

## **Regional Trade and Food Price Stabilisation in South Asia: Policy Responses to the 2007-08 World Price Shocks**

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### **I. INTRODUCTION**

World price shocks and disruptions in international cereal trade in 2007 and 2008 caused considerable anxiety and hardship for food importing countries throughout the world. In many countries, high international food prices raised import costs, reduced total supplies for consumers and ultimately led to lower real incomes and food consumption for poor households. In South Asia, Pakistan, Afghanistan, Bangladesh and India were all affected by these movements in international prices, though the effects on domestic prices in each case was mitigated or exacerbated by each country's own trade policies, as well as the trade policies of its neighbours.

Prior to 2007, the general consensus among most economists and food policy analysts was that openness to international trade, particularly private sector trade, was the most efficient mechanism for stabilising domestic food prices and supplies. In light of the 2007-08 experience, however, many observers have concluded that international markets cannot be trusted and that countries should rely on their own domestic production to ensure national and household food security. This paper argues that liberalised international trade still provides the best mechanism for stabilising prices and food supplies in most years, but that appropriate contingency policies are needed for years in which international prices are extraordinarily high.<sup>1</sup> More explicit commitments to cereal trade liberalisation within South Asia would also promote region-wide food security and help avoid a repetition of supply disruptions that raised food prices sharply in Afghanistan and Bangladesh.

Section II of this paper briefly summarises movements in international prices of cereals in nominal and real terms, showing that the price levels in 2008 reached new record levels in nominal terms, but were still significantly below price levels of 1974 in real terms. Sections III and IV then discuss the effects of the 2007-08 international price shocks in South Asia, highlighting the roles of the international market the disruption of the private sector regional trade, examining in turn the trade in rice between India and Bangladesh, and the trade in wheat between Pakistan and Afghanistan. Section V presents conclusions and implications for policy.

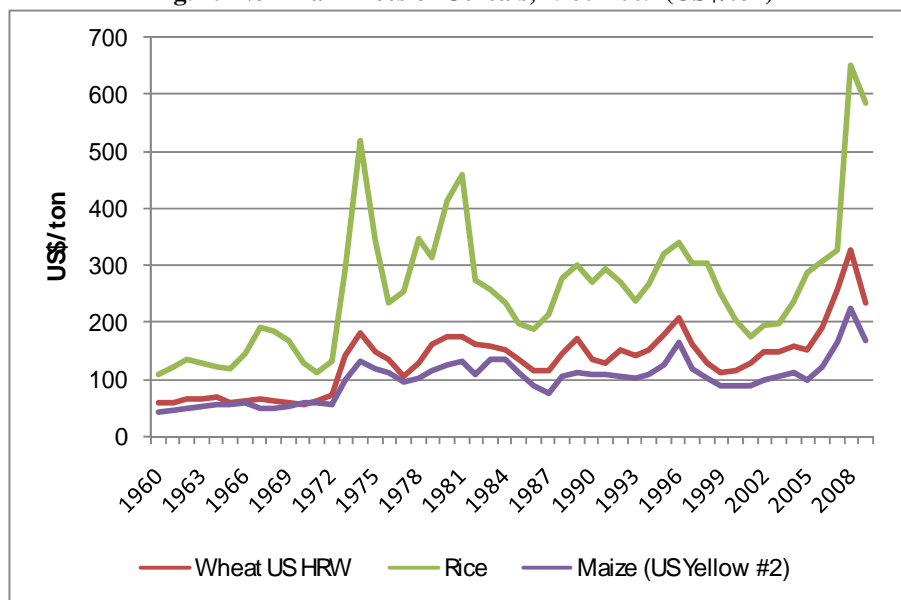
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<sup>1</sup>This paper summarises and extends the analysis of South Asian governments' price stabilisation policies presented in Dorosh (2009), with a focus on trade policy issues.

## II. INTERNATIONAL CEREAL PRICES: AN HISTORICAL OVERVIEW

After the “world food crisis” of 1973-74, when international prices of wheat, rice and maize rose by 157, 300 and 136 percent, respectively, over the two year period, world prices were relatively stable for more than thirty years. From 1976 until 2006, the average fluctuation international market prices (the average of the absolute value of the annual percentage change) ranged from only 12 to 15 percent for the three commodities. And since 1990, only in 2004-05, had the price of one of the three major cereals (rice) increased by more than 40 percent over a two year period (Figure 1).

**Fig. 1. Nominal Prices of Cereals, 1960-2009 (US\$/ton)**

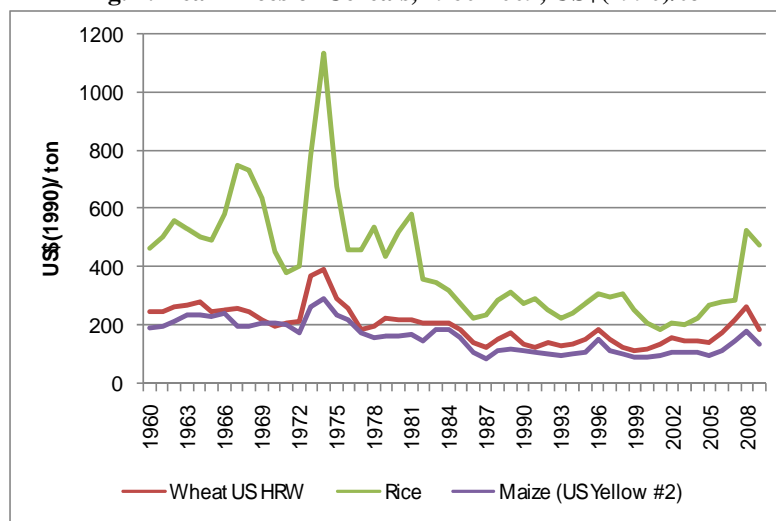


Source: Calculated from IMF and FAO commodity price data.

Notes: Rice price data is India rice 5 percent broken, 1960-2005 spliced with percentage changes in the price of Thai A1 Super (f.o.b. Bangkok) for 2006-2008.

The surge in international prices in 2007 and 2008 was thus a major shock to traders and government policy-makers alike. In a span of two years, from 2006 to 2008, international prices of wheat, rice and maize rose by 70, 113 and 83 percent respectively, reaching record levels in the first half of 2008 in nominal dollar terms before falling again in the second half of 2008. In real terms (using a dollar price index of developed country manufactured exports as a price deflator), 2008 prices were substantially below peak levels in 1974, though above levels of the previous decade (Figure 2). The real price of rice in 2008 was less than one-half the 1974 level; the real prices of wheat and maize were 35 and 41 percent, respectively, below their 1974 levels.<sup>2</sup>

<sup>2</sup>See Abbott, *et al.* (2008), Timmer (2008, 2009) and Dorosh (2009) for more detailed discussions of price movements in international cereal markets.

**Fig. 2. Real Prices of Cereals, 1960-2009, US\$(1990)/ton**

Source: Calculated from IMF and FAO commodity price data.

Notes: Rice price data is India rice 5 percent broken, 1960-2005 spliced with percentage changes in the price of Thai A1 Super (f.o.b. Bangkok) for 2006-2008.

Real prices are nominal prices divided by the IMF dollar index of commodity prices, (index = 1.00 in 1990).

Price changes in international markets do not automatically translate into equivalent price changes in domestic markets, however, even for countries that are major importers or exporters. Instead, national trade policies, such as import and export quotas, import tariffs and export taxes, in combination with domestic market interventions including releases from public stocks, government procurement from local markets and various food subsidy and transfer programmes to consumers, often result in major divergences between international border prices and domestic prices.

In the South Asia context, Bangladesh, Pakistan and India all have had large scale government interventions in domestic rice and wheat markets (Table 1), originating from a common colonial heritage that can be traced back to policies of British India in

Table 1

*Food Grain Stocks, Procurement and Policy in Pakistan, India, and Bangladesh, Average 2001-07*

	Pakistan Wheat	India Wheat	India Rice	Bangladesh Wheat	Bangladesh Rice
Production (mn tons)	20.33	70.51	87.23	1.21	25.68
Procurement (mn tons)	3.89	16.09	22.52	0.11	0.88
Share of Production	19.2%	23.0%	25.7%	6.7%	3.4%
Stocks (mn tons)	1.16	17.06	16.40	0.23	0.54
Stocks kg/capita)	7.6	16.2	15.4	1.7	3.8
Distribution Channels	Subsidised Sales to Flour Mills	Subsidised Sales through PDS	Subsidised Sales through PDS	Targeted Distrib (FFW, etc.)	Targeted Distrib, Sales

Source: World Bank (2007), Dorosh (2009).

Note: Stocks data are closing stocks end-March for Pakistan; end-June for Bangladesh; and end-December for India. (Pakistan stocks are at low point for wheat; Bangladesh high point for rice and wheat; India high point for rice; lower point for wheat.

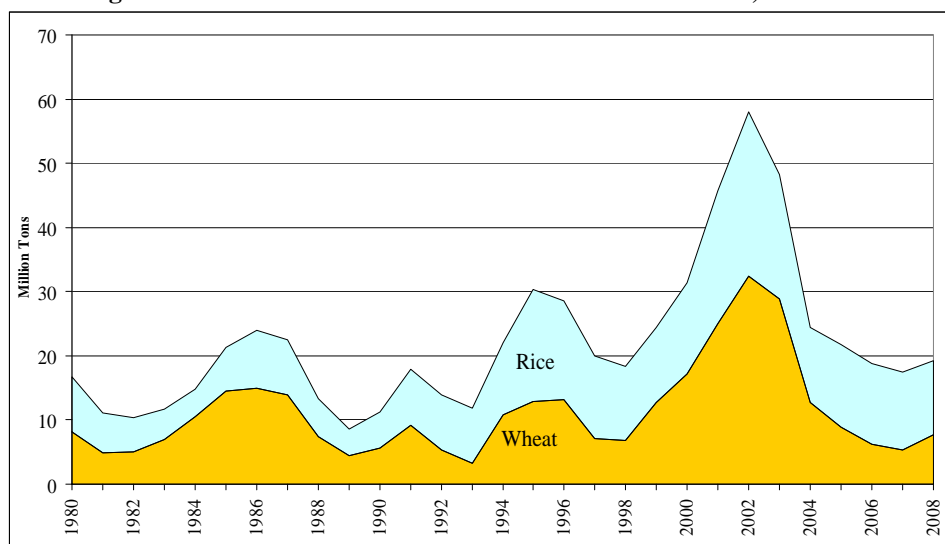
response to the 1943 Great Bengal famine [Ahmed, Haggblade, and Chowdhury (2000); Rashid, Gulati, and Cummings (2008)]. Today, large-scale government interventions in India through the Food Corporation of India and state-level agencies effectively break the direct link between India's domestic prices and international markets. In Bangladesh, there is substantial integration with international markets for wheat, as incentives for private sector wheat imports have been maintained in spite of large food aid inflows. Moreover, as discussed below, the Bangladesh rice market has generally been closely linked with that of India since 1997. In Pakistan, as in India, large scale government imports of wheat, domestic procurement from farmers and government distribution (dominated by sales to flour mills at subsidised prices since reforms in the late 1980s), have generally prevented a direct link between international and domestic price movements of wheat. Finally, although Afghanistan's private sector wheat trade has been a vibrant source of domestic supply since at least 2002, because Afghanistan is land-locked, prices of imported wheat have not been directly linked to prices in the broad international market. Rather, they have largely been driven off of Pakistan's wheat prices and thus greatly influenced by Pakistan's policies. Because of these structural characteristics of rice and wheat markets in South Asia, the effects of the international price shocks in 2007 and 2008 differed greatly across these four countries.

### III. RICE POLICY AND TRADE IN INDIA AND BANGLADESH

Beginning in the late 1960s, India adopted policies to promote a Green Revolution in cereal production, including investments in agricultural research and extension, government procurement of rice and wheat at high prices, and subsidies to fertiliser, irrigation water and electricity. By the early 1980s, India was self-sufficient in cereals and large scale food aid flows ended—national food security had been achieved, although many poor households still lack adequate access to food [del Ninno, Dorosh, and Subbarao (2007)].

Moreover, in part because large-scale imports by India would likely result in significant increases in world market prices and thus the cost of the imports, India's policy-makers have also chosen to maintain large public stocks of wheat and rice.<sup>3</sup> When in the early 1990s political pressure to increase support prices led to a sharp increase in the volume of procurement, the level of public stocks rose rapidly: between 1990-01 and January 2002 government stocks increased from 15.8 to 58.0 million tons, far in excess of the (1999-2000) target stock norm of 18.8 million tons (Figure 3). Subsidised exports of 31 million tons of rice and wheat from 2000-01 through 2003-04 enabled FCI to reduce its stock to 21.7 million tons in January 2005, and stocks remained at approximately these levels through 2006-07 [del Ninno, Dorosh, and Subbarao (2007)].

<sup>3</sup>Concerns with the unreliability of world markets date back at least to the mid-1960s when political considerations reduced U.S. food aid deliveries to India [del Ninno, Dorosh, and Subbarao (2007)].

**Fig. 3. India Central Pool Public Stocks of Rice and Wheat, 1980–2008**

Source: Government of India, Department of Food and Public Distribution. (India Economic Survey, various years).

Note: Buffer stock norms for January 1: Prior to April 2005: wheat 8.4 million tons; rice 8.4 million tons. Beginning April 2005: wheat 8.2 million tons; rice 11.8 million tons.

However, following successive years of relatively low domestic wheat procurement, FCI wheat stocks declined to only 8.2 million tons in July, 2006, (less than half of the 17.1 million ton norm). Attempts to increase stock levels through government imports and adjustment of wheat off take proved insufficient though, when in spite of an increase in the Minimum Support Price, wheat procurement in early 2007 increased only slightly. As a result, wheat stocks in mid-2007 were still 4.2 million tons below the July 1 norm.

Given relatively low wheat stocks and increasing concerns about high prices for wheat and rice in international markets, the government attempted to increase its rice stocks, as well. In early October 2007, it banned exports of non-basmati rice before lifting the ban a few weeks later and replacing it with a minimum f.o.b. export price of \$425 per ton (which effectively prevented exports since the f.o.b. Bangkok price of comparable quality A1 Special Thai rice was only \$297/ton).<sup>4</sup> Because India had supplied about one-sixth of total world rice exports in recent years, international markets reacted strongly to India's export restrictions (and subsequent restrictions by Vietnam). Between January and April 2008, f.o.b. rice prices in Bangkok nearly doubled, increasing from \$365/ton to more than \$700/ton. The export restrictions enabled India to keep its domestic prices relatively stable, however: the wholesale price of (*perimal* variety) rice in Delhi rose by only 14 percent, from 13.6 to 15.5 Rs/kg.<sup>5</sup>

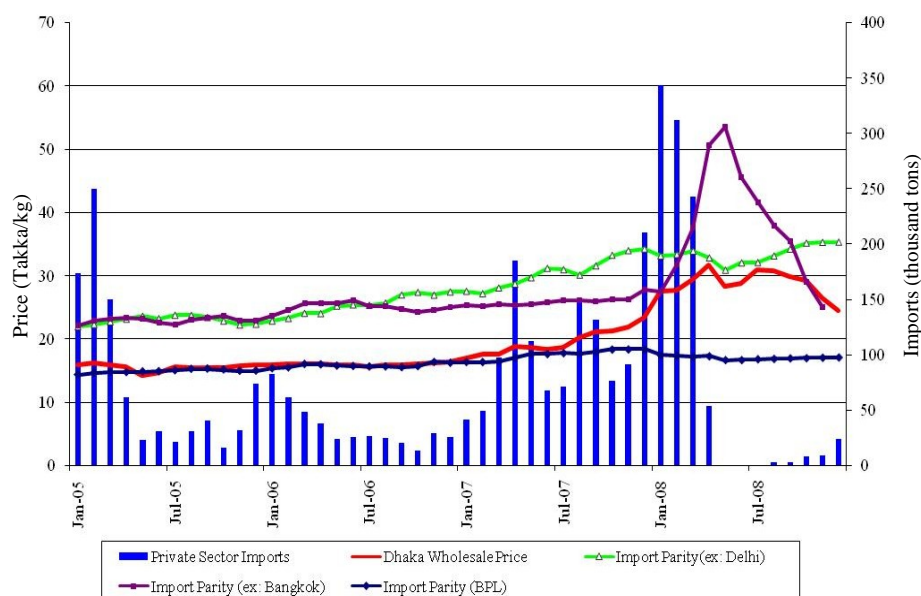
India's export restrictions proved especially problematic for Bangladesh, which relied on private sector imports of rice from India (the lowest cost supplier) to increase

<sup>4</sup>This minimum export price of non-basmati rice was subsequently raised to \$500 per ton on December 31, 2007. India Economic Survey, 2007-08, pp. 177.

<sup>5</sup>The policies were not costless, however. India likely could have exported another 2 to 3 million tons of rice (as in normal years of about 5 million tons of exports), equivalent to \$600 to \$900 million in export revenues even at a price of \$300/ton (the approximate price in October 2007). See Dorosh (2009).

and help stabilise domestic supplies and prices.<sup>6</sup> From 2002 through early 2007, prices of coarse rice in Dhaka closely tracked the import parity of rice, derived using the price of rice sold to poor households (the Below Poverty Line, BPL price), (Figure 4), suggesting that rice exporters in India were able to obtain rice at the BPL price for export in much of this period.

**Fig. 4. Bangladesh: Rice Imports and Real Domestic and Import Parity Prices, 2005-2008**

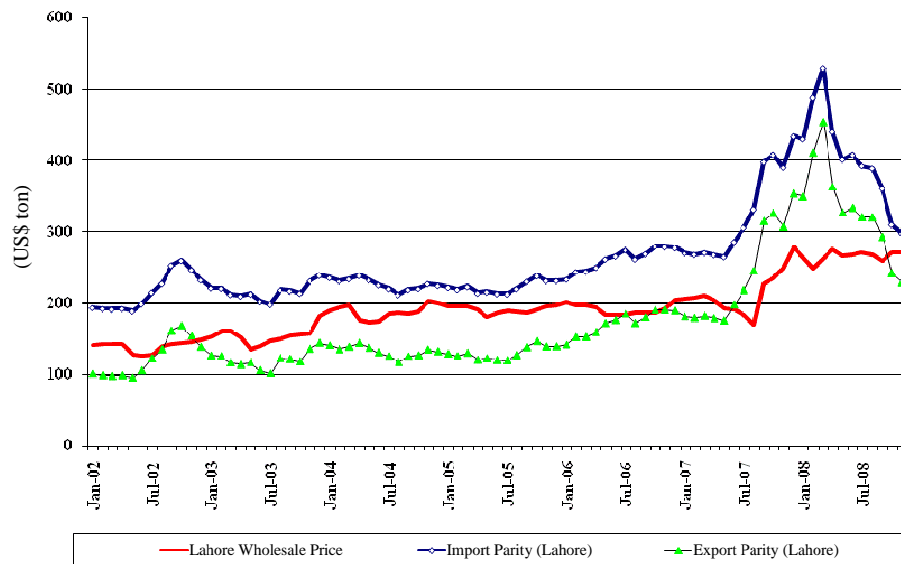


Source: Calculated using data from the Bangladesh Food Planning and Monitoring Unit (FPMU) and the Government of India (Ministry of Consumer Affairs); Dorosh (2009).

However, after severe floods during July to September 2007 and a cyclone in November resulted in severe damage to the monsoon season (*aman*) rice crop, Bangladesh traders were not able to import from India because of its export restrictions. Instead, private sector rice traders turned to other sources of supply, and from January through April 2008 imported about 950 thousand tons of rice, as Bangladesh domestic prices rose to import parity prices from Bangkok.<sup>7</sup> The ultimate result, though, was that domestic prices in Bangladesh rose substantially in 2007-08 in both nominal and real terms due to both the shift to a higher-cost source of import supply (Thailand versus subsidised Indian rice) and the general increase in world prices (Figure 5).

<sup>6</sup>From 1998-99 to 2007-08, Bangladesh imported an average of about 850 thousand tons of rice per year, about 5 percent of its total net availability. Following the 1998 flood, Bangladesh imported more than 2 million tons of rice from India [Dorosh (2001)].

<sup>7</sup>The government of Bangladesh also negotiated imports of about 500 thousand tons of rice from India, but these did not arrive in large quantities until May 2008 [Dorosh (2009)].

**Fig. 5. Pakistan: Domestic and Border Prices for Wheat in Rs/kg, 2002 to 2008**

Source: Calculated using data from Pakistan Ministry of Agriculture and FAO; Dorosh (2009).

Note: Import parity and export parity are calculated using US Hard Red Winter and 5 percent quality adjustment (0.95 times international price).

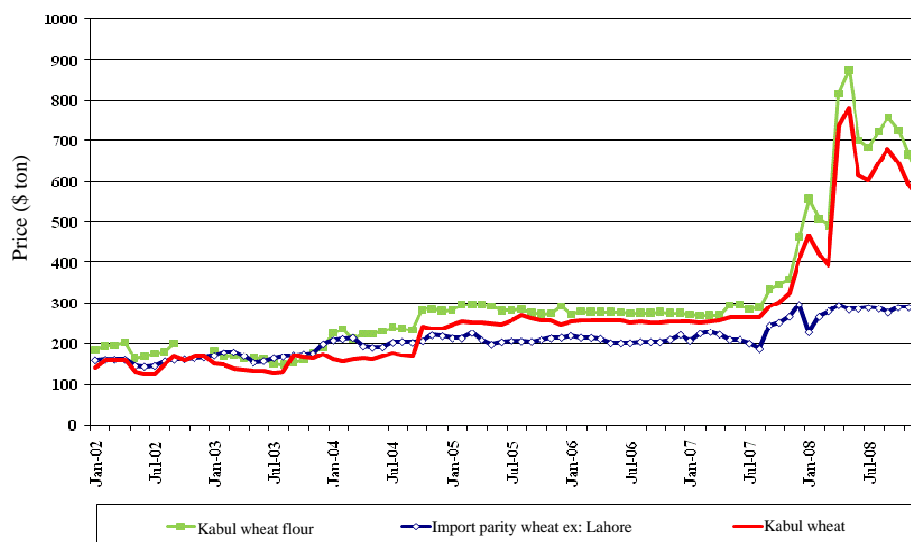
#### IV. WHEAT POLICY AND TRADE IN PAKISTAN AND AFGHANISTAN

Wheat trade policies and flows between Pakistan and Afghanistan in recent years broadly mirror the rice trade policies between India and Bangladesh. Like India, Pakistan continues to intervene heavily in domestic wheat markets, with provincial governments (mainly Punjab and to a lesser extent Sindh) and PASSCO (Pakistan Agriculture Storage and Supplies Corporation) procuring about 20 percent of total wheat production each year.<sup>8</sup> And in most years, government sales of government wheat imports to wheat millers at subsidised prices have supplemented domestic supplies, lowering domestic prices and benefiting net consumers of wheat. Moreover, because domestic prices of wheat have generally been below import parity levels, private commercial imports have been minimal, even in periods when they have been allowed.

Pakistan's response to the surge in international prices in 2007 was similar to that of India, though Pakistan's wheat harvest in March-April 2006 (unlike that of India) was bountiful. In early 2007, with prospects of a good March-April 2007 wheat harvest, Pakistan's domestic wheat prices fell to export parity levels and the government permitted about 500 thousand tons of exports to international markets (in addition to normal export flows to Afghanistan). Subsequently, after international market prices surged in mid-2007, however, the government placed a ban on wheat exports in order to boost domestic supply and thereby prevent domestic prices from rising up to (export parity) international prices (Figure 6).

<sup>8</sup>See Dorosh and Salam (2008) for a more in-depth discussion of the political economy of government interventions in the Pakistan wheat market.

**Fig. 6. Domestic and Import Parity (from Pakistan) Wheat Prices in Afghanistan, 2002 to 2008**



Source: Data from WFP Kabul and Pakistan Ministry of Agriculture; Chabot and Dorosh (2008), Dorosh (2009).

Nonetheless, domestic prices in Pakistan did rise substantially through late 2007, reaching levels of about \$280/ton in Lahore wholesale markets, suggesting that the April-May 2007 domestic wheat harvest may have been overestimated. Likewise, domestic wheat prices remained high even after the April/May 2008 wheat harvest, which was estimated at 21.5 million tons, 1.8 million tons (8 percent) less than 2007-08.

As in the case of India's ban on rice exports and its effect on domestic rice markets in Bangladesh, Pakistan's trade policies had direct effects on Afghanistan. From 2000 through early 2007, large volumes of private wheat flour imports from Pakistan had flowed into Afghanistan (through Jalalabad to Kabul, as well as some trade through Quetta to Kandahar). Moreover, prices of wheat and wheat flour in Kabul and northeast Afghanistan were highly correlated. Co-integration analysis of wheat prices for January 2002 through June 2005 indicated that wheat prices in Lahore and Kabul moved together in the long-run and also were co-integrated with wheat prices in other major Afghan cities [Chabot and Dorosh (2007)].<sup>9</sup> This market integration occurred despite food aid inflows, since price incentives for private trade in wheat (flour) were maintained.

Through mid-2007, this close link through trade with Pakistan stabilised wheat prices in Afghanistan (Figure 6). The situation changed, however, with the rise in world wheat prices in 2007 and Pakistan's ban on wheat exports in 2007 designed to prevent Pakistan's domestic wheat prices from continuing to rise along with export parity levels. Initially, this ban did not include trade with Afghanistan, but the export trade to Afghanistan was also ultimately banned in January 2008.

<sup>9</sup>The most robust co-integration results were Lahore-Jalalabad and Kabul-Fayazabad (significant ADF tests with 11 lags and trend, i.e. with a better correction for seasonality). See Chabot and Dorosh (2007).



The ban on wheat exports to Afghanistan had little effect on Pakistan's domestic prices. Exports of wheat flour to Afghanistan (typically in the range 0.5 to 1.0 million tons) are equivalent to only about 2 to 5 percent of Pakistan's net wheat availability (before exports). Assuming an elasticity of demand in the range of  $-0.3$  to  $-0.5$ , exports to Afghanistan raise Pakistan's domestic wheat price by only 5 to 15 percent *ceteris paribus*.<sup>10</sup>

However, with increased restrictions on Pakistan's exports, Afghanistan's (Kabul) wheat prices increased dramatically from \$325/ton in November 2007 to \$465/ton in January 2008. When Afghanistan's own May 2008 domestic wheat harvest fell short of its 2007 levels by 1.5 million tons, prices rose further to \$782/ton in May 2008. Wheat prices in Kabul subsequently fell to \$560/ton in December 2008 as increased food aid flows helped increase supplies. But domestic prices throughout 2008 remained far above the estimated import parity price of wheat from Pakistan (about \$300/ton), indicating that Pakistan's export restrictions were extremely effective in limiting wheat flows to Afghanistan.<sup>11</sup> Even at the peak of international wheat prices in March 2008 (\$528/ton import parity Lahore), unrestricted trans-shipment of wheat from international markets through Pakistan could have reduced Afghanistan's domestic prices (which peaked at \$782/ton in May 2008).<sup>12</sup>

This experience illustrates the critical importance for Afghanistan of maintaining flows of wheat from external sources. In particular, although food aid inflows provide important additional supplies, private sector imports of wheat and wheat flour have proven to be highly effective in stabilising Afghanistan's wheat markets when these imports are unrestricted. In addition to improved security, price-stabilising private sector trade between Pakistan and Afghanistan requires that clear signals are given to traders regarding trade policies (zero or minimal restrictions on wheat trade), expected food aid inflows and levels and prices of government sales of wheat.

## V. CONCLUDING OBSERVATIONS

Cereal markets across South Asia (especially Bangladesh-India rice and Pakistan-Afghanistan wheat) are increasingly connected. As a result, cereal price policies have major spillover effects across borders. The 2007-08 experience with the surge in international market cereal prices illustrated some of the negative aspects of these linkages as export restrictions by India and Pakistan contributed to higher prices for consumers in Bangladesh and Afghanistan.

Nonetheless, in general, the conventional case for private sector imports as a tool for price stabilisation and improving economic efficiency still holds [Byerlee, *et al.* (2007); Jayne, *et al.* (2006); Dorosh (2008)]. In particular, private sector international trade is generally more efficient than either public stocks or public trade for stabilising

<sup>10</sup>For further discussion of the impacts of wheat flour exports to Afghanistan on Pakistan's prices, see Dorosh and Salam (2008).

<sup>11</sup>Although the border between Afghanistan and Pakistan is highly porous in terms of movements of small amounts of goods and people, shipment of the hundreds of thousands of tons of grain required to significantly offset the 1.5 million ton production shortfall is not possible on mountain paths and small roads.

<sup>12</sup>Transport costs to Kabul in 2005 were estimated at about \$20/ton [Chabot and Dorosh (2007)]. Total milling, transport and marketing cost from wholesale grain Lahore to retail flour Kabul averaged \$50/ton (July 2006 to June 2007).

prices because competitive private markets can react more quickly to changing market conditions than can public institutions. Moreover, private trade often involves lower overall costs (increased economic efficiency) and minimal fiscal costs to government.

Liberalised private sector trade need not preclude modest levels of national security stocks and public distribution programs, however. For example, Bangladesh private trade added 2.5 million tons to domestic rice supplies in 8 months in 1998-99 following a major flood, and stabilised domestic prices at import parity levels. At the same time, targeted foodgrain distribution increased access to food for poor households.

Moreover, promotion of private trade to support price stabilisation need not involve blind trust in the efficiency of markets. To verify that private markets for imported grain are working well, margins between import parity (inclusive of taxes) and domestic wholesale prices can be monitored. Letters of credit data indicating the number of importing firms and their market shares can also help gauge market power of individual traders. Government dialogue with private traders can also add to transparency regarding policy and understanding of evolving market constraints and problems [Dorosh (2001)].

Nonetheless, in times of very high international prices, stabilising prices in net importing countries like Bangladesh and Afghanistan requires either releases of public stocks or subsidised sales of government imports. The volume of such interventions need not necessarily be large, though substantial inflows could be needed when a substantial domestic production shock coincides with international price rises. In designing any price stabilisation strategy, however, it is important to avoid assigning too high a probability to large shocks or assuming that the current (high price) situation will remain unchanged. There is always a possible scenario of a complete disruption to trade coinciding with major production shortfalls, but in most years large stocks are unnecessary and come at a high opportunity cost.

In conclusion, South Asia enjoyed much success in enhancing food security, by promoting agricultural growth (a supply side policy) while promoting equitable growth and, in some countries, using transfer programs to directly increase access to food by poor households (demand side policies). Continuing the best of past successful policies, including promotion of private sector trade, with flexible adjustments to policies to cope with new risks and contingencies, is likely to be the best path to enhanced food security and reductions in poverty.

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