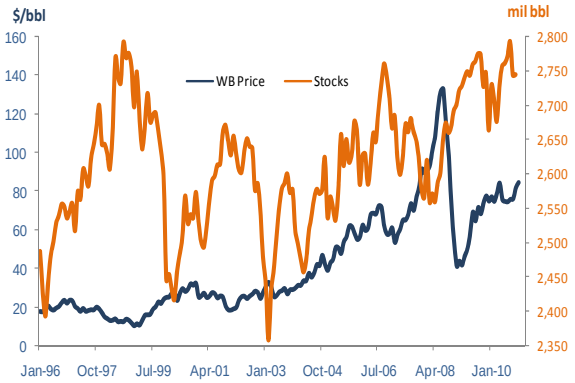
Developing Asia accounted for about half of the growth, similar to the gain in 2009, and China accounted for much of that, up 10.5 percent or 0.9 mb/d. However, quarterly growth rates fell during the course of the year. The growth increase during 2009 was exceptional because of one-off increases in naphtha demand due to the addition of new petrochemical capacity—naphtha is a key crude oil byproduct. OECD oil demand posted a 1.1 percent increase or 0.5 mb/d, after four years of decline, with much of the growth occurring in the U.S. By 2010:Q4, world oil demand had settled into near-trend growth of around 2.0 percent. In the medium term, world

Figure S4.2 Growth in world oil demand recovers, 1995-2010



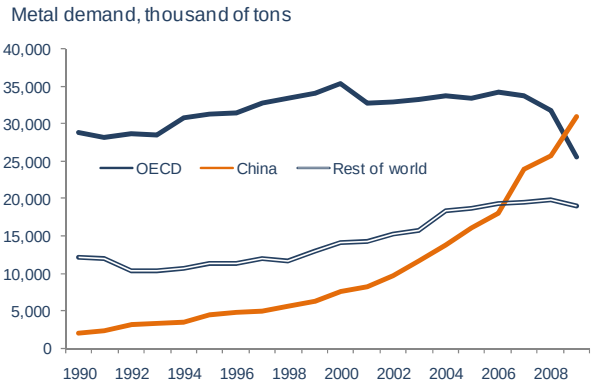
Source: International Energy Agency.

Figure S4.3 Stable oil prices and high OECD stocks



Source: World Bank and IEA.

Figure S4.4 China overtakes OECD in metal consumption



Source: World Bureau of Metal Statistics.

oil demand is expected to experience modest growth, owing to efficiency improvements in transport and ongoing efforts by governments and industry to reduce carbon emissions, particularly in high-income countries.

Despite the recovery of oil demand—albeit off of low levels from recession—the market remained mired in surplus production and refining capacity. OECD oil inventories reached record highs in both crude oil and products (Figure S4.3). There were also large volumes of crude oil and products in floating storage, though the crude portion of this was greatly reduced in the second half of the year. Furthermore, because OPEC continued to restrain output to keep oil prices within a $70-90/bbl range, its surplus capacity remains at 6 mb/d, with 5 mb/d in the Gulf, and two-thirds of total spare capacity in Saudi Arabia. Such levels of spare capacity are similar to those observed during the early 2000s when the price of crude oil was ranging between $20 and $30/bbl.

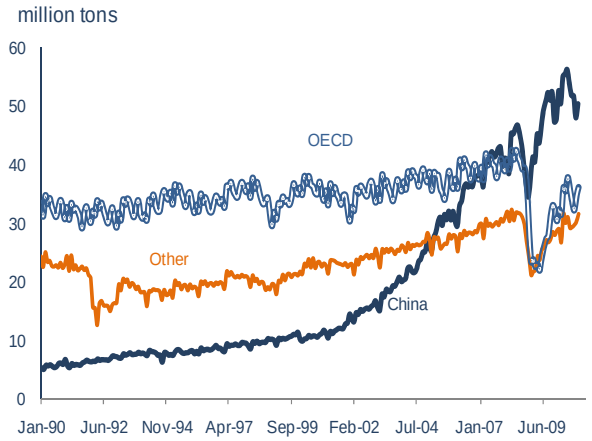
Non-OPEC supplies posted a second year of strong gains, up 0.9 and 1.1 mb/d in 2009 and 2010, respectively, with the largest gains coming in the U.S., Russia, Brazil, Kazakhstan, Colombia, China, Azerbaijan, Oman and Canada, and from biofuels. Finally, OPEC natural gas liquids production rose 0.5 mb/d in 2010, leaving little growth in the demand for OPEC crude oil.

Over the medium term, oil prices are expected to be more volatile than during the past year, but on average are expected to remain in the $70-80 range as OPEC continues to restrict supply. It is also expected that OPEC will prevent prices from going much above that range due to concerns that new technologies and policies may curb oil use. Growth in global oil demand is expected to remain moderate at 1.5 percent in the near term, with most of the growth in developing countries. Non-OPEC oil supplies are projected to continue rising modestly, with production increases from Brazil, Canada, Colombia, the FSU, and other areas. Globally there are no resource constraints, and the World Bank's long-term forecast of $80/bbl in real terms is commensurate with the higher end cost of developing additional oil capacity, notably from oil sands in Canada.

Metals

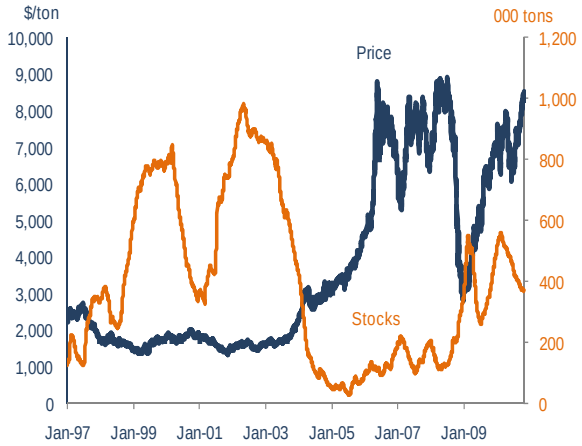
China has been the chief driver of metal demand over the past decade (Figure S4.4). Between 2000 and 2009 Chinese consumption of the main base metals (aluminum, copper, lead, nickel, tin and zinc) rose by 17 percent per annum — trends that continued during the recovery. Chinese apparent demand surged 20 percent in 2009 due to restocking, and rose a further 10 percent in the first 10 months of 2010. Currently, China accounts for 41 percent of global refined metal consumption, overtaking the OECD by a margin

Figure S4.5 China becomes the world's largest steel producer



Source: World Steel Association.

Figure S4.6 Copper prices reach pre-crisis level



Source: Datastream

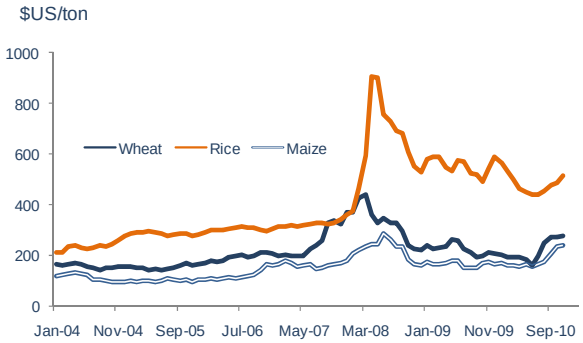
of 4 million tons. In contrast, OECD metals demand plunged 21 percent in 2009, with more than half of the volumes losses in Europe. OECD demand rebounded by 17 percent in the first 10 months of 2010 as it began restocking, with Europe accounting for nearly two thirds of the increase.

A similar pattern has occurred with steel production (Figure S4.5). China's steel output rose sharply in the second half of 2009 and first half of 2010, but fell in the third quarter due to slowing demand and reduced profitability because of oversupply. OECD steel output also rose sharply before falling in the third quarter, in line with the slowdown in industrial production.

Metal production has increased commensurately with demand, but supplies for a few metals have become tight, notably for copper and tin, and stocks have been declining in 2010 (Figure S4.6). Copper mine supply growth was flat in 2010 because of declining ore grades, and development of large projects on the horizon is limited. Tin prices reached record nominal highs in 2010 on strong demand, falling stocks, and lower production in Indonesia because of heavy rains. All other base metals remain in surplus and stocks are relatively high.

Over the next two years, prices are not expected to rise substantially, partly given the large price increases to date, but also due to substantial idle capacity in some sectors. Further large price increases would require idle capacity being reabsorbed over the longer-term, but with demand growth slowing towards trend, pressures for real price increases should be moderate. Over the longer term, declining ore grades, environmental and land rehabilitation, as well as water, energy and labor pressures may result in upward pressure on prices. Such pressure on prices, however, may well intensify if metal demand by China grows at the rates that it has been expanding in the recent past (see earlier discussion on super-cycles).

Figure S4.7 Grain prices rebound



Source: World Bank.

Agriculture

Following a relatively stable first half, agricultural prices rose sharply during the second half of 2010 registering a 17 percent nominal increase over 2009, 2 percent above the 2008 average. However, contrary to the 2008 price spike which was accounted for by food commodities, the recent price increases were more broadly distributed and included most tropical commodities and raw materials which did not increase much during 2008. For example, between 2008 and 2010, beverages (led by arabica coffee) and raw materials (led by cotton) increased by 40 and 45 percent, respectively, while food prices declined 9 percent.

Most agricultural commodity price sub-indices registered large gains during the second half of 2010. The increases were more pronounced among grains, primarily led by wheat, following weather problems that surfaced earlier in the summer (Figure S4.7). Policy actions, including Russia's wheat embargo and later Ukraine's export quotas, and the USDA latest updates indicating a tighter global market for coarse grains due to yield declines further boosted food prices. As a result, maize and wheat prices increased by 94 and 63 percent from June to December 2010 while the overall grain index gained 53 percent compared to the 29 percent increase in the non-energy index.

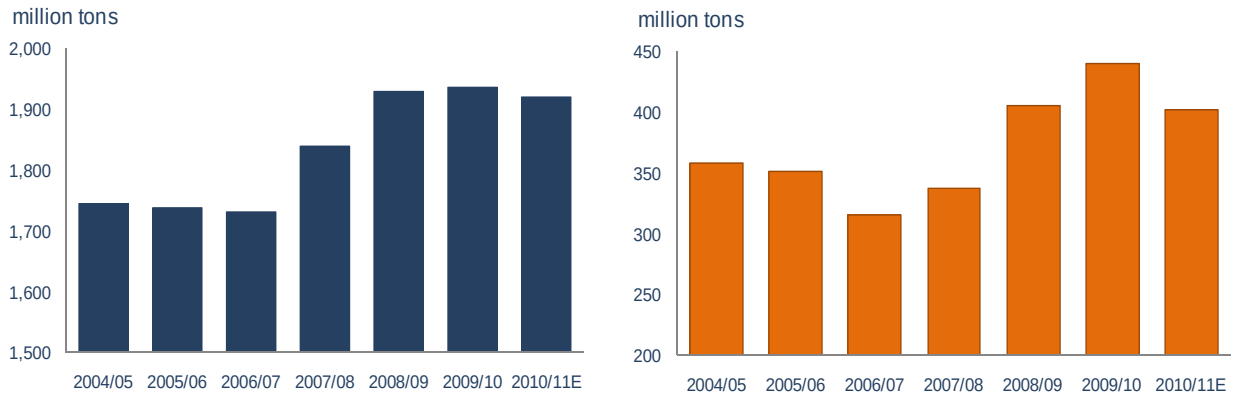
Not unexpectedly, the price increases triggered food security concerns and discussions of whether a 2007/08-type price spike is unfolding. However, the situation today is different from three years ago for a number of reasons. First, global supplies of the three key grains (wheat, maize, rice) are 18 percent higher now than in 2007/08 (Figure S4.8). Second, global production is expected to be 1.92 billion tons in 2010/11, 10 percent higher compared to the 2004/05-2006/07 average of 1.74 billion tons. Third, input prices, notably energy and fertilizer, have been stable during 2010 and no major increases are expected in the medium term. Fourth, policy measures in the wheat market have had less of an impact on prices than in 2008 (policy reactions were a key driver behind the earlier price spike). As compared with rice market, the main driver in 2008, wheat and maize markets are less concentrated in terms of production and trade, subject to fewer policy distortions, more broadly traded, and not as politically sensitive. Lastly, price increases in

Table S4.1 Key nominal commodity price indices (actual and forecast, 2000=100), 2005-12

	Actual						Projection	
	2005	2006	2007	2008	2009	2010	2011	2012
Energy	188	221	245	342	215	271	293	277
Non-Energy	149	192	225	272	213	267	270	258
Agriculture	133	150	180	229	198	228	213	205
Food	134	147	185	247	205	221	208	204
Beverages	137	145	170	210	220	250	225	210
Raw Materials	131	160	175	196	169	232	219	206
Metals & Minerals	179	280	314	326	236	348	386	367
Fertilizers	163	169	240	567	293	278	255	249

Source: World Bank

Figure S4.8 Global grain production is expected to be healthy but stocks are set to decline



Source: US Department of Agriculture (December 10, 2010 update)

domestic terms (after accounting for exchange rate fluctuations and inflation) increased much less than their $US counterparts (see next section).

Agricultural prices are expected to decline by 8 percent in 2011, followed by a further 3.7 percent decline in 2012 (Table S4.1). Over the longer term, trends in agricultural prices will be shaped by two key (and opposing) forces: Upward push by energy prices (agriculture is an energy intensive industry) and downward pressure due to gains in total factor productivity (TFP)—which for agriculture is much higher than manufacture. Thus, if the flatness of energy prices persists, TFP will be the dominant force.

Yet, there are several risks. First, weather-related problems can always induce price variability as they did during July-August 2010. Second, trade -related policy actions are always a concern, although the lessons from the rice price spike episode of 2008 could (and should) serve as a reminder on their adverse impact on world prices and trade. Third, if biofuel mandates change due to new blending requirements, grain and oilseed demand patterns will follow suit with proportional impact on most other crops; however, that scenario is less likely to materialize in the short term as it would require new technologies for car engines and infrastructure of delivering ethanol over long distances. Fourth, while energy prices—a key input to most agricultural commodities and closely correlated with fertilizer prices—have been relatively stable so far and are expected to stay relatively flat over the medium term, an energy price spike would likely spread quickly to agricultural markets for two reasons: the higher cost of energy and the fact that biofuels may set a floor for key agricultural commodities.

Price movements in domestic terms

International commodity prices in $U.S. do not always move in tandem with prices paid by consumers or received by producers for numerous reasons. First, exchange rate fluctuations imply that the country is likely to face a different price at the border compared to the price quoted in $U.S. Second, trade policies, including non-trade barriers and taxes or subsidies (very common in countries where key food commodities have been designated as "sensitive" or "strategic") often introduce large gaps between border and domestic prices. Third, poor infrastructure (prevalent in Sub-Saharan Africa), large distances from ports (especially in landlocked countries), and various customs-related obstacles, may further amplify the gap between international and domestic prices. For these reasons, domestic commodity markets are often disconnected from world markets, or, at best, world price signals are transmitted to domestic markets with considerable lags. Finally, the relative price of food commodities will evolve differently in developing countries than in the United States because the prices of other goods and services in these countries involve at different rates. As a result, the real price of internationally-traded food commodities in developing countries will rise and fall at a different rate than the real US dollar price.

Table S4.2 breaks out the influence of each of these factors in explaining the difference between changes in nominal $U.S. prices of internationally traded commodities and their real local currency price movements between January 2005 (prior to the food rice boom and August 2010). It decomposes world price movements into the following components: inflation, exchange rate, and the domestic weight

Table S4.2 At-the-border price decomposition: January 2005 and August 2010

Median country from each income level:	Change in border price (real, domestic CPI)	-------- Contribution of --------		-------- Change in world price based on: --------		
		Inflation	Ex. rate	Domestic weights (nominal)	World weights (real, US CPI)	World weights (nominal)
	[A]	[B]	[C]	[D]	[E]	[F]
High	20%	-13%	-13%	45%	57%	67%
Middle	20%	-10%	-15%	45%	57%	67%
Developing	14%	-20%	4%	31%	57%	67%
Low	21%	-28%	12%	37%	57%	67%

Source: World Bank calculations based on various country data sources.
Note: Column A is the sum of columns B, C, and D. Column E denotes the change of world food price index in real terms (deflated by the US CPI) while column F denotes the change of world food price index in nominal terms.

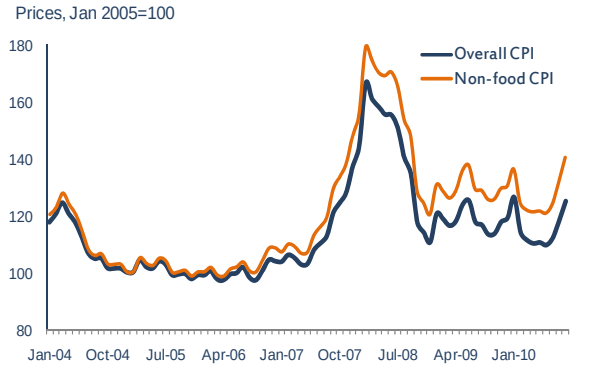
composition of food imports. During this period the World Bank's global food price index increased by 67 percent in nominal terms and 57 percent in real terms (when deflated by the U.S. CPI).

The increase of real food prices in domestic currency terms relative to non-food prices was much smaller. For example, during this period, the median low income country's food price index (Bangladesh in this case) increased by 37 percent. Considering that its exchange rate appreciated against the $U.S. by 12 percent while non-food price inflation stood at 28 percent, domestic food prices were only 21 percent higher in real terms. The corresponding at-the-border real food price increase for the median developing country was 14 percent, while that of middle and high income countries was 20 percent.

Table S4.2 uses non-food prices as a deflator and reports income-group data as the median increase. Alternatively, these calculations can be done using the price of all goods and services (including food) and aggregated using GDP weights (see discussion in the main text). This has the advantage of allowing more countries to be included in the calculation (120 countries with overall CPI, versus only 41 for which non-food CPI can be calculated). When calculated in this way, the increase in real-at-the border internationally traded food commodity prices was 6 percent between January 2005 and August 2010 (see main text). But, deflating food prices with the overall CPI where food has a large weight in the overall CPI (often ranging between 50 and 60 percent) may understate the extent to which food prices have risen relative to other goods and services.

Finally, for the 41 developing countries for which both overall and non-food CPI data exist , we report at-the-border food price index adjusted by both measures of inflation (Figure S4.9). When international food prices are adjusted by the overall CPI (same measure reported in in main text, applied to fewer countries), the developing-country real food price index increased by 14 percent between 2005 and 2010

Figure S4.9 Real at-the border prices deflated with overall and non-food CPI



Source: World Bank and ILO.

(year averages). However, when adjusted by the non-food CPI, the index increased by 25 percent, almost twice as much.

To further analyze the degree to which domestic commodity markets respond to world price changes, Table S4.3 compares world $U.S. price changes to changes in prices paid by consumers (expressed in local currencies) for three food commodities—wheat, maize, and rice—in selected developing countries. Specifically, three comparisons are made: (i) the second half of 2010 is compared to the first half (first column), an attempt to capture whether the recent price spike shows up in domestic markets; (ii) 2010 is compared to 2009 (second column), to examine whether the declines in maize and wheat prices had a discernable impact on domestic prices; and (iii) 2010 is compared to 2006, effectively capturing the entire food commodity boom cycle. The latter figures are reported in both nominal (third column) and real (domestic CPI-deflated) terms (fourth column).

The figures for the short and medium term give a very mixed picture. Between the first and second half of 2010, $U.S. wheat and maize prices increased by 32 and 22 percent, respectively while rice prices registered a 6 percent decline. However, domestic retail prices of maize and wheat declined in most cases while they increased in the case of rice. A mixed picture emerges when comparing 2010 with 2009 as

well, essentially indicating that world price are may not be transmitted to domestic markets in the short run.

However, a pattern emerges when domestic and $U.S. prices are compared over a longer period. For example, from 2006 to 2010 prices for the three commodities increased, on average, by 40 percent in $U.S. nominal terms. During this period, the average nominal price increase for these three commodities in Sub-Saharan Africa (21 countries for a total of 35 cases, not all reported here) rose by 46 percent. This implies that while prices may follow independent paths in the short term, over the longer term there is some degree of convergence.

Yet, a less clear picture emerges when food prices are deflated by the domestic non-food CPI. Countries with high non-food price inflation did not experience large increases in real food prices (e.g., Ethiopia). On the contrary, in countries with small non-food inflationary pressures food prices increased considerably (e.g., Pakistan).

Table S4.3 World ($US) and domestic (local currency) price movements of key food commodities in selected countries

	Jan-Jun 2010 to Jul-Nov 2010 percent change, nominal	*2009 to 2010 percent change, nominal*	*2006 to 2010 percent change*	
			Nominal	**Real**
WHEAT				
World price (US$, HRW US Gulf Ports)	**32%**	**-6%**	**12%**	**4%**
Burundi (retail, Bujumbura)	0%	19%	144%	na
Pakistan (retail, Karachi)	-1%	1%	110%	43%
Cameroon (retail, Yaundé)	-7%	-3%	6%	3%
Ethiopia (retail, Addis Ababa)	-4%	-5%	89%	-12%
Afghanistan (retail, Kabul)	30%	-20%	32%	na
South Africa (wholesale, Randfontein)	23%	-3%	82%	20%
MAIZE				
World price (US$, fob US Gulf ports)	**22%**	**-13%**	**52%**	**46%**
Burundi (retail, Bujumbura)	-11%	9%	55%	na
Chad (retail, N'Djamena)	6%	-9%	-5%	-10%
Tanzania (wholesale, Dar es Salaam)	-32%	-18%	33%	na
Philippines (retail, national average)	-16%	-2%	36%	21%
Malawi (retail, Lilongwe)	-16%	-30%	na	na
Ethiopia (wholesale, Addis Ababa)	-10%	-22%	78%	-14%
RICE				
World price (US$, 5% Thai, Bangkok)	**-6%**	**5%**	**57%**	**41%**
Indonesia (retail, national average)	10%	16%	na	na
Burundi (retail, Bujumbura)	4%	-4%	58%	na
Tanzania (wholesale, Dar es Salaam)	-22%	-9%	38%	na
Bangladesh (retail, Dhaka)	18%	30%	na	na
Chad (retail, imported N'Djamena)	0%	-3%	16%	10%
Pakistan (retail, irri type, Karachi)	4%	6%	116%	47%

Source*:* World Bank (world prices); country sources (wholesale or retail prices); ILO (the non-food CPI).
Notes: Real world prices have been deflated by the MUV. Real domestic prices have been deflated by the domestic non-food CPI. na implies data is not available.