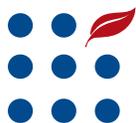




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Price Volatility in Afghanistan's Wheat Market

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Abstract

Wheat is a key staple food in Afghanistan, accounting for over half the caloric intake of the population. Although Afghanistan imports wheat and flour from a number of neighboring countries, Pakistan tends to supply more than half of these imports. Afghanistan's food supply network broke down in 2008 due to a confluence of events, including shortfalls in Pakistani and Afghan wheat production and Pakistan's bans on wheat and flour exports. Substantial price hikes were needed to bring increased flour shipments from Kazakhstan through the inefficient transport system from the North. Afghanistan will remain subject to supply disruptions and price spikes as long as its agricultural production remains highly variable and weak transportation links limit the country's ability to diversify its sources of imported grain. Improvements in infrastructure could enable Afghanistan to diversify its wheat and flour imports and bring in supplies at a lower cost.

Keywords: Afghanistan, volatility, Pakistan, wheat, flour, imports, food security, infrastructure, agriculture

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Introduction

Wheat is a key staple food in Afghanistan, accounting for over half of the caloric intake of the population. It is also Afghanistan's major crop, accounting for roughly 70 percent of the cultivated land area (Chabot and Dorosh, 2007). However, the country's domestic production of wheat is inadequate for meeting demand and, moreover, is subject to sizable weather-induced fluctuations. Imports from surrounding countries have been required in order for Afghanistan to meet its need for wheat.

The major global wheat exporters are the United States, Canada, Australia, the European Union-27, the former Soviet Union (including three major wheat exporters: Russia, Ukraine, and Kazakhstan), and Argentina. In most years, these countries account for about 90 percent of world wheat exports. However, with the exception of Kazakhstan, none of the leading exporters is a significant supplier of wheat to Afghanistan. Historically, Pakistan has supplied the bulk of Afghanistan's imported wheat and wheat flour.

The period from 2006 to 2008 witnessed an unprecedented surge in global agricultural prices, caused by a number of factors, including production decreases in major exporting countries (Trostle, 2008). Afghanistan's 2008 shortfall in wheat output was even more severe than that of major exporters—wheat production in Afghanistan fell to 1.5 million metric tons (MMT), approximately 55 percent below the previous year (USDA, 2009c).¹ Given the extreme contraction in domestic production, consumer well-being depended on access to international markets for wheat and wheat flour.

The production decreases of 2006-08 placed substantial pressure on the Afghan grain market, as well as on the markets that supply grain to Afghanistan, effectively constituting a stress test of Afghanistan's supply network. This report analyzes the role imports have played in stabilizing Afghan wheat prices by mitigating the effects of shortfalls in domestic production. The author also assesses whether Afghanistan's internal wheat markets are sufficiently connected with international markets to compensate for the volatility in domestic output.

¹ In Argentina and Kazakhstan, 2008/09 wheat production decreased by 50 and 24 percent, respectively. Wheat output increased for the other major exporters. For the eight major exporters (Argentina, Australia, Canada, EU-27, Kazakhstan, Russia, the Ukraine, and the United States), total production in 2008/09 was approximately 380 million metric tons, 24 percent above that of the previous year (USDA, 2009c).

Afghan Wheat Demand Conditions Appear To Have Strengthened

Afghanistan's economy grew substantially between 2002 and 2007, fueled by sharp increases in agricultural output in many regions, partly due to the return of more favorable weather and investments in infrastructure. On October 7, 2002, the Government of Afghanistan issued a standardized currency to reduce the likelihood of counterfeiting, a practice that warlords had begun in late 1996 (Hale, 2002). In early 2003, the Government completed its currency reform (World Bank, 2005) and issued the New Afghani to replace the pre-existing old Afghani, with a conversion rate of 1,000 old to 1 New Afghani (Maletta, 2004). Based on data from the International Monetary Fund (IMF), official (non-opium) real (adjusted for inflation) gross domestic product (GDP) grew at an annual rate of 12 percent between 2002 and 2007 (IMF, 2009). However, this rapid growth occurred from a low base—Afghanistan is still one of the poorest countries in the world, with a per capita GDP of \$352 (\$737 PPP²).

Household surveys demonstrate the centrality of wheat in Afghan food consumption patterns, as wheat accounts for approximately 60 percent of total caloric intake (Government of Afghanistan, 2003), or 162 kilograms per person per year (2002-08 average). However, considerable uncertainty surrounds estimates of both the population and consumption (approximated as the sum of domestic production and imports), implying that per capita consumption figures are likewise uncertain (see appendix, "Data Sources and Uncertainties"). Over time, rising incomes and dietary diversification will likely diminish the role of cereals in the Afghan diet, but wheat is likely to retain its importance for the foreseeable future.

² PPP=Purchasing power parity, a concept in which a given amount of U.S. dollars will purchase the same bundle of goods in all economies. In calculating purchase power parity, adjustments are made to exchange rates to raise or lower the relative value of currencies to equilibrate purchasing power.

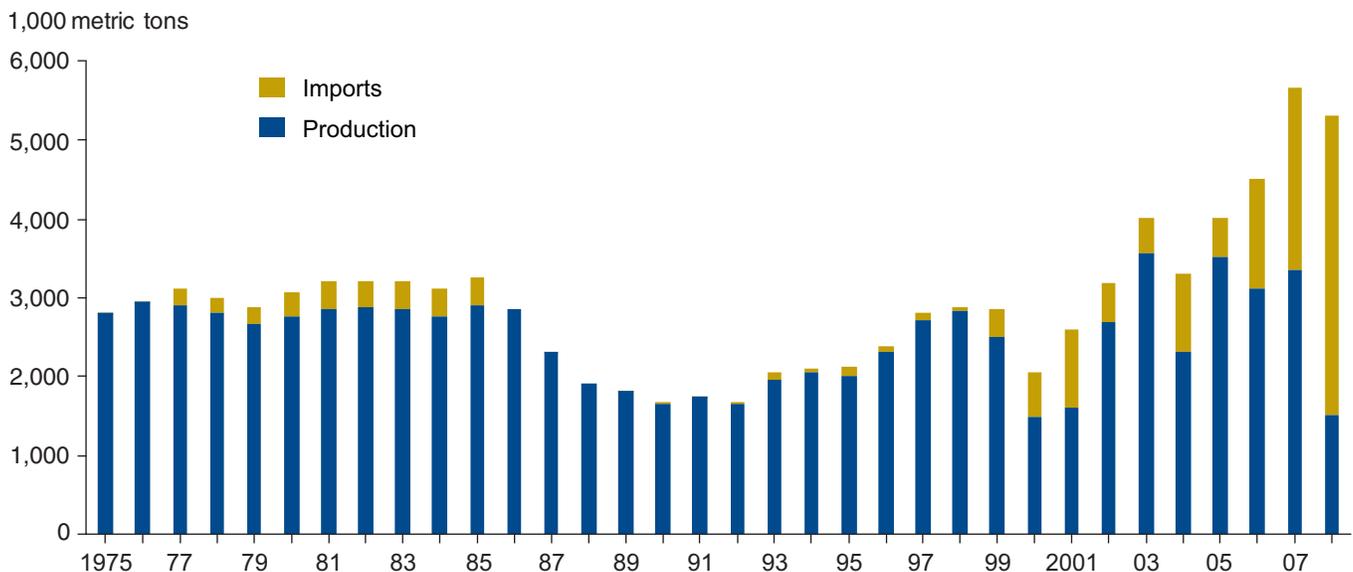
Weather and Warfare Destabilize Afghan Wheat Production

Approximately 45 percent of Afghanistan’s wheat acreage in a normal year is irrigated, accounting for about 70 percent of production. The remaining 55 percent of wheat acreage relies on timely rainfall and typically provides the remaining 30 percent of domestic production. Winter snowfall in the mountain ranges of central Afghanistan supplies over 80 percent of the country’s annual precipitation. Snowmelt in the spring is the major source of irrigation water, running through rivers and streams that originate in the mountains. Generally, little rainfall occurs during the main wheat-growing period from April to September, so the timing and duration of the annual snowmelt is a key factor in the volume of irrigation water and the length of time that it is available (USDA, 2008a).

In the early 1990s, wheat production was about 40 percent below the amounts achieved during the years just before the Soviet invasion in 1979 (fig. 1).

Grain production deteriorated from the mid-1980s through the early 1990s due to the combined effects of prolonged droughts and the destruction of irrigation networks and infrastructure during years of conflict, first between Afghan and Soviet forces and then during the civil war that followed the 1989 Soviet withdrawal. Although favorable growing conditions allowed wheat output to rebound in 1997-98, successive droughts in the following years led to substantial crop shortfalls in irrigated as well as rain-dependent areas, particularly in 2000 and 2001. Growing conditions were relatively

Figure 1
Wheat and flour supply in Afghanistan



Notes: Includes flour imports expressed in wheat equivalent. Data are on a marketing year basis. For example, 2008 refers to the period from July 2008 - June 2009.

Source: USDA, Foreign Agricultural Service, Production, Supply and Distribution (PSD) online database.

favorable between 2002 and 2007. The wheat harvest in 2003 was estimated to be 3.55 million metric tons, a level that Afghanistan achieved again in 2005 and approached in 2007.

The years of favorable wheat harvests were followed by below-average levels of rain and snow during the 2007/08 wet season, which sharply reduced Afghanistan's 2008/09 wheat crop. An atypical, early snowmelt in 2008 became problematic, as river and stream flows crested before traditional surface-irrigated crops could make much use of the water. Farmers were left with an unusually narrow window of access to irrigation water for both spring and summer crops. Extremely low precipitation levels in the spring and early summer months of 2008 exacerbated the water deficiencies (USDA, 2008a). Consequently, Afghanistan experienced the worst growing conditions since 2000, and wheat output fell accordingly; the 2008/09 crop of 1.5 million metric tons was approximately the same as in 2000/01.

Afghanistan Is Strongly Dependent on Wheat Imports from Pakistan

Imports of wheat and flour have helped Afghanistan stabilize consumption levels and meet the food needs of its growing population. These imports move even into remote areas of Afghanistan; with most rural households contributing little or no surpluses to Afghanistan's wheat market, imported flour has become more common in rural areas (Schulte, 2007). However, there is a paucity of empirical information on wheat sales within Afghanistan. In 2003, the total quantity of domestically produced wheat that was marketed may have amounted to one-fourth of the country's domestic production (Chabot and Dorosh, 2007), although in drought years marketed surpluses would be far lower. In a typical year, the northern region of Afghanistan accounts for the vast majority of the relatively small quantity of wheat that is marketed.

Afghanistan is a landlocked country, bordered on the west by Iran, on the south and the east by Pakistan, and on the north by Turkmenistan, Uzbekistan, and Tajikistan (fig. 2). Afghanistan imports wheat and flour from a number of neighboring countries. However, with a shared border of 1,600 kilometers and a long history of trade, Pakistan is the dominant supplier of wheat—primarily in the form of flour—to Afghanistan (Khan, 2007). For the period July 2001–July 2002, Maletta (2004) finds that Pakistan's share of the Afghan import market for wheat and wheat flour was 78.8 percent, while the shares for Kazakhstan and “other countries” were 19.1 and 2.1 percent, respectively. Chabot and Dorosh find that, on average over the period 2000/01–2002/03, Pakistan accounted for 59 percent of Afghanistan's wheat and flour imports; Kazakhstan's share was 34 percent, while “other countries” accounted for only 7 percent. Khan's (2007) figure is 80 percent for Pakistan's share of Afghan imports (the time period for the author's estimate is unclear). Based on data from the United Nations Food and Agriculture Organization (FAO, 2009), 85 percent of Afghanistan's imported wheat flour was of Pakistani origin in 2005. Schulte (2007) estimated that approximately 60 percent of Afghanistan's wheat and flour imports were from Pakistan in 2005/06 and 2006/07.

The Government of Pakistan (GOP) has implemented policies aimed at improving the availability of food for its population (Dorosh and Salam, 2006) (see box, “Pakistan's Wheat Policies,” for a brief summary). At the same time, Pakistani traders have strong incentives to move wheat and flour into relatively high-priced nearby markets.³

The private millers and traders of Pakistan work closely with Afghan traders (Khan, 2007). Pakistani wheat flour is widely accepted by Afghan consumers because of its quality (Schulte, 2007), and Pakistani mills extend credit to Afghan traders seeking to purchase flour (Khan, 2007).

Imports from Pakistan have helped to stabilize wheat consumption in Afghanistan. Domestic wheat production in Afghanistan has tended to be unstable, as indicated by a measure of temporal variability known as the

³ Pakistani wheat exports are largely sold to India and Iran; Pakistani flour is largely sold to Afghanistan (USDA, 2008b).

Figure 2

Afghanistan is strategically positioned between Central Asia and the Middle East



Source: Environmental Systems Research Institute (ESRI), 2006.

Pakistan’s Wheat Policies

The Government of Pakistan (GOP) intervenes in domestic wheat markets by procuring wheat from farmers through Provincial Food Departments (PFDs) at a support price. The GOP also releases wheat to the provinces for sale to the flour mills at a government fixed-issue price (USDA, 2009a). Pakistan’s flour milling industry, which is privately operated, obtains most of its wheat from PFDs based on a fixed quota (Khan, 2007).

These interventions, which tend to involve sales of wheat to flour mills at below-market rates, generate substantial profits for millers. They incur large fiscal costs for the Government, however, because the issue prices do not cover the full cost of procurement (domestic or imported), storage, and handling (USDA, 2009a; Dorosh and Salam, 2006). The quota system has provided incentives to both new and existing millers, thereby encouraging overexpansion and excess capacity in the milling sector. The growth of Pakistan’s flour mills has been concentrated in provinces neighboring Afghanistan, and a large number of mills operate only when they are able to purchase subsidized wheat from the Government (Khan, 2007). Pakistan’s domestic policies likely encourage movements of flour rather than wheat into Afghanistan, possibly discouraging investment in flour mills in Afghanistan.

coefficient of variation.⁴ With a coefficient of variation of 35 percent over the period 2000-08, Afghanistan's wheat production has exhibited more than five times the variability of Pakistan's (table 1).

Moreover, wheat production in Afghanistan is only weakly correlated with production in Pakistan, with a correlation coefficient of 0.18. Access to relatively more stable supplies of Pakistani wheat and flour has dampened fluctuations in Afghan consumption. Afghan production has been three-and-a-half times more variable than consumption, as imports have partially offset poor harvests due to droughts.

Kazakhstan, the largest exporter of wheat in the region and in recent years a dominant flour exporter, does not share a border with Afghanistan. The quantities of Kazakh wheat and flour that were exported to Afghanistan arrived via circuitous routes through Tajikistan, Uzbekistan, and Turkmenistan⁵ (Khan, 2007).

Table 1
Variability in Pakistani and Afghan wheat and flour markets

Year	Pakistan	Afghanistan		
	Production	Production	Imports	Consumption
	<i>1,000 metric tons</i>			
2000	21,079	1,469	574	2,043
2001	19,024	1,597	1,000	2,597
2002	18,227	2,686	500	3,186
2003	19,183	3,550	450	4,000
2004	19,500	2,293	1,000	3,293
2005	21,612	3,500	500	4,000
2006	21,277	3,100	1,400	4,500
2007	23,300	3,350	2,300	5,650
2008	21,500	1,500	3,800	5,300
Standard error	1,322	884	772	402
Mean	20,522	2,561	1,280	3,841
Coefficient of variation	6	35	60	10

Notes: Wheat flour quantities are included on a wheat-equivalent basis. Consumption is approximated as the sum of production and imports. Data are on a July-June marketing year basis.

Sources: Production, import, and consumption quantities are from USDA's Production, Supply and Distribution online database; standard errors, means, and coefficients of variation are author's calculations.

⁴ The coefficient of variation is computed as the ratio of the standard error to the mean, where the standard error in the numerator is from a regression on a time trend. This ratio is expressed in percentage terms by multiplying it by 100.

⁵ Based on data from the World Trade Atlas and USDA's Production, Supply and Distribution database, Kazakhstan accounted for, on average, 25 percent of Afghan wheat and flour imports over 2004-08.

Afghan and Pakistani Markets Are Closely Connected

Pakistan has, for the most part, been a reliable supplier of wheat and flour to Afghanistan, and grain markets in Afghanistan have continued to function despite armed conflicts, frequent droughts, and poor infrastructure. Although access to some areas of Afghanistan is extremely difficult, imported foods are seen in almost all markets throughout the country, indicating that food reaches even the most isolated areas (World Food Programme, 2005). Impediments such as transportation bottlenecks and instability have not generally prevented imports or interregional wheat and flour movements, however, because there are well-established formal and informal arrangements that enable ample commerce in these commodities (Schulte, 2007).

Afghanistan's Ring Road has a critical role in removing physical constraints to trade. Extending from Kabul to Kandahar to Hirat before looping back to Kabul, the Ring Road was designed to link major cities in Afghanistan. Although not yet complete, the road has already generated economic benefits by enhancing connectivity among regions of the country. Approximately 60 percent of Afghans now live within 50 kilometers of the road (USAID, 2009a).

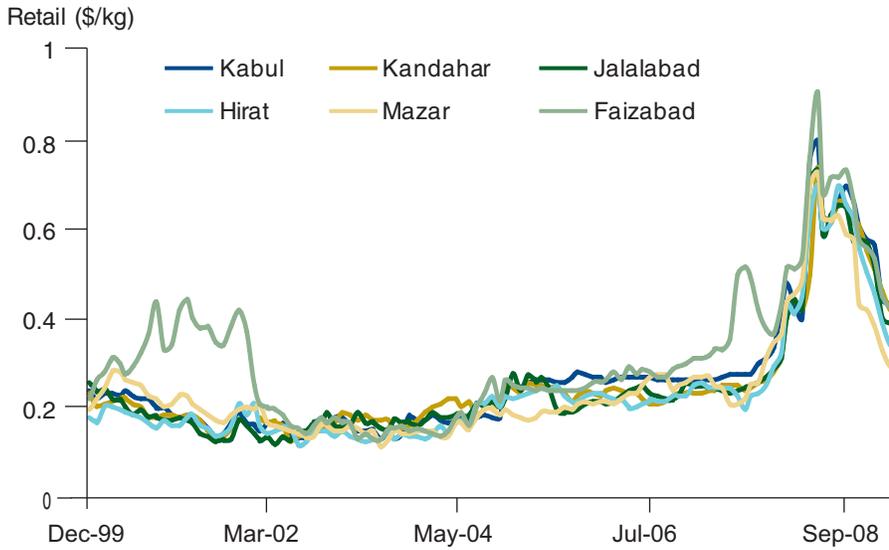
Pakistani flour passes through key wholesale markets in Kandahar and travels even into the western part of Afghanistan near the Iranian border. The majority of the flour in the Hirat markets is of Pakistani origin, while very little is from Iran. Kazakh flour is routed to Hirat via the northern border post of Tourghundy, directly above Hirat. Flour movements from Hirat into the Badghis and Ghor provinces have been reported. Pakistani flour also arrives at Jalalabad/Torkham, and from there it is routed to Kabul (Schulte, 2007).

In contrast to many of the other regions of the country where Pakistani flour dominates, in the Mazar area of Afghanistan, Uzbekistan and Kazakhstan account for the dominant share of imported wheat. Pakistan faces a competitive disadvantage against low-priced Uzbek flour. After arriving in Mazar, wheat and flour from Central Asia are transported to the north and central regions of Afghanistan and, to a lesser extent, to Kabul (Schulte, 2007).

Using monthly data for January 2002 through June 2005, Chabot and Dorosh (2007) conducted formal econometric tests to explore issues of (a) market integration between major markets within Afghanistan, and (b) market integration between Pakistani and Afghan markets. Chabot and Dorosh's co-integration results suggest that wheat prices in major markets in Afghanistan and in Lahore, Pakistan, tend to move together in the long run.

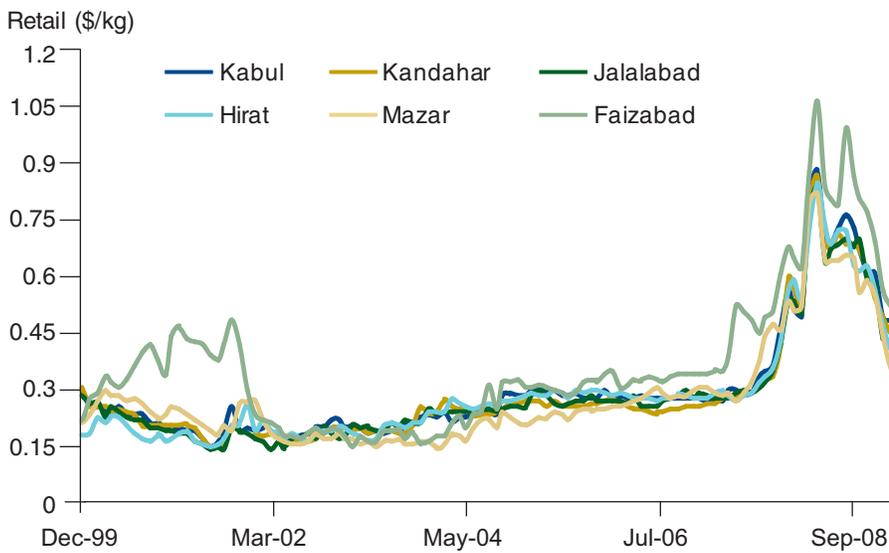
In addition, regional wheat and flour markets in Afghanistan appear, on the basis of price behavior, to be reasonably well connected with one another. Prices across different localities exhibit the same general movements and patterns (figs. 3 and 4).

Figure 3
Wheat prices in Afghanistan



Source: World Food Programme (WFP) of the United Nations.

Figure 4
Flour prices in Afghanistan



Source: World Food Programme (WFP) of the United Nations.

For example, wheat and flour prices in the northern (wheat surplus) region of Mazar-e-Sharif tend to move together with wheat and flour prices in the southern (wheat deficit) region of Kandahar, as indicated by correlation coefficients of 0.92 and 0.95, respectively (tables 2 and 3). Co-movements are lowest, though still considerable, between the relatively remote area of Faizabad and the other regions of the country. Since Pakistan is a major player in the Afghan grain market, wheat and flour prices from Peshawar in Pakistan are reasonably well correlated with prices in Afghan markets. In contrast, wheat prices in Afghanistan and the United States are not as highly correlated (tables 2 and 3).

Table 2

Correlation coefficients for wheat prices in Afghanistan, Pakistan, and the United States, January 2000-April 2009

Country/Region	Afghan markets						United States	Pakistan
	Kabul	Kandahar	Jalalabad	Hirat	Mazar	Faizabad	(LA gulf ports)	(Peshawar)
Afghanistan								
Kabul	1.00							
Kandahar	0.97	1.00						
Jalalabad	0.98	0.98	1.00					
Hirat	0.98	0.98	0.98	1.00				
Mazar	0.94	0.92	0.94	0.95	1.00			
Faizabad	0.86	0.84	0.84	0.87	0.90	1.00		
U.S. (LA Gulf ports)	0.62	0.59	0.62	0.62	0.65	0.57	1.00	
Pakistan (Peshawar)	0.94	0.92	0.92	0.92	0.88	0.80	0.76	1.00

Source: Computed by author using data from Wheat Data: Yearbook Tables for U.S. and Foreign Wheat Prices (USDA, 2009b); Price Analysis in Afghanistan (World Food Programme, 2009); and Monthly Review of Price Indices, Government of Pakistan (various issues).

Table 3

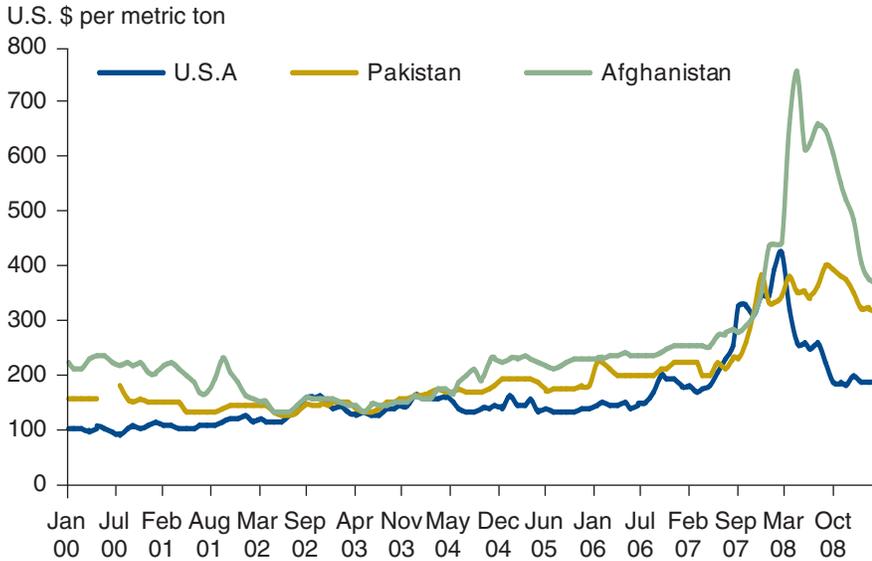
Correlation coefficients for prices of wheat flour in Afghanistan and Pakistan, December 2003-April 2009

Country/Region	Afghan markets						Pakistan
	Kabul	Kandahar	Jalalabad	Hirat	Mazar	Faizabad	(Peshawar)
Afghanistan							
Kabul	1.00						
Kandahar	0.99	1.00					
Jalalabad	0.99	0.99	1.00				
Hirat	0.98	0.98	0.98	1.00			
Mazar	0.95	0.95	0.95	0.94	1.00		
Faizabad	0.90	0.90	0.89	0.88	0.94	1.00	
Pakistan (Peshawar)	0.89	0.87	0.88	0.87	0.90	0.91	1.00

Source: Computed by author using data from Price Analysis in Afghanistan (World Food Programme, 2009), and Monthly Review of Price Indices, Government of Pakistan (various issues).

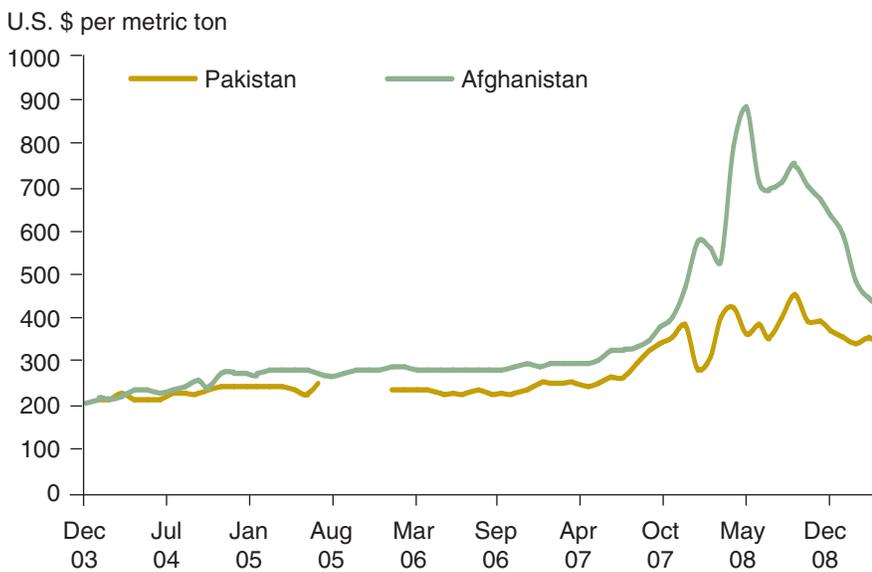
Although Afghanistan's production of wheat fluctuated sharply during 2000-06, domestic wheat prices were fairly stable, which would suggest that trade helped to dampen price variability in Afghanistan within this timeframe. From January 2000 to December 2007, wheat prices in Afghanistan followed those in Peshawar, Pakistan reasonably closely (fig. 5). The same is true for flour prices, although Pakistan's flour price data are only available from December 2003 onward (fig. 6).

Figure 5
International wheat prices



Notes: Pakistani wheat prices are Peshawar wholesale prices; Afghan wheat prices are simple averages of prices from Kabul, Jalalabad, Mazar, Faizabad, Hirat, and Kandahar.
 Sources: U.S. wheat prices are from Wheat Data: Yearbook Tables for U.S. and foreign wheat prices (USDA, 2009b); Afghan wheat prices are from the U.N. World Food Programme's Price Analysis in Afghanistan. Pakistan's wheat prices are from Government of Pakistan, Monthly Review on Price Indices (various issues).

Figure 6
Flour prices in Afghanistan and Pakistan



Notes: Pakistani flour prices are Peshawar retail prices; Afghan flour prices are simple averages of prices from Kabul, Jalalabad, Mazar, Faizabad, Hirat, and Kandahar.
 Sources: Afghan flour prices are from the U.N. World Food Programme's Price Analysis in Afghanistan. Pakistan's flour prices are from Government of Pakistan, Monthly Review on Price Indices (various issues).

The Afghan Wheat Market Is Vulnerable to Disruptions in Supplies from Pakistan

Afghanistan's heavy reliance on Pakistan for imported wheat leaves Afghanistan vulnerable to supply shortfalls in Pakistan, as well as to Pakistan's export bans. The Government of Pakistan (GOP) overestimated the country's wheat production in 2007, and in April of that year it removed the ban on wheat exports that had been imposed in 2003. On May 25, 2007, the GOP once again imposed an export ban, but not before Pakistani traders had exported 500,000 metric tons of wheat in response to high international prices (USDA, 2007). Pakistan's wheat harvest decreased in 2008 to 21.5 million metric tons from 23.3 million metric tons in the previous year. Also contributing to Pakistan's tight market in 2008 were its record exports of approximately 2 million metric tons (despite the export ban), mainly flour to Afghanistan, through unofficial channels (USDA, 2009a; USDA, 2008b).

Pakistan's ban may have had some effect on wheat and flour movements in the sense that exports would have been even greater in the absence of trade restrictions. However, two additional factors contributed to reducing exports to Afghanistan: Pakistan itself had to resort to importing wheat later in 2008 (USDA, 2009a), and there was increased armed conflict in major transport corridors along the Pakistani border (USDA, 2009d). The supply situations in Afghanistan and Pakistan allowed Kazakhstan to increase its exports to Afghanistan to an unprecedented level of 1.3 million metric tons, or 34 percent of the Afghan import market. However, substantial price hikes were needed to bring these increased Kazakh flour shipments through the very inefficient transport system from the North. Thus, increased exports from Pakistan and Kazakhstan were not sufficient to fully offset the relatively large contraction in Afghanistan's 2008 wheat harvest.

The consequences of the supply shortfall in 2008/09 were twofold. Consumption in Afghanistan fell to 5.3 million metric tons in 2008 from 5.7 million metric tons in the previous year, although these figures are uncertain as data on stocks are not available. In addition, the 2008 price spikes in Afghanistan far exceeded those observed in either Pakistan or the United States (figs. 5 and 6). Up until December 2007, the Afghanistan-Pakistan price gaps for wheat and flour were relatively low and stable. This changed dramatically in the ensuing months, during which prices in Afghanistan rose substantially faster than those in Pakistan. For example, in May 2008, the price of wheat in Afghanistan was \$751 per metric ton, while in Pakistan and the United States it was \$350 and \$255 dollars per metric ton, respectively. It is likely that Afghanistan could have avoided such dramatic price increases if the country had lower cost access to more diversified international sources of wheat and flour, although Afghanistan would not have altogether escaped higher grain prices since global prices were also high.

After May 2008, Afghan-Pakistani price gaps decreased as domestic prices in Afghanistan fell faster than those in Pakistan. In September 2009, USDA forecast a sharp rebound in Afghanistan's 2009/10 wheat crop to a record 4.1 million metric tons (USDA, 2009c). Yield is forecast to rise to 1.64 metric tons per hectare in 2009/10, a 74-percent increase over the previous

year. Excellent growing conditions, allowing area expansion and higher crop yields, should benefit Afghanistan's wheat farmers, and lower grain prices should substantially improve the welfare of Afghanistan's consumers relative to the previous year. However, despite the favorable shortrun outlook, the basic factors that put Afghanistan at risk—susceptibility to weather-induced agricultural supply shocks and Pakistani trade restrictions—remain in force.

These risks may be ameliorated through improvements in infrastructure that could provide Afghan consumers with lower cost access to wheat and flour. Currently, Uzbekistan's railway network, which stops at the border town of Hairatan, does not enter into Afghan territory. Consequently, trains carrying Central Asian wheat and flour must be offloaded onto trucks, causing delays and increasing costs. If completed, the 75-km planned railway connecting Hairatan, Uzbekistan, and Mazar-e-Sharif in northern Afghanistan could reduce bottlenecks at the border (ADB, 2009). Kazakhstan may also benefit from the planned railway, since its flour exports are transshipped through Uzbekistan before reaching Afghanistan. However, given the security situation in Afghanistan, railways may be particularly vulnerable, implying high maintenance costs and transport disruptions.

Road transit corridors currently under construction include a major national highway in the north from Kishim to Faizabad. This highway, which is 70 percent complete, is likely to improve accessibility to the remote area of Faizabad. When completed, the Kandahar-Bikah road in the south, which would increase access to the border crossing at Spin Boldak (USAID, 2009b), may enhance Afghan-Pakistani commerce and trade volumes. A factor that could enhance Central Asia's share of the Afghan import market is improved connectivity between Mazar-e-Sharif and Hirat.

Conclusions

Wheat is Afghanistan's major food staple. Domestic production is highly variable, and imports from surrounding countries have a key role in stabilizing food consumption. Afghanistan depends heavily (though not exclusively) on one supplier, Pakistan, for imported wheat and flour. Pakistan has, for the most part, proved a reliable supplier; indeed, Pakistan's domestic policy interventions have helped to subsidize flour prices in Afghanistan. Up through December 2007, wheat and flour prices in these two countries tracked each other reasonably well, and price gaps were relatively small and stable. However, Afghanistan's food supply network broke down in 2008 due to a confluence of events, including shortfalls in both Pakistani and Afghan wheat production and Pakistan's bans on wheat and flour exports. Consequently, wheat and flour prices in Afghanistan increased well above those in Pakistan. Substantial price hikes were needed to bring increased Kazakh flour shipments through the very inefficient transport system from the North. Improvements in infrastructure could permit Afghanistan to diversify its wheat and flour imports and supplement domestic production at a lower cost.

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Data Sources and Uncertainties

There is considerable uncertainty surrounding estimates of population, production, consumption, and trade flows for Afghanistan. Total population estimates are approximations, since large segments of the population flow in and out of the country, including the seasonal movement of nomadic tribes into Pakistan and the large return of refugees in 2002-04, both of which were difficult to count accurately.

The Food and Agriculture Organization (FAO) and the World Food Programme (WFP) develop crop production estimates for Afghanistan, working under adverse conditions of war, rural insecurity, and poor transport infrastructure, while also coping with tight budget and time constraints. Government data at the provincial level are limited, and this further increases the difficulties of quantifying crop production for Afghanistan as a whole (Chabot and Dorosh, 2007). From 2000 forward, Afghan wheat production estimates from FAO are strongly correlated with USDA Production, Supply and Distribution (PS&D) data. This report uses PS&D data, since this source provides data through 2008, as well as estimates for 2009.

Estimates of trade flows are uncertain—reliable independent customs data on Afghanistan's wheat imports are not available (Chabot and Dorosh, 2007), and there is a great deal of unofficial cross-border trade. The USDA PS&D online database may provide the best estimates of wheat and flour imports. Based on Foreign Agricultural Service (FAS) Global Agriculture Information Network (GAIN) reports as well as conversations with FAS Agricultural Specialists from Islamabad, market sources are utilized to account for official and unofficial trade in the USDA PS&D import numbers for wheat and flour. Although trade figures are uncertain, various sources such as FAS GAINS reports, United States Agency for International Development (USAID), the United Nations World Food Programme, and the World Trade Atlas agree that Pakistan is the dominant supplier of wheat (primarily in the form of flour) to Afghanistan. Kazakhstan ranks a distant second in most years, but revised trade data indicate a significant increase in 2008/09 Kazakh wheat and flour exports to Afghanistan that moderated the drop in Afghan consumption.

This report uses price data collected by the World Food Programme (WFP) in the six major cities of Afghanistan: Kabul (the capital), Kandahar in the southwest, Hirat in the west, Mazar-e-Sharif in the northern province of Balkh, Fayzabad in Badakhshan province in the northeast, and Jalalabad in the eastern province of Nangarhar. WFP price data are useful for evaluating the affordability of food for low-income segments of the population. By design, the data series represents the lowest priced food varieties available in urban bazaars. Consequently, the average retail prices in these cities are likely to be higher than the WFP price series. Nevertheless, the data collection method is straightforward and consistent: WFP data collectors identify the minimum price after recording a sample of prices in different stalls of each bazaar (Maletta, 2004). No data exist on producer prices in Afghanistan, and the WFP prices are likely to overstate farm producer incentives.