

# Market Assessment - Secondary Data Analysis

## KYRGYZSTAN



April 2013  
Data collected in  
January 2013



**World Food Programme**



# MARKET ASSESSMENT IN KYRGYZSTAN

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*Secondary Data Review*

April 2013

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WFP, Analysis & Nutrition Service

*Data collection: January 2013*

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## ACRONYMS

CFW/T	Cash for Work/Training
CMA	Centred Moving Average
C&V	Cash and Vouchers
FAO	United Nations Food and Agriculture Organization
FOB	Free-on-board
GDP	Gross Domestic Product
GSI	Grand Seasonal Index
IDR	Import Dependency Ratio
IMF	International Monetary Fund
KGS	Kyrgyzstani Som
PRRO	Protracted Relief and Recovery Operation
SSR	Self-Sufficiency Ratio
USD	US Dollar
VAT	Value added tax
VAM	Vulnerability analysis and mapping
WFP	United Nations World Food Programme

## ACKNOWLEDGEMENTS

The authors wish to acknowledge contribution and support from Michael Huggins, Keigo Obara, Aizhan Mamatbekova, Farhod Haidarov and all the colleagues in WFP Kyrgyzstan Country Office involved in the preliminary report consultations and the traders' interviews held in Bishkek and Osh. Oscar Gobbato supported the team with his mapping expertise. We also benefited from discussions and contribution from Issa Sanogo, Levan Tchatchua, Fang Cheng, and Susana Moreno.

All the errors remain with the authors.

## EXECUTIVE SUMMARY

The Kyrgyz Republic is a landlocked country bordering with Kazakhstan, Uzbekistan, Tajikistan and China, with a population of approximately 5.5 million.

The economy of the Kyrgyz Republic is driven by a dominant agricultural sector and gold-mining. The country largely depends on the economic growth in the Russian Federation and Kazakhstan, including the substantial remittance flow from those countries, and the import dependency for a number of food commodities such as wheat flour, vegetable oil and others.

In the past few years it has gone through several crises: the revolution of 2005; extreme winter crisis of 2008 and 2009 followed by drought and surges in food and fuel prices; the revolution of 2010; and the ethnic conflict in 2010. Since 2010, a high level of political instability has prevailed, aggravated by a worsening economic backdrop, and increasing poverty.

In September 2012, WFP's food security monitoring indicates a sharp increase in the percentage of households with poor food consumption scores, particularly in Jalal-Abad and Osh oblasts.

Wheat is the most important item for caloric contribution, providing 38% of total energy intake, while milk and sugar provide respectively 12% and 8%, followed by potatoes, meat and maize (7% each).

All staples are produced domestically, but supplies of sugar, vegetable oil, and flour are not enough to meet the demand, thence imports play a key role to supplement food utilization. Kyrgyzstan is a net exporter of vegetables. About 45% of cereals available in the country are used directly as food.

Most of the cropland is concentrated in the Fergana oblasts in the south, and close to the Kazak border in the north. Talas province is the most productive region in terms of per capita production, even though the major grain basket is the northern Chuy Province, producing 38% of the national total. On the other hand, the central and southern provinces (Osh, Jalal-Abad, Batken and Naryn) produce relatively little wheat compared to the size of their population.

Production of cereals peaked in 2009/10 at 1.85 million tonnes, but has gradually declined in the following three years, dropping by some 30%. The cultivated area plays a clear role in this variation, but the major factor is the productivity, especially the yield of wheat.

In order to cover the resulting gap, the country de-stocked a significant proportion of its grain reserves (43%), reducing the stock-to-use ratio from 50% in 2011/12 to 28% the next year, which means a cutting off of strategic stocks from 182 to 102 days' worth of supply.

To cope with potential future food shortages, recent wheat imports increase had also the objective of rebuilding the strategic stocks of the country. However, it is worth noting that in 2011 wheat grain imports dramatically declined, partially offset by major imports of wheat flour, presumably a result of damaged milling infrastructures following 2010 violence outburst. Looking only at domestic production and utilisation, it is clear that the country is limitedly self-sufficient.

By far Kazakhstan is the most important exporter of wheat/flour to Kyrgyzstan, supplying it via rail either into Bishkek or through Uzbekistan into Jalal-Abad and Osh oblasts. Internal flows from

Bishkek to Osh, Naryn and Ysyk-Kol are secured by trucks, although provisions from Bishkek to Osh are limited by the restricted loading capacity of trucks and challenged by the mountainous terrain. Besides official channels, informal trade still occurs in Osh as a consequence of the smuggling activities started at the onset of civil violence in 2010.

Wheat is imported by a limited number of big companies that also perform the milling process. Residual quantities of flour are supplied locally within provinces, and intended for local consumption only.

The import dependency makes wheat market in Kyrgyzstan prone to international price vagaries although price volatility was also fuelled by the outburst of violence and ethnic clashes. As a matter of fact, inflation is steadily increasing since 2007, driven both by food and non-food items, and it is fully accountable for the increase in nominal prices. The growth pace has definitely been smooth for non-food prices, while it has been more volatile for food items. Considering that both qualified and unqualified wages have not been re-adjusted according to inflation, the households' purchasing power has been severely affected.

Most of the commodities in the Consumer Price Index presented volatility equal to or higher than 30%, in particular fruits and energy-related commodities. Bakery products and cereals presented substantial variability, as did meat and dairy products. Seasonal effects on prices are limited for cereals, being longer-term cycles linked to broader international price evolution most effective in driving domestic prices.

As Kyrgyzstan is highly vulnerable to external shocks, price changes of export milling wheat in neighbouring Kazakhstan inform constantly on the evolution of domestic prices. In terms of market-based interventions and according to historical price trends, when export wheat prices in Kazakhstan diverge from international prices, there may be concerns about likely and abnormal forthcoming changes in Kyrgyzstan local wheat prices.

In the last quarter of 2012, wheat prices peaked once again up to levels comparable with the spikes in 2011 and to a lesser extent 2007/2008. Still, as of October-December 2012 quarter, the yearly change of Kazakhstan wheat prices is yet to be fully transmitted to domestic prices, even though upturn price pressure in Jalal-Abad, Naryn and Osh is quite substantial. Based on previous year-on-year fluctuations, apparently local prices are more elastic to exogenous increases than to decreases. In real terms, the quarterly price changes confirm that price levels in 2012 achieved an alarming threshold.

Market integration is the pre-condition to avoid that increased liquidity deriving from market-based interventions would trigger higher inflation. Within the country, price correlations (which may be used as a proxy for market integration) are extremely strong, suggesting that price signals follow the same patterns. Similarly, correlations with international prices are high as well, with Osh prices slightly less correlated.

Focusing on Bishkek and Osh, wheat flour prices in the former have been generally 20-30% higher than in the latter market between 2005 and 2007, while in early 2010 and almost entirely in 2012 price differentials have swapped, i.e. prices got higher in Osh than in Bishkek, at times even more



than 10%; thus suggesting a relatively recent structural change in Osh market functioning, distorting its effectiveness as compared to Bishkek in the past year and a half.

This could indicate changes in the supply pattern and hint to increased challenges to channel supply to Osh. In fact, price differentials in Osh may reveal add-ons beyond the pure transaction costs to move commodities over there which are not occurring in other markets. Thence, the more prices in Osh depart from Bishkek and other places, the more likely its market functioning may be affected.

Price volatility is a major source of risk for poor and vulnerable households' purchasing power. In order to correctly design market-based transfers and avoid misinterpretation of price increases during the implementation phase, another relevant component is the intra-annual volatility, thence incorporating seasonality in the analysis.

Between October 2006 and December 2012, volatility ranges between 26-29% in the domestic markets, in line with Kazakhstan (33%). Limited seasonal changes are more likely in Osh than in Bishkek. Prices in Osh tend to be higher than Bishkek from September, once the harvest season is over, up to February, therefore suggesting that once local supply is weaker, trade flows are not able to fully compensate it. In order to confirm or discard this conclusion, further evidence on the market functioning and bottlenecks in Osh would be advisable.

Since price volatility is an issue, it may be useful to buffer the value of cash/vouchers against inflation, by setting the upper price band derived from price forecasts as a contingency value to secure the transfer value to beneficiaries.

In 2013 wheat flour prices in Bishkek are expected to be close to 30 KGS/kg throughout the year and temporarily increasing to 33KGS/kg in October. However, this forecast is less accurate in June and October where deviations of up to respectively  $\pm 3$  and  $\pm 5$  KGS/kg are likely. In Osh, wheat flour prices are forecasted to gradually decrease to 30 KGS/kg in July and then increase again to 34 KGS/kg in November, with a likely margin of error of  $\pm 4$  KGS/kg in both June and October. However, since these forecasting exercise builds on historical prices available (2007-2012), by no means can these projections take into account abnormal and/or forthcoming shocks, and vigilant monitoring of the actual prices is important.

With regards to other food items, most of the prices peaked in mid-2011, and with few exceptions remained at high levels. Among those, cabbage, maize, onion, and potatoes prices would require a close monitoring, as well with mutton, beef, vegetable oils and beans to a lower extent. Differently, rice, sugar, chicken, and bread are less likely to present price changes as such to hinder the value of the transfer, at least in the short run.

It is worth noting that within the food basket, the share of each category does not change significantly across the years and within the quarters, as cereal and meat products constantly account for 60% of the total cost (30% each), while vegetable oil some 13-14% and sugar 7-9%. Even though there may be relevant changes within the broader categories, still those percentages may be useful to derive the composition of food vouchers.

According to the report findings, and noting that primary data collection may have nuanced differently the evidence accrued so far, it can be concluded that market-based interventions are

appropriate in Kyrgyzstan, in particular in major cities, where traders can channel food adequately and where apparently additional inflation risk fuelled by cash/voucher programme is limited.

One of the risk factors is the limited number of wheat importers, who in general are also involved in processing the commodity. The involvement of those actors in the programme to prevent artificial alteration of the supply may therefore be explored. Besides, reduced availability resulting from Kazak supply drawbacks remains the major threat, potentially hindering the overall feasibility of market-based interventions.

The evidence suggests that Osh market behaves slightly differently from other markets in the country, as supply may be relatively more dependent on local production and its seasonality rather than on commercial flows from Bishkek or Kazakhstan. Additional monitoring is therefore recommended during the initial implementation phase of cash/voucher transfers.

## 1. BACKGROUND

The Kyrgyz Republic has gone through several crises since independence: the revolution of 2005; extreme winter crisis of 2008 and 2009 followed by drought and surges in food and fuel prices; the revolution of 2010; and the ethnic conflict in 2010. Since 2010, a high-level of political instability has prevailed, aggravated by a worsening economic backdrop, increasing poverty, endemic corruption, and disillusionment with the current government's vision of democracy. The Kyrgyz Republic is yet again at a peak of tensions which unleashed an inter-ethnic crisis that saw 400 people killed, tens of thousands displaced, and hundreds of thousands flee the country as refugees.

The Kyrgyz Republic is a net importer of food items and as such is held hostage to exogenous factors which have a direct impact on local food availability and costs. This was seen in 2010 and exacerbated the reliance of vulnerable groups on international food assistance.

In accordance with WFP's strategic shift from food aid to food assistance, the Country Office clearly indicated the intention of starting Cash for Work/Training (CFW/T) activities within the framework of the PRRO 200036.

With the growing recognition that market-based approaches can be effective and appropriate tools to provide food assistance to beneficiaries when markets are properly functioning and food is available, this document presents preliminary market analysis in order to support decision making with regards to ascertaining the appropriate transfer modality in case of a rapid deterioration of the food security situation.

The report is organized as follows. In the first part insights on the macroeconomic factors as well as a background on the overall drivers to food insecurity and households' food consumption profile are presented. Then, key staple commodities are identified in terms of food availability, mostly focusing on grains. Specifically for wheat, the supply chain and a map of trading flows is sketched. Last part describes historical market conditions, i.e. price trends for selected commodities including seasonality, volatility, and market integration. Concluding remarks attempt to summarize the main findings and provide recommendations.

## 2. Methodology

This market assessment is to a large extent based on secondary data analysis. This includes the analysis of food price and consumer price index data from the National Statistical Committee of the Kyrgyz Republic, commodity prices from the International Monetary Fund (IMF), the APK-Inform Agency and food prices of the WFP Food Price Data Store, analysis of food balance sheets and of various reports and publications on food markets and the Kyrgyz economy. In order to enhance the understanding of the markets, WFP Country Office staff in January 2013 interviewed 22 importers, wholesalers, processors, and retailers of wheat flour, noodles and vegetable oil using a semi structured interview outline. These traders in Osh and Bishkek were purposely sampled.

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### 3. MACROECONOMIC FACTORS

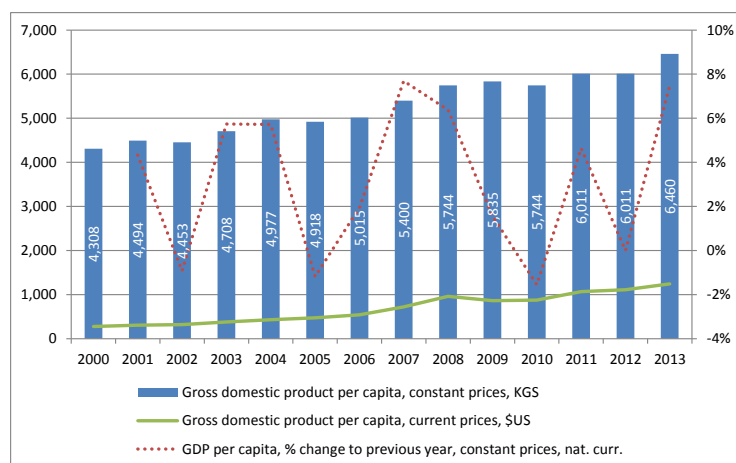
Kyrgyzstan is a landlocked, low income country. While being very dependent on exporting gold, the Kyrgyz economy has also a **dominant agricultural sector** with more than 38%<sup>1</sup> of the working population employed in this sector. Meat is among the most important agricultural products, apart from tobacco, cotton and wool.

The GDP in 2012 was estimated to be approximately 6,000 Kyrgyzstan Som (KGS) per capita, equivalent to USD 1,109 per capita. Except for 2011, economic growth declined since 2008. In 2010, socio-political unrest and violence outburst lead to “*substantial damages to infrastructure and buildings, weakening private sector confidence, contraction of liquidity in the banking system and massive stress on public finance*”, and the real GDP declined by 1.4% as a consequence of “*the closure of international borders [...], disrupted agricultural production, trade and other services*” (Jenish and Kyrgyzbaeva, 2012).

The Economic Intelligence Unit notes that in 2012, the real GDP contracted by almost 1%. This is due to a change in the production profile of a gold mining company. Reduced exports of gold coupled with increasing imports have led to an increasing account deficit of 12%. Furthermore, the **foreign debt level** is estimated to have reached KGS 161 Billion in 2012 which is **55% of the GDP**<sup>2</sup>.

A **strong flow of remittances** to the Kyrgyz Republic, especially from people working abroad in Russia, form a significant part of the Kyrgyz economy and underline the dependency from the health of other economies, e.g. the economic growth in Russia and the strength of the Russian Rouble. In 2012, remittances were at almost 28% of the GDP in 2012, supporting fiscal stability<sup>3</sup>.

Figure 1 - GDP per capita and growth rate, Kyrgyz Republic



Source: IMF WEO indicators ([www.imf.org](http://www.imf.org))

<sup>1</sup> In 2009; see FAO (2011)

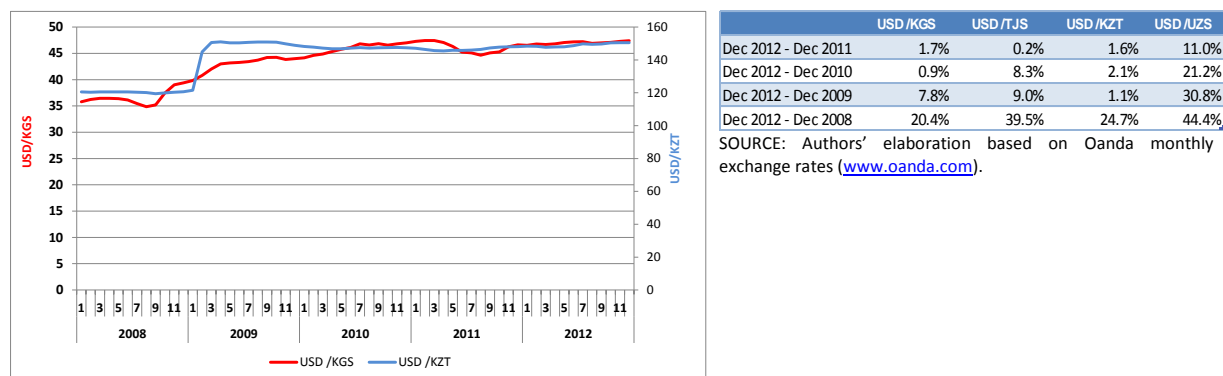
<sup>2</sup> International Monetary Fund, WEO indicators

(<http://www.imf.org/external/pubs/ft/weo/2012/02/weodata/weoselgr.aspx>)

<sup>3</sup> Economic Intelligence Unit

The **exchange rates of the local currency** and of neighbouring countries **with the US Dollar have been fairly stable in 2012**, except for the Uzbekistani Som. Yet, when a longer timeframe is considered, a more significant devaluation is exhibited, i.e. 20% devaluation over the four years from December 2008-2012 for the KGS. Given the import dependency for a number of food commodities (see chapter 5), it can be expected that **major currency fluctuations would have an impact on the trade balance and foreign debt liabilities**.

Figure 2 - Exchange rates with USD



Source: Oanda monthly exchange rates – mid rates ([www.oanda.com](http://www.oanda.com))

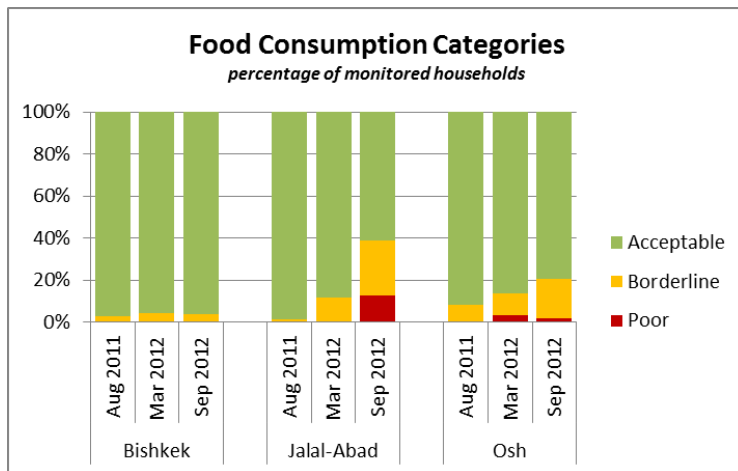
## 4. DRIVERS TO FOOD INSECURITY

Albeit the share of poverty headcount was declining since 2005, according to the latest figures available some 33.7% of people were deemed to be poor in 2010. Noteworthy, that year inverted the trend reported in the previous four. When households' trajectories in and out poverty are taken into account, the most of these people are found to be chronically poor, being trapped into poverty both by *spatial disadvantages*, occurring predominantly in rural oblast as Jalal-Abad, Talas, and Naryn; and by *poor working opportunities*, that are mostly adverse for peasant farmers (Bierbaum and Gassmann, 2012).

### 3.1 Food Insecurity

During the second-half of 2012, Kyrgyzstan **households' food security is challenged by the impact of real wheat flour price increases** on the cost of the basic food basket. In September 2012, WFP's food security monitoring information indicates a sharp increase in the percentage of households with poor food consumption scores, particularly in Jalal-Abad and Osh oblasts, where the highest wheat flour price increases are reported (WFP, 2012). In Jalal-Abad, this percentage increased from less than 0.5% in March 2012 to 13% in September. In addition, some 26% more were at the edge of falling into the poor food consumption score category. In Osh oblast, 19% of the monitored households are classified in the borderline food consumption score group, from 10% in March 2012.

Figure 3 - Food consumption categories

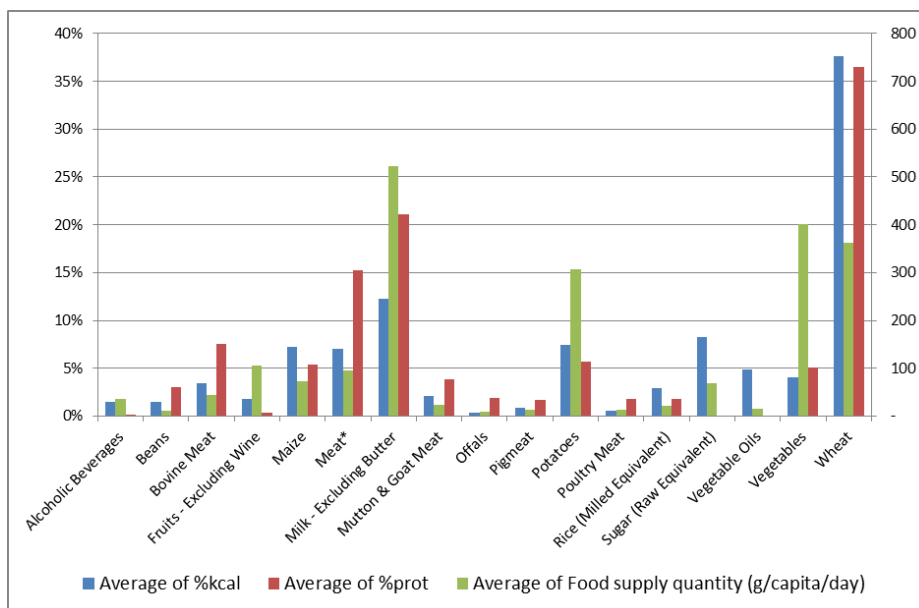


SOURCE: WFP, Emergency Food Security Assessment

### 3.2 Food Consumption Profile

In terms of quantities consumed, the **most important food items in the average Kyrgyz diet are milk, vegetables, wheat and potatoes** (Figure 4).

Figure 4 - Relative importance of different food commodities in the average Kyrgyz diet, in terms of quantity consumed (g/capita/day), caloric contribution and protein contribution<sup>4</sup> (%)



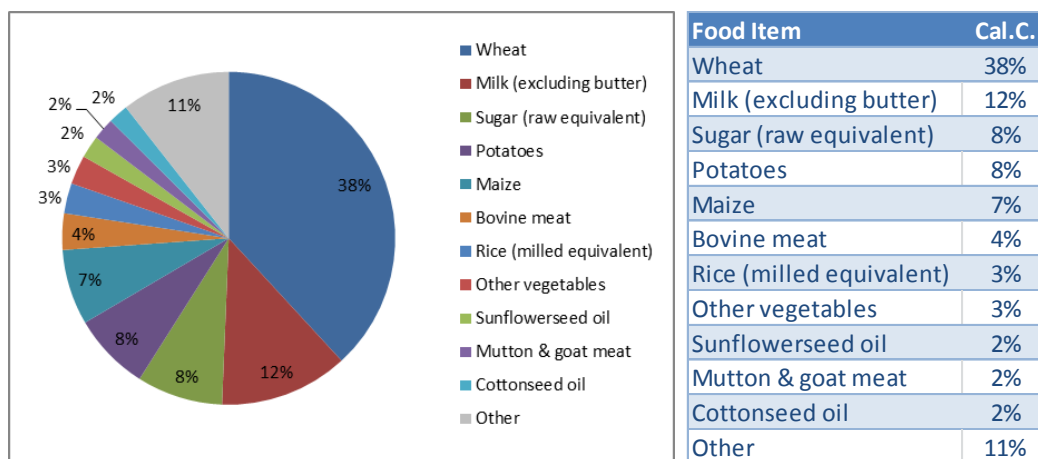
SOURCE: FAOSTAT

\*Note: "Meat" is an aggregation of 4 sub-categories: Bovine Meat, Mutton & Goat Meat, Pig Meat and Poultry Meat

However, **in terms of caloric contribution, wheat is clearly the single most important item, providing 38% of the energy** (Figure 5). Milk and sugar come second and third (providing respectively 12% and 8%), while potatoes, meat and maize are on par with 7% contribution each.

<sup>4</sup> Average caloric consumption between 2005 and 2009 has been 2,741 kcal/capita/day, protein intake 84.4 g/capita/day, and fat intake 60.9 g/capita/day.

Figure 5 - Food Consumption Share, in caloric contribution (%)



SOURCE: FAO, Food Consumption Patterns of main food items, 2009.

Wheat and milk are also the major protein contributors (36% and 21%), followed by meat (15%), and then potatoes, maize and vegetables (6%, 5% and 5%). With an average consumption of only 4.2 kg per person per year, beans only provide 3% of proteins to the average diet.

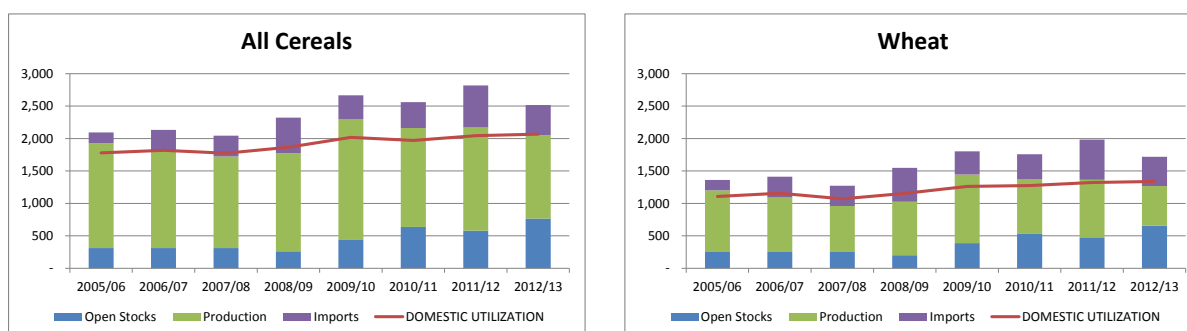
Consumed fats are predominantly of animal origin (59% – mostly obtained through milk and meat). Among the vegetal products, vegetable oil is the single main contributor, providing 25% of the total fat intake.

## 5. FOOD AVAILABILITY

### 4.1 Grain Requirements and Imports

With a population of approximately 5.5 million and an important livestock industry, cereal requirements in Kyrgyzstan amount to over 2 million tonnes per year (Figure 6), divided mostly between wheat (65%), maize (21%) and barley (13%).

Figure 6 - Total Supply and Domestic Utilization



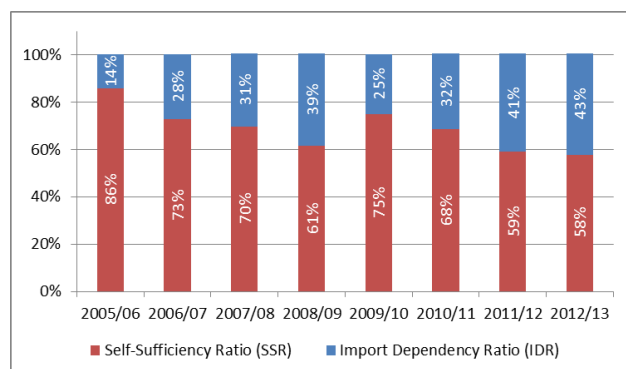
SOURCE: FAO, Food Balance Sheets.

“All staples are produced domestically, but domestic supplies of some - sugar, vegetable oil, flour, and potatoes - are supplemented with imports” (Al-Eyd et al., 2012). The country is self-sufficient in maize and barley, but wheat imports have been increasing over the years: the Import-Dependency Ratio (IDR) has risen from 14% in 2005/06 to over 40% in 2012 (Figure 7). It can be noted that part of

this increase in wheat imports has the objective of increasing the strategic stocks of the country, which have been increasing substantially over the past few years.

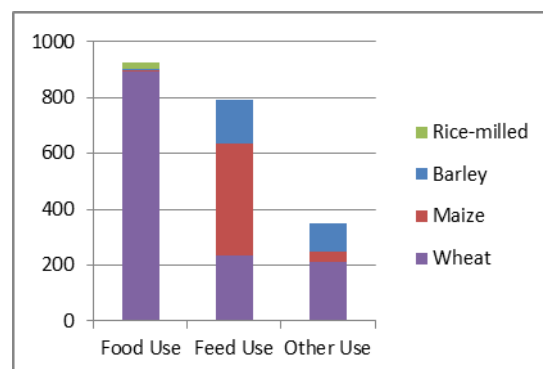
About 45% of these 2 million tonnes of cereals are used directly as food, 38% as animal feed and the remaining 17% for other uses (Figure 8). However, the 45% used as food are composed almost exclusively (97%) of wheat, the single most consumed cereal in Kyrgyzstan. Animal feed on the other hand is a mix of 50% maize, 30% wheat and 20% barley (as far as cereals are concerned).

Figure 7 - Wheat Self Sufficiency and Import Dependency Ratios



SOURCE: FAO, Food Balance Sheets, authors' elaboration.

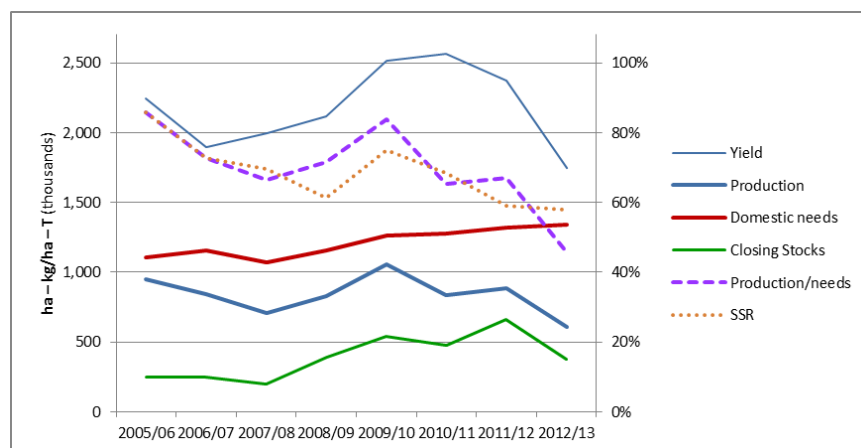
Figure 8 - Composition of the domestic utilisation of cereals (2012), '000 MT



SOURCE: FAO, Food Balance Sheets, authors' elaboration.

However, looking only at domestic production and utilisation, it is clear that the country is less and less self-sufficient: in 2012 it produced less than half its needs, from 65-85% range in the previous years (see also "Production/needs" line in Figure 9).

Figure 9 - Evolution of domestic wheat production and needs, and related indicators



SOURCE: FAOSTAT

**Most of the imported wheat comes from neighbouring Kazakhstan**, a small portion of which in the form of flour (Table 1). It is worth noting that in 2011 wheat imports dramatically declined, partially offset by major imports of wheat flour, presumably a result of damaged milling infrastructures following 2010 violence outburst (Barrows and Gusev, 2010).



Table 1 - Wheat and Wheat Flour Imports in MT from major exporting countries (2006-2011)

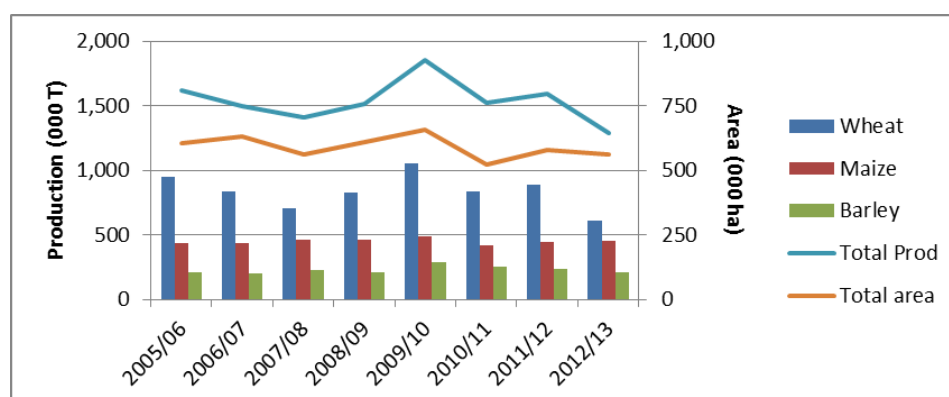
Row Labels	Wheat			Wheat Flour					
	Khazakstan	Russian Federation	Ukraine	China	Khazakstan	Russian Federation	Ukraine	USA	Uzbekistan
2006									328
2007	348,176	2,672		6,840	52,396	3,479	136		1,884
2008	290,905	10,108	2,954	3,036	94,271	10,619	2,140		60
2009	325,214	15,722	120	732	58,013	9,270		200	516
2010	347,261	1,980			20,833	4,538			30
2011	289,883	4		1,037	108,115	26,612		270	
<b>Grand Total</b>	<b>1,601,437</b>	<b>30,487</b>	<b>3,074</b>	<b>11,646</b>	<b>333,627</b>	<b>54,518</b>	<b>2,276</b>	<b>469</b>	<b>2,818</b>

SOURCE: UN Comtrade.

## 4.2 Domestic Production

Production of cereals has peaked in 2009/10 at 1.85 million tonnes, but has gradually declined in the following 3 years, dropping to 1.29 million tonnes for the latest harvest (Figure 10). The cultivated area plays a clear role in this variation, but the major factor is the productivity, especially the yield of wheat which peaked above 2,500 kg/ha in 2009/10 and 2010/11, and dropped below 1,750 kg/ha for the latest harvest as a result of the 2012 summer drought (see also Figure 9).

Figure 10 - Evolution of production and total cultivated area in Kyrgyzstan

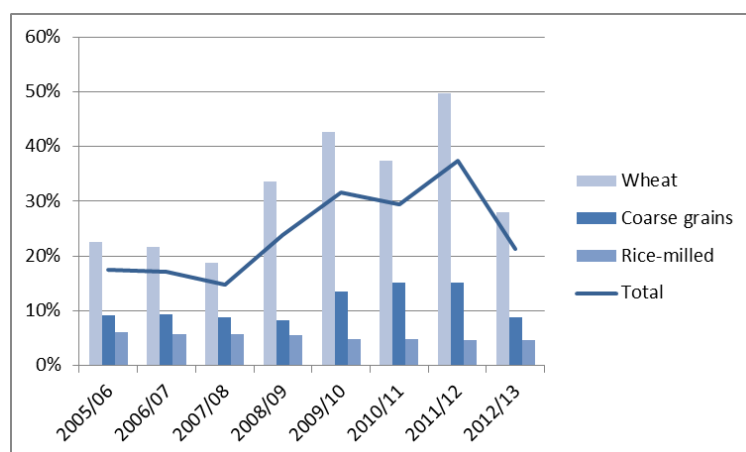


SOURCE: FAOSTAT

Wheat production therefore decreased by 31% between 2011 and 2012 (-19% for all cereal crops). At the same time, wheat imports were affected by high prices on the international market and decreased by 28% compared to the year before. Fortunately, national stocks were high due the previous year good harvest and above-average imports, so that the change in total supply was limited to a 13% drop.

**To cover the gap in this particularly unproductive year, the country has had to use up a significant proportion of its grain reserves (43% or 326,000 tonnes), which it will now have to rebuild to be able to cope with potential future food shortages.** As a matter of fact, the stock-to-use ratio of wheat dropped from 50% in 2011/12 to 28% the next year, meaning a reduction of strategic stocks from 182 to 102 days' worth of supply. Looking at the total cereal situation, grain reserves decreased from 137 to 77 days' worth of supply (Figure 11).

Figure 11 - Stock-to-Use Ratio



SOURCE: FAO, Food Balance Sheets, authors' elaboration.

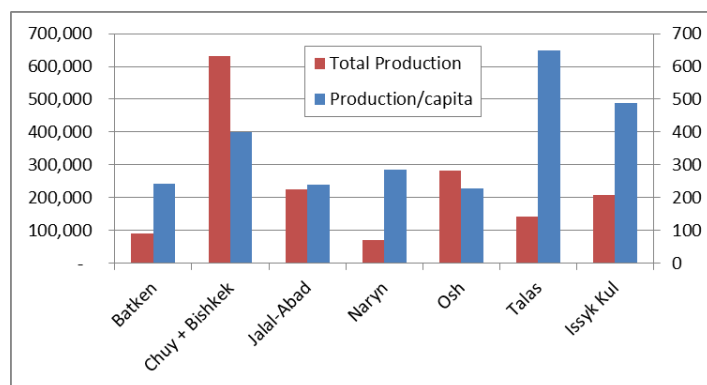
As can be expected, wheat production roughly follows the population distribution; however, Talas Province produces almost three times as much wheat per capita as Osh (approx. 650 kg/capita/year vs 230), and can therefore be considered as one of the most productive regions of Kyrgyzstan. In absolute figures however, the major grain basket is the northern Chuy Province, producing 632,000 tonnes of wheat per year on average, or 38% of the national total. Taking the City of Bishkek into account, Chuy is also the most populated area, with about 1.6 million people (31% of the national population), of which close to 60% are urbanites. On the other hand, the central and southern provinces (Osh, Jalal-Abad, Batken and Naryn) produce relatively little wheat compared to the size of their population (see Table 2 and Figure 12).

Table 2 - Wheat Production by Region in MT

Region	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Batken	92,977	96,060	94,180	86,355	77,882	83,135	91,749	106,413	101,778	86,716
Jalal-Abad	226,473	222,062	222,335	193,399	185,562	220,332	234,919	300,578	239,281	199,856
Issyk-Kul	287,754	222,479	237,699	206,295	185,632	172,399	151,044	253,691	178,331	176,692
Naryn	98,016	90,326	96,959	76,901	52,714	58,515	58,993	69,120	39,441	56,348
Osh	287,522	291,462	294,996	288,121	272,603	273,960	272,564	301,914	276,345	262,334
Talas	138,065	149,715	150,299	151,671	141,022	132,649	140,079	150,720	136,027	133,297
Chui	621,942	598,309	650,126	664,598	646,742	550,023	561,515	746,725	612,556	665,449
<b>Total</b>	<b>1,752,749</b>	<b>1,670,413</b>	<b>1,746,594</b>	<b>1,667,340</b>	<b>1,562,157</b>	<b>1,491,013</b>	<b>1,510,863</b>	<b>1,929,161</b>	<b>1,583,759</b>	<b>1,580,692</b>

SOURCE: Kyrgyzstan National Statistics Agency.

Figure 12 - Production of wheat at provincial level, total (MT/year) and relative to population (Kg/capita/year)



SOURCE: Kyrgyzstan National Statistics Agency.

### 4.3 Other Commodities

In addition to cereals, other important food commodities are milk, vegetables, potatoes, meat and sugar. Kyrgyzstan is a net exporter of vegetables (SSR of 108%), it is self-sufficient in milk and potatoes, and it imports some of its meat and sugar requirements (IDR of 17% and 96% respectively) – all values from 2009. Vegetable oil is another commodity that depends strongly on imports (IDR of 69% in 2009) hence making the domestic prices sensitive to global price movements.

## 6. SUPPLY CHAIN STRUCTURE AND MARKET ENVIRONMENT

Kyrgyzstan is a landlocked mountainous country, where only 7% of total land is arable (1.4 million hectares), and half of it available for irrigated crop production. Most of the wheat cropland is concentrated in the Fergana oblasts in the south, and close to the Kazak border in the north.

In the past decade, the land reform process radically transformed the agricultural system in Kyrgyzstan, focusing on two major efforts, i.e. “*the change in legal ownership of land from state property to private property (privatization)*” and the “*shift in farming structure from corporate to individual farms (individualization)*”; as a consequence, individual and peasant farms have massively substituted large-scale collective and state farms enterprises established in the Soviet system (Lerman and Sedik, 2009).

Because of low profit margins, wheat is not a popular crop for local small farmers (Barrows and Gusev, 2010). As already noted in the frame of this analysis, **imports play a central role in wheat supply chain**. In the five years from 2008/09 agricultural season, the share of imports on total wheat supply was some 27%, accounting for 37% of the domestic utilization.

Based on interviews with importers, traders, and millers in Bishkek and Osh<sup>5</sup>, wheat and wheat flour are imported by railway from Kazakhstan<sup>6</sup>, either passing through the northern border, specifically Bishkek (or marginally Talas province), or via Uzbekistan into Jalal-Abad and Osh oblasts (Figure 13). Internal flows from Bishkek to Osh, Naryn and Ysyk-Kol are secured by trucks.

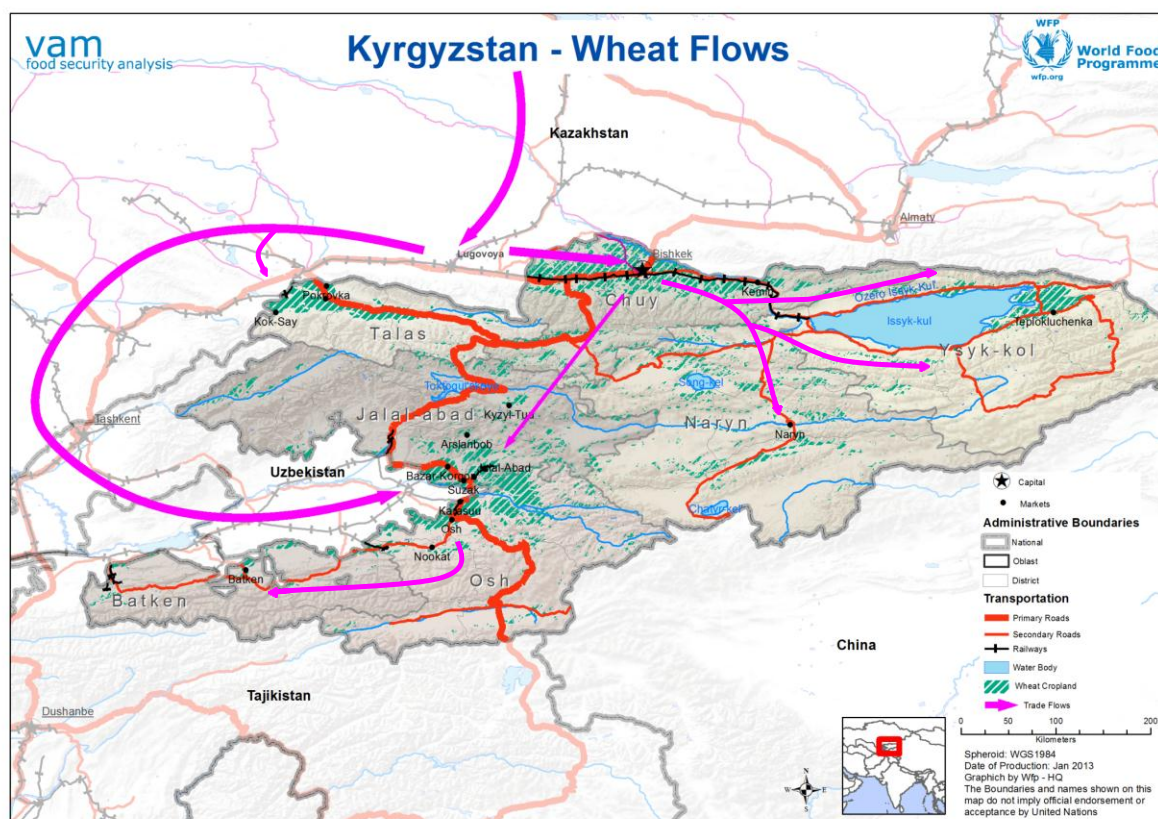
Reportedly, the **reliability of wheat supply from Lugovoya Station in neighbouring Kazakhstan is not an issue for traders in Bishkek, while for those in Osh there are concerns on the overdependence on the railway connection through Uzbekistan**, where rigid custom standards may jeopardize or delay the passing of goods. Alternative provisions from Bishkek to Osh are otherwise limited from the restricted loading capacity of trucks and challenged by the mountainous terrain. As a matter of fact, all these limitations entail additional delivery cost<sup>7</sup> to existing VAT, sales tax, and customs duties. Besides official channels, informal trade still occurs in Osh as a consequence of the smuggling activities started at the onset of civil violence in 2010.

<sup>5</sup> Interviews held in January 2013.

<sup>6</sup> The largest wheat-producing area in the plains of northern Kazakhstan include the oblasts of Akmola, Kostanai, North Kazakhstan, part of Pavlodar, and the north of Karaganda (Chabot and Tondel, 2011).

<sup>7</sup> Reportedly, since the Gazprom Neft Asia started operating in the area, fuel prices have stabilized and adds-on limitedly on wheat prices (see also Figure 28).

Figure 13 - Wheat Flows Map



SOURCE: WFP, Interviews with traders in Bishkek and Osh, January 2013.

Still, transportation from Kazakhstan to Kyrgyzstan is currently not perceived as an issue. The borders were open for food commodities at all times during the past two years with no effects on imported volumes.

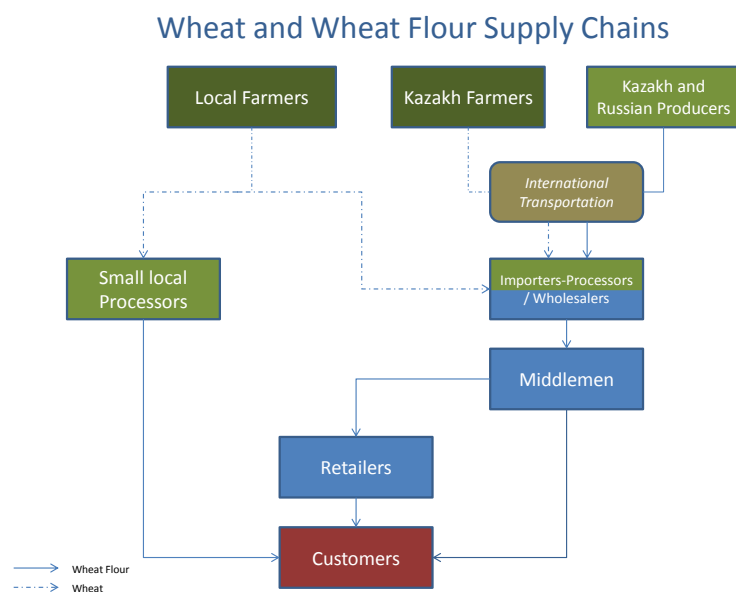
**Wheat is imported by a number of big companies that perform also the milling process** (Figure 14). These processors having large capacity are limited in number (Kadarwati, 2012). They usually blend the flour imported from Kazakhstan, which is characterized by a finer texture, with local flour, coarser and with a low gluten level. Most of it is then **channelled through middlemen's warehouses and sales points, and thus distributed to local markets across different provinces, by selling it either to retailers, or directly to the final customers** (bakeries<sup>8</sup> and households).

Given the import dependence of wheat/wheat flour, **major production shortfalls in neighbouring countries (particularly Kazakhstan but also Russia) and potential border closures can have an impact on the supply chain and availability of wheat/wheat flour and should therefore be monitored.**

Residual quantities of flour are supplied locally within provinces, and intended to local consumption only. Small farmers sell wheat to minor processors, who directly engage in trading with local rural population, without middlemen and retailers involved.

<sup>8</sup> Bakeries can be distinguished into home-based, usually dealing with limited amounts and relying on smaller margins, and small industrial bakeries.

Figure 14 - Wheat and Wheat Flour Supply Chains



SOURCE: WFP, Interviews with traders in Bishkek and Osh, January 2013.

The above supply chain applies (without processing actors, of course) also for noodles and vegetable oil, either purchased from Russia and Kazakhstan, or locally produced.

Apparently local noodles are more popular and accessible for the population. The product is supplied to all regions of the country to big warehouse owners, brand shops or to retail traders in the market in Bishkek. The most part remains in Bishkek and Chuy region, while smaller quantities are transported to the southern regions.

With regards to the vegetable oil sector, there is a strong reliance on imports from Russia, while small local producers do not influence significantly the market. In Osh, cotton oil is still produced by few people with their own means, even though the market is becoming more oriented to sunflower oil.

## 7. MARKET PERFORMANCE

This section describes food price trends and the global market performance of different commodities, focusing mainly on wheat, which is the major caloric contributor in the country. Additional information is reported for other relevant food commodities – including milk, potatoes, rice and sugar – and fuel.

For wheat prices, data availability from the National Statistical Committee of the Kyrgyz Republic goes back to the past six years spans from October 2006 to December 2012 in the markets of Bishkek, Osh, Jalal-Abad, Batken and Naryn. International prices refer to Wheat, Hard Red Winter No. 1, FOB Gulf of Mexico, from IMF, Primary Commodity Prices; while Kazakhstan data are from

APK-Inform Agency (Milling Wheat, Export)<sup>9</sup>. Additional prices for the remaining commodities are taken from WFP, VAM Food Price Data Store, while information on the Consumer Price Index comes from the National Statistics Agency of Kyrgyzstan.

## 6.1 Price Inflation

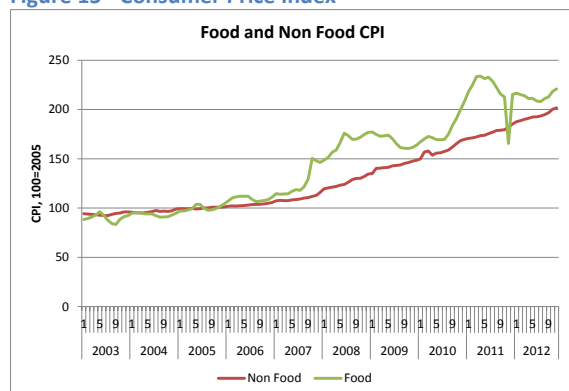
**Inflation in Kyrgyzstan is steadily increasing since 2007, driven both by food and non-food items** as indicated by the Consumer Price Index (Figure 15). The growth pace has definitely been smooth for non-food prices, while it has been unrulier for food items. The share of food is 58%, as in other neighbouring countries, i.e. Tajikistan and Uzbekistan (Al-Eyd *et al.*, 2012).

The more prices depart from the baseline year 2005, the larger the difference is between nominal and real prices (Figure 16). In general, **“domestic prices broadly mirror global trends, but exhibit downward stickiness, a result of local market inefficiencies, domestic monopolies and limited global trade. As a result, high global food prices quickly pass-through to headline inflation and also affect core inflation”** (Jenish and Kyrgyzbaeva, 2012).

Al-Eyd *et al.* (2012) noted that **“domestic food prices appear to adjust quickly and in line with changes in global food prices. [...] In addition, core inflation has increased in the Kyrgyz Republic, Tajikistan, and Uzbekistan even though there are no clear signs of overheating. The authorities reacted to these shocks by controlling food prices, mostly through administrative measures and export restrictions, and in some cases limited monetary tightening”**.

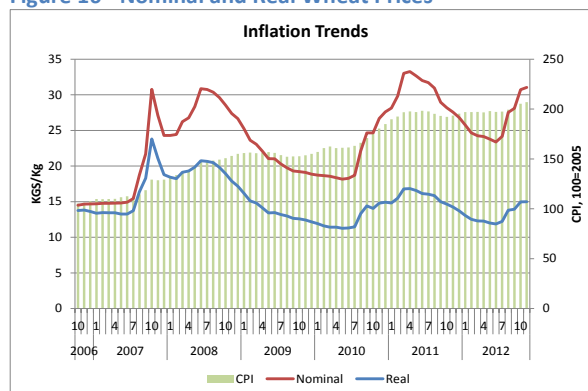
Starting from June 2010 nominal and real price trends released from co-moving and presented a more significant gap thereafter (Figure 16). Interestingly, by mid-2012 real wheat prices were only slightly above the level reached in November 2006, whilst nominal prices were about to peak again, indicating that recent **nominal prices have been disaggregated from their underlying values; inflation is fully accountable for the increase in nominal price.**

Figure 15 - Consumer Price Index



SOURCE: Kyrgyzstan National Statistics Agency.

Figure 16 - Nominal and Real Wheat Prices



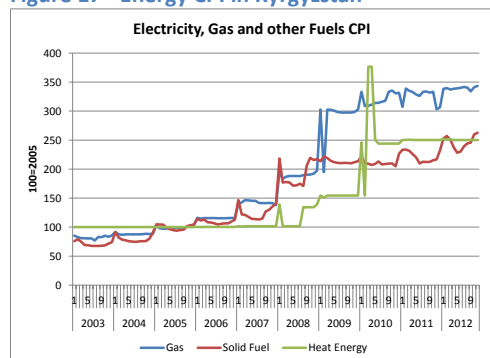
SOURCE: National Statistics Agency of Kyrgyzstan and Kyrgyzstan National Statistics Agency.

According to Figure 17, gas, and heat energy prices shifted upward, respectively in 2008, and in 2010, to settle on higher trends. These structural changes likely affected all the other prices, as

<sup>9</sup> All available at FAO/GIEWS website.

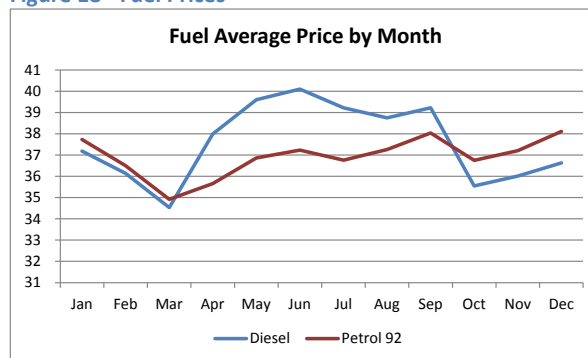
reported on page 21. **Fuel prices, and specifically diesel, showed also a high seasonal pattern, with major increases between April and September (Figure 18).**

Figure 17 - Energy CPI in Kyrgyzstan



SOURCE: Kyrgyzstan National Statistics Agency.

Figure 18 - Fuel Prices

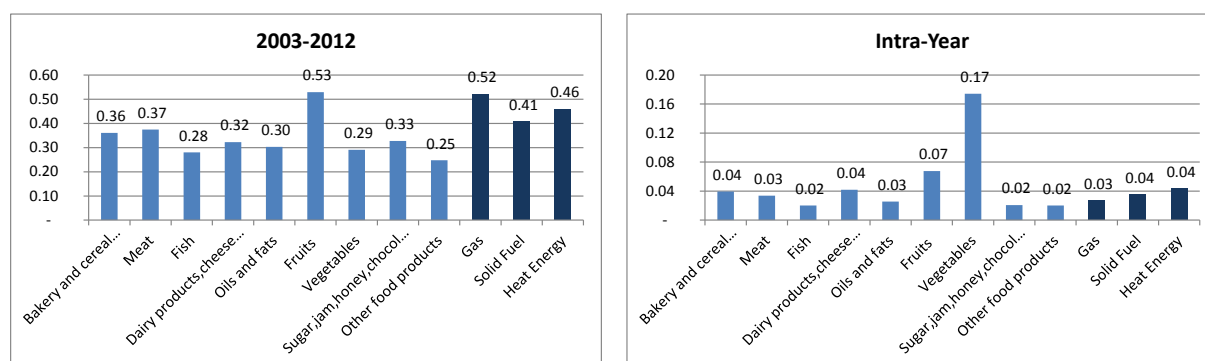


SOURCE: WFP - VAM Food and Commodity Prices Data Store.

**Most of the commodities in the Consumer Price Index presented volatility<sup>10</sup> equal to or higher than 30% in 2003-2012 (Figure 19), with the major spikes occurring for fruits (53%) and energy related commodities (46% on average).** More significantly in terms of food consumption outcomes, bakery and cereals, as well with meat and dairy products, presented substantial variability as well (respectively, 36%, 37%, and 32%).

With no surprise, when intra-annual volatility is taken into account, only vegetables and fruits show higher figures (17% and 7%, respectively), provided they are mostly linked to seasonality. Interestingly, the **price pattern of cereal products is very little affected by seasonality (4%),** being more affected by longer-term cycles linked to broader international price evolution. **For market based interventions such as cash & voucher programmes, the low variability may indicate a lower necessity to adjust transfer values seasonally when it is based on products except vegetables.**

Figure 19 - CPI Coefficients of Variation by Commodity



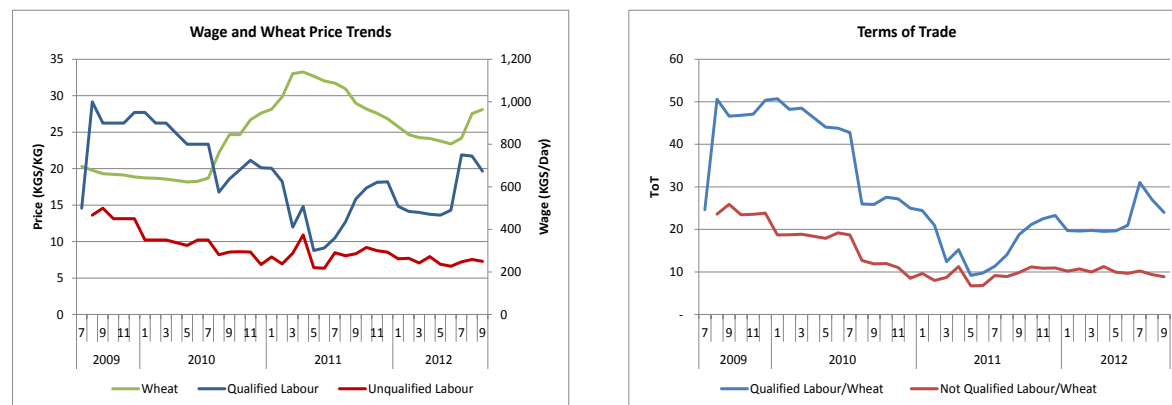
SOURCE: Authors' elaboration based on Kyrgyzstan National Statistics Agency.

On the other hand, labour wages have been declining between mid-2009 and mid-2011, after which qualified labour wages partly recovered, but unqualified labour wages remained low (Figure 20). As a consequence, the terms of trade for unqualified casual wages against wheat have been steadily on

<sup>10</sup> Here expressed in terms of coefficient of variation, which is a measure of dispersion of prices from their average, it is computed as the ratio between standard deviation to the mean.

the decline until early 2011 and then stabilised at a low 10 kg of wheat per day of work, while the one for qualified workers also dropped to 10 by mid-2011, and then increased to 20; more recently the terms of trade reached 25 kg of wheat per day of work – although this is still only half the value they had in 2009. Thence, both qualified and unqualified wages have not been re-adjusted according to inflation, thus severely affecting the households' purchasing power.

Figure 20 - Labour/Wheat Terms of Trade



SOURCE: WFP.

## 6.2 Wheat Price Trends

The **wheat market in Kyrgyzstan is extremely prone to international price vagaries**. Limited government intervention in food markets (Chabot and Tondel, 2011) and significant dependence on wheat imports, specifically from Kazakhstan, largely explain price trends in the past six years. On top of that, violence outburst in the south provinces in June 2010, with the resulting turbulence especially in Osh and Jalal-Abad, fuelled price volatility.

Wheat prices peaked once again in the last quarter of 2012 up to levels comparable with the spikes in 2011 and to a lesser extent 2007/2008 (Figure 21). Prices were relatively flat before the global food crisis (2007-2008), when several major exporting countries, including Kazakhstan, limited or banned their exports (Sharma, 2011), thus triggering price increases in the country. Subsequently, domestic prices followed both the international and Kazakhstan prices in their downward trends, in all the five local markets investigated, up until the crisis in June 2010. From that moment onwards, wheat prices skyrocketed again, even though not dissimilarly compared with international patterns. Supply outcomes in Kazakhstan provided momentum to the drift change in Kyrgyz markets, relaxing pressure on wheat prices in 2011 as a consequence of a bumper harvest, and conversely the following year, fuelling the price upsurge as a result of summer 2012 droughts.

As of October-December 2012 quarter, the yearly change of Kazakhstan wheat prices (+96%) is yet to be fully transmitted to nominal domestic prices in Kyrgyzstan (Table 3). Still, the upturn is quite substantial, especially in Jalal-Abad, Naryn and Osh, showing increases from the same period in 2011 respectively by 32%, 25%, and 14%; quite in line with the international pace (+29%). **In real terms, the quarterly price changes confirm that price levels in 2012 achieved an alarming threshold.**



Figure 21 - International and Domestic Price Trends

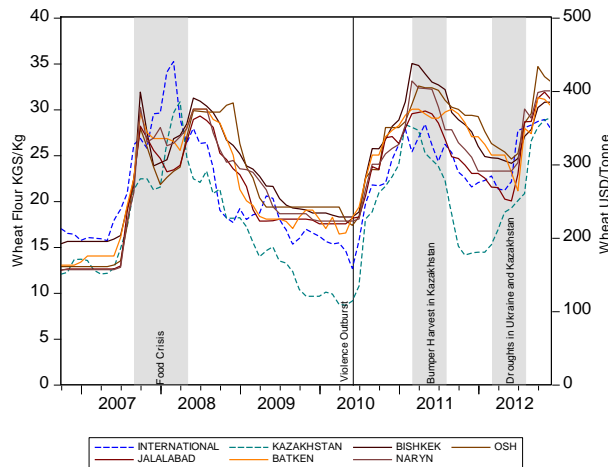


Table 3 - Yearly Changes of Quarterly Wheat Prices

NOMINAL							
	Batken	Bishkek	Jalal-Abad	Naryn	Osh	Kazakhstan	International
2012-Q4 vs. 2007-Q4	10.5%	10.2%	16.8%	14.8%	30.5%	30.1%	4.0%
2012-Q4 vs. 2008-Q4	15.4%	13.1%	28.5%	29.1%	11.4%	49.4%	55.9%
2012-Q4 vs. 2009-Q4	64.7%	61.4%	74.5%	73.7%	74.4%	190.9%	73.2%
2012-Q4 vs. 2010-Q4	16.2%	13.9%	21.6%	28.1%	27.4%	31.9%	25.4%
2012-Q4 vs. 2011-Q4	9.0%	8.3%	31.5%	24.9%	14.1%	97.7%	27.2%

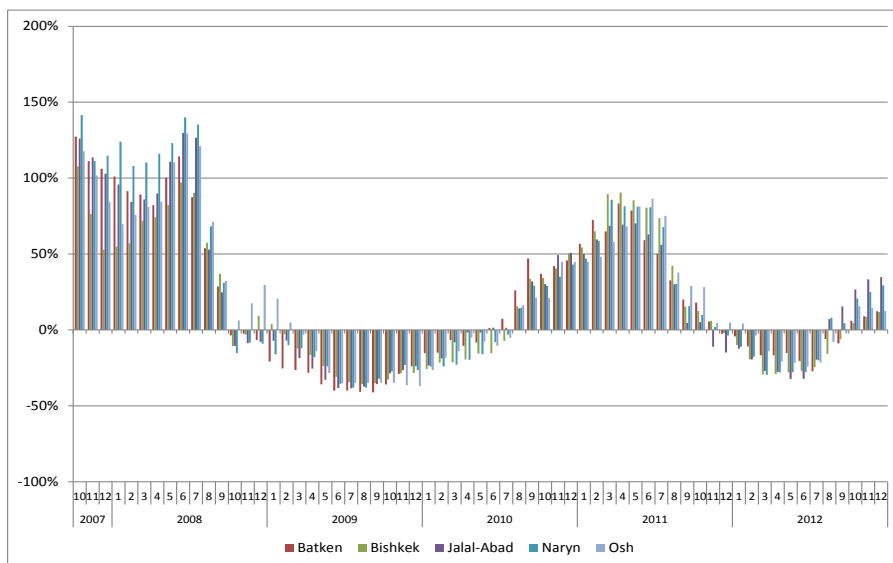
REAL					
	Batken	Bishkek	Jalal-Abad	Naryn	Osh
2012-Q4 vs. 2007-Q4	12.1%	12.1%	18.5%	16.6%	32.5%
2012-Q4 vs. 2008-Q4	15.2%	12.8%	28.2%	28.8%	11.2%
2012-Q4 vs. 2009-Q4	63.2%	59.9%	72.9%	72.1%	72.8%
2012-Q4 vs. 2010-Q4	17.5%	15.2%	23.0%	29.5%	28.9%
2012-Q4 vs. 2011-Q4	7.8%	7.1%	30.1%	23.6%	12.9%

SOURCE: 'International' refers to Wheat, Hard Red Winter No. 1, FOB Gulf of Mexico (IMF); 'Kazakhstan' to Milling Wheat, Export (APK-Inform Agency); and all Local Markets to Wheat Flour, First Grade (National Statistics Agency of Kyrgyzstan). Real prices are nominal prices deflated with the CPI (Kyrgyzstan National Statistics Agency). Authors' elaboration.

Interestingly, the price differential between domestic wheat flour prices in Kyrgyzstan and export wheat prices in Kazakhstan is larger with bull markets, and gets smaller with bears. This phenomenon may indicate that price downward trends in local markets established new supports at every fluctuation. Such new levels are higher from the previous ones, as it is clear in Figure 22, where the width of year-on-year fluctuations tends to consolidate when prices are on the rise, while the magnitude of falls is quite gentler.

In other words, **domestic prices seem to be more elastic when prices are on the rise, while they are relatively less elastic on the declining phase.** Once shocks occur, prices retain part of the new information and shift their trend upwards; thence the year-on-year change tends to decline constantly, showing more pronounced shapes when prices increase rather than the opposite. The magnitude of these changes declines as shocks accrue.

Figure 22 - Year-on-Year prices changes



SOURCE: Authors' elaboration based on National Statistics Agency of Kyrgyzstan data.

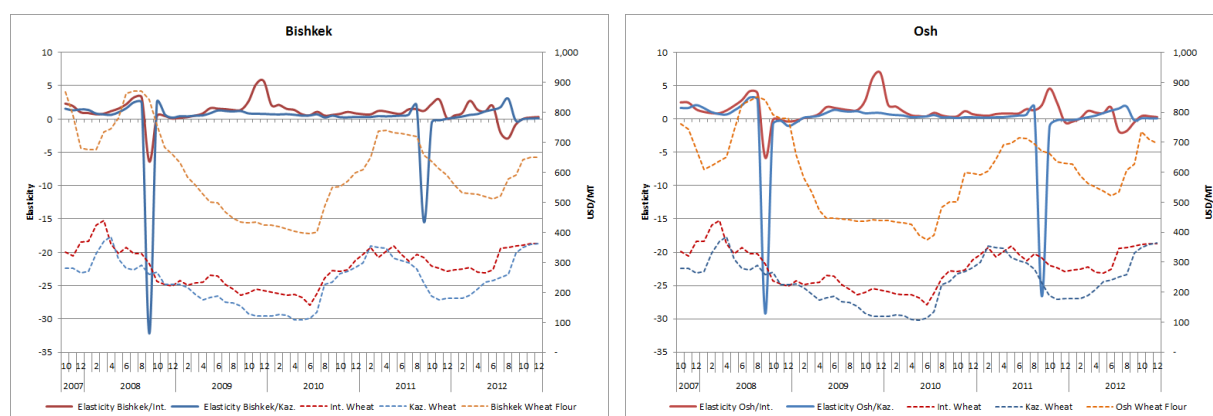
### 6.2.1 Price Transmission to Domestic Prices

“Kyrgyzstan is highly vulnerable to external shocks. Global food and energy price shocks are quickly transmitted to domestic. Relatively quick transmission of external (supply) shocks is also due to a (relatively) high exchange rate pass-through to domestic prices” (Jenish and Kyrgyzbaeva, 2012).

Figure 23 reports yearly elasticity of price transmission<sup>11</sup> to international wheat prices in Bishkek and Osh. Once outliers are removed with the fourth-spread method (Hoaglin *et al.*, 1983), the average elasticity of price transmission of local wheat flour from international wheat presents some abrupt departures from the baseline trends. Overall, the transmission degree from **Kazak** prices has been fairly constant with less spikes and dips<sup>12</sup>, thus suggesting that **price changes in this neighbouring export country inform constantly on the evolution of prices in Kyrgyzstan** with very few exceptions. Interestingly, when the two sets of international wheat prices under review converge, then the elasticity of price transmission gets smoother and fairly below 1, implying that **international price changes are not fully transmitted on domestic prices**. Otherwise, higher prices in Kazakhstan drive major changes on domestic prices in Kyrgyzstan, rather than international prices do. **In terms of marked-based interventions, export wheat price diversion between international prices may trigger some concerns on likely and abnormal forthcoming changes on local wheat prices.**

The major outliers detected were in fact in 2008 (July to September), 2011 (September and October), and 2012 (July and August), when price changes in Kyrgyzstan and Kazakhstan differ in sign and magnitude<sup>13</sup>. These three outliers imply that a lag-time was needed by domestic prices to adjust after an international price change; for instance, during the dip reported in 2008 in Figure 23, international wheat price started declining (by 2% and 9% respectively, in September) after several months of growth, while in Kyrgyzstan wheat flour prices were still on the rise (+61% in Bishkek, and +55% in Osh). Interestingly, all the above outliers felt in summer, implying that harvests outcomes in Kazakhstan transmitted with some delays in the country in those uncommon years (see timeline in Figure 21).

Figure 23 - Yearly Elasticity Price Transmission from International Wheat Prices



SOURCE: Authors' elaboration based on National Statistics Agency of Kyrgyzstan and IMF data. All prices were converted into USD before computing elasticities.

<sup>11</sup> Through the extent of this section, elasticity is computed as the year-on-year percentage change of the price in the domestic markets in Kyrgyzstan for each 1% of year-on-year increase in international prices.

<sup>12</sup> The average values of the elasticities of price transmission from international wheat price to wheat flour in Bishkek and Osh are 1.1 and 0.97 respectively, while from Kazak prices are 0.66 and 0.58.

<sup>13</sup> Another outlier was 2009 (November and December), only for international wheat prices.

### 6.2.2 Market Integration

**Price patterns of the different markets tend to be fairly similar.** The visual insights are corroborated by the analysis of coefficient of correlations (Table 4). **Within the country, correlations are extremely strong**, with remarkable figures between 0.935 and 0.976 suggesting that price signals follow the same pattern in all the markets investigated. Similarly, **correlations with Kazakhstan and international prices are high as well**, with Osh prices slightly less correlated with international ones (respectively 0.692 and 0.657), probably depending to its geographical position close to the border with Uzbekistan and its strict dependence on wheat flow imports from Kazakhstan passing by railway from that border.

**Table 4 - Wheat Price Correlations**

	Bishkek	Osh	Jalal-Abad	Batken	Naryn	Kazakhstan	International
Bishkek	1						
Osh	0.950	1					
Jalal-Abad	0.952	0.944	1				
Batken	0.953	0.946	0.959	1			
Naryn	0.966	0.937	0.976	0.951	1		
Kazakhstan	0.805	0.702	0.816	0.787	0.820	1	
International	0.755	0.665	0.783	0.796	0.807	0.887	1

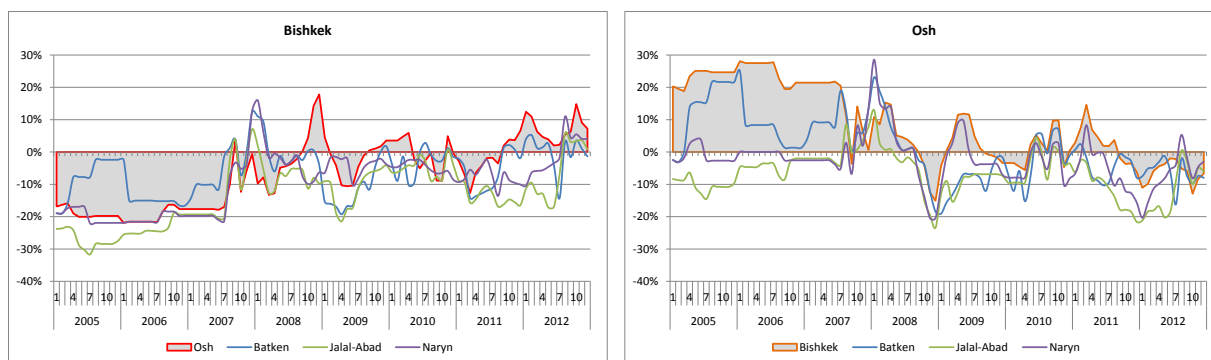
SOURCE: Authors' elaboration. 'International' refers to Wheat, Hard Red Winter No. 1, FOB Gulf of Mexico (IMF); 'Kazakhstan' to Milling Wheat, Export (APK-Inform Agency); and all Local Markets to Wheat Flour, First Grade (National Statistics Agency of Kyrgyzstan). Real prices are nominal prices deflated with the CPI (Kyrgyzstan National Statistics Agency).

An integrated market entails an *“entire territory of which the parts are so united by the relations of unrestricted commerce that prices there take the same level throughout, with ease and rapidity”* (Cournot, 1838). With less stringent assumptions than price convergence, price signals transmit across markets according to the degree of market integration, which incurs when the price difference between two markets is less compared to the transaction costs sustained by traders to actually move commodities. Otherwise, traders may pursue arbitrage.

Since large-scale non-food transfers potentially inject a significant amount of liquidity in targeted areas, market integration is a crucial aspect to be looked at to determine the impact of the intervention on a larger scale, including on food price inflation.

Figure 24 illustrates **price differences between markets over time**, setting as reference Bishkek and Osh. Prices in Jalal-Abad and Batken are significantly lower than those in Bishkek and Osh, while Naryn lies in between the reference two cities. Between 2005 and 2007 prices in Bishkek have been generally 20-30% higher than in Osh, while in early 2010 and almost entirely in 2012 prices differentials have swapped, i.e. prices got higher in Osh than in Bishkek, at times even more than 10%. **This could indicate changes in the supply pattern and hint to increased challenges to channel supply in Osh. Despite various peaks of price differentials between Bishkek and Osh, it appears as if in the long run the differences have fallen, which points to improved market integration, which is generally favourable in Kyrgyzstan.**

Figure 24 - Price Differentials compared to Bishkek and Osh



SOURCE: National Statistics Agency of Kyrgyzstan.

During the last months of 2012, all price differentials declined up to clearly ranging below the 10%, which may be perceived as a general sign of price convergence, if transaction costs were not accrued. Yet, considering wheat flows described in Figure 13, prices differentials in Osh may unveil adds-on beyond the pure transaction costs to move commodities over there that does not occur in other markets. Thence, **the more prices in Osh depart from Bishkek and other places, the more likely the market functioning may be affected.**

### 6.2.3 Price Volatility

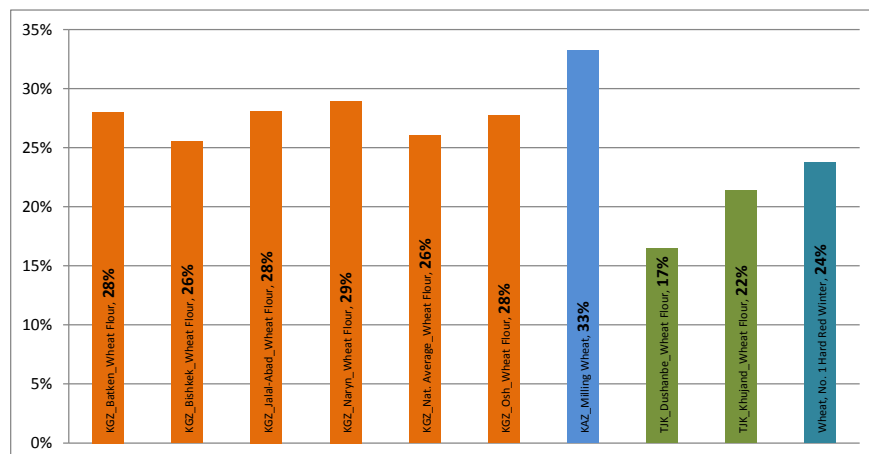
According to Figure 21 and in line with the correlation analysis, starting from a flat trend, wheat prices on the national markets peaked jointly in 2007/08 and in 2010/11. Overall, wheat prices are largely affected by long-run cycles.

Price volatility is a major source of risk for poor and vulnerable households' purchasing power. The coefficient of variation is a useful tool to compare the degree of variation of different price data-series, and provides useful hints to assess how prices change in the markets according to time (WFP, 2011).

Figure 25 reports volatility of wheat flour prices in Batken, Bishkek, Jalal-Abad, Naryn and Osh markets, as well as the national average, other than in a couple of Tajikistan markets (Dushanbe and Khujand). Similarly, it illustrates the coefficient of variations for international wheat prices.

Between October 2006 and December 2012, volatility ranges between 26-29% in the domestic markets, which indicates **fairly high price volatility as a result of the two food price crises in 2008 and 2011**. Those figures reflect similarly high values in Kazakhstan (33%), while in Tajikistan the coefficients are considerably lower, with 17% in Dushanbe and 22% in Khujand.

Figure 25 - Price Volatility



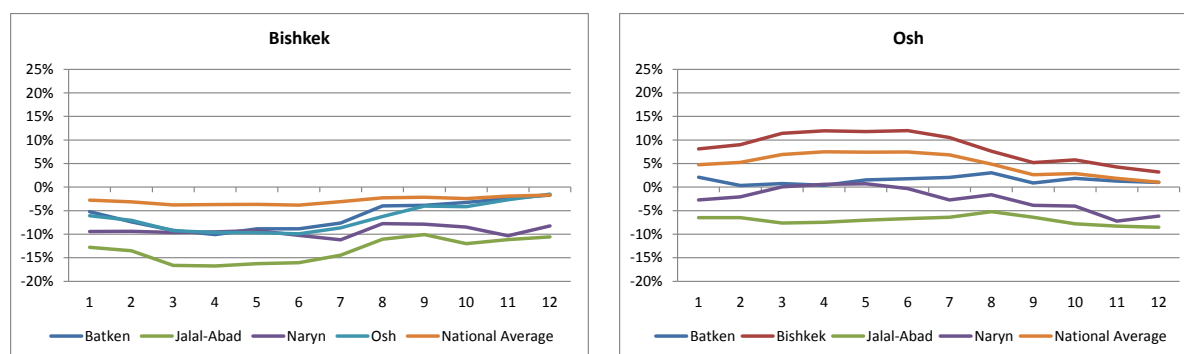
SOURCE: Authors' elaboration. 'International' refers to Wheat, Hard Red Winter No. 1, FOB Gulf of Mexico (IMF); 'Kazakhstan' to Milling Wheat, Export (APK- Inform Agency); and all Local Markets to Wheat Flour, First Grade (National Statistics Agency of Kyrgyzstan and WFP).

In order to correctly design market-based transfers and avoid misinterpretation of price increases during the implementation phase, another relevant component is the intra-annual volatility, thus incorporating seasonality in the analysis.

Figure 26 illustrates the differences in space of 2006-2012 average wheat prices between Kyrgyz markets, having either Bishkek or Osh as reference to compare price differentials over the year. Price differences between markets remain fairly similar throughout the 12 months, though converging to the reference market occasionally (Batken, Osh and Naryn in May-July) there is almost no crossing of differential lines. The convergence could hint to abundant post-harvest availability leading to similar price differences. While Bishkek observes higher prices than any other market, Jalal-Abad illustrates the contrary. **Seasonal changes, though limited, are more likely referring to Osh rather than Bishkek, thus implying that the former market is more inclined to annual volatility.**

Noteworthy, Figure 26 contradicts the evidence of the trend analysis in Figure 24, because prices in Osh are constantly below Bishkek. Still, the monthly averages likely veil late price evolution in favour of longer term patterns, thus **suggesting that a relatively recent structural change in Osh market functioning occurred in the past year and half, distorting its effectiveness as compared to Bishkek.**

Figure 26 - Average Price Differential with Reference Market by month

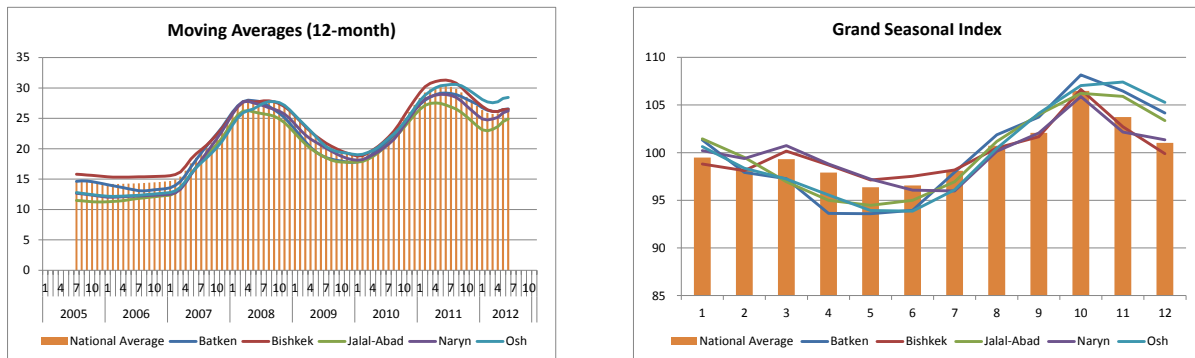


SOURCE: National Statistics Agency of Kyrgyzstan.

While the above analysis is focused on space price differences across markets and within the year, it does not unveil real seasonal fluctuations of prices. Figure 27 presents both the moving averages -

that highlight the underlying trends once price fluctuations are smoothed out - and the Grand Seasonal Index (GSI), i.e. the ratio between a price at a given time and its twelve-month Centred Moving Average (CMA), averaged by each month to get rid of all the random movements in the time-series (Aminu, 2010).

Figure 27 - Wheat Price Trends (KGS/Kg) and GSI



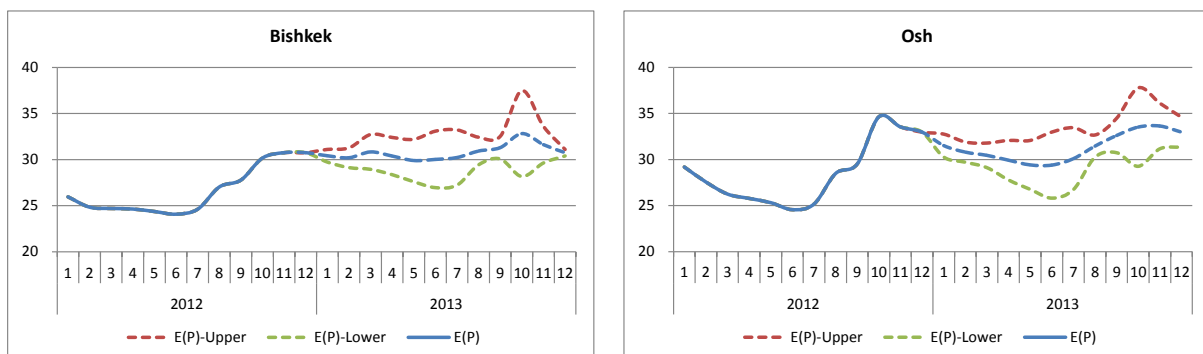
SOURCE: Authors' elaboration based on National Statistics Agency of Kyrgyzstan.

The Grand Seasonal Index of wheat prices illustrates a seasonal pattern with prices being on a considerably lower level between May and June/July than during September to December, with the highest prices occurring in October. Following this peak, prices decrease almost steadily until May. **Prices in Osh tend to be higher than Bishkek from September, once the harvest season is over, up to February, thus suggesting that once local supply is weaker, trade flows are not able to fully compensate it.** In order to confirm or discard this conclusion, further evidence on the market functioning and bottlenecks in Osh would be advisable.

### 6.2.4 Forecasting

The above information is critical for price forecasting, and thereafter for market-based transfer value setting and determination of forward contract prices of local purchases. In fact, built on GSI analysis, it is possible to define an upper and a lower band within which prices are likely to fluctuate in the near future. Since the forecasting exercise in Figure 28 exploits historical prices available (2007-2012), by no means can these projections take into account abnormal and/or forthcoming shocks. **Still, it may be helpful to eventually define the transfer value for vouchers, by setting the upper band derived as a contingency of price hikes on both the budget and the transfer value to beneficiaries.**

Figure 28 - Wheat Price Forecasts



SOURCE: Authors' elaboration based on National Statistics Agency of Kyrgyzstan. E(P) is the expected price based on forecast built on historical data, Upper and Lower refer to the bands within which the forecasted price are expected to fall.

**In 2013 wheat flour prices are expected to be close to 30 KGS/Kg in Bishkek**, moving slightly below in May and thereafter up to 32.80 KGS/Kg in October. The maximum width of the lower and upper price bands ranges from 26.96 KGS in June to 37.48 KGS in October. **Similar price forecasts with a slightly more pronounced seasonal variation may be expected in Osh, where prices for a Kg of wheat flour are forecasted to be below 30 KGS until September, to increase until 33.64 KGS in November.** The upper band can be set at an average value of 32.46 KGS between January and August, and thence up-ward shifted to 37.78 KGS. For both locations, the price band is smallest for September before the annual peak and widest during June and October.

These price forecasts may help determine a potential transfer value for cash/voucher based programming and indicate also that **during June and October vigilant monitoring of the actual prices is important.**

### 6.3 Price Trends of Food Basket Commodities

This section briefly describes price trends of the other commodities in the Kyrgyz food basket<sup>14</sup>. Most of the prices peaked in mid-2011, and with few exceptions remained at high levels.

**Meat** prices (i.e. mutton, beef, and chicken) have been steadily increasing since early 2010, even though mutton and beef price trends have smoothed at high levels in 2012, as well as **cotton** and **sunflower oils**.

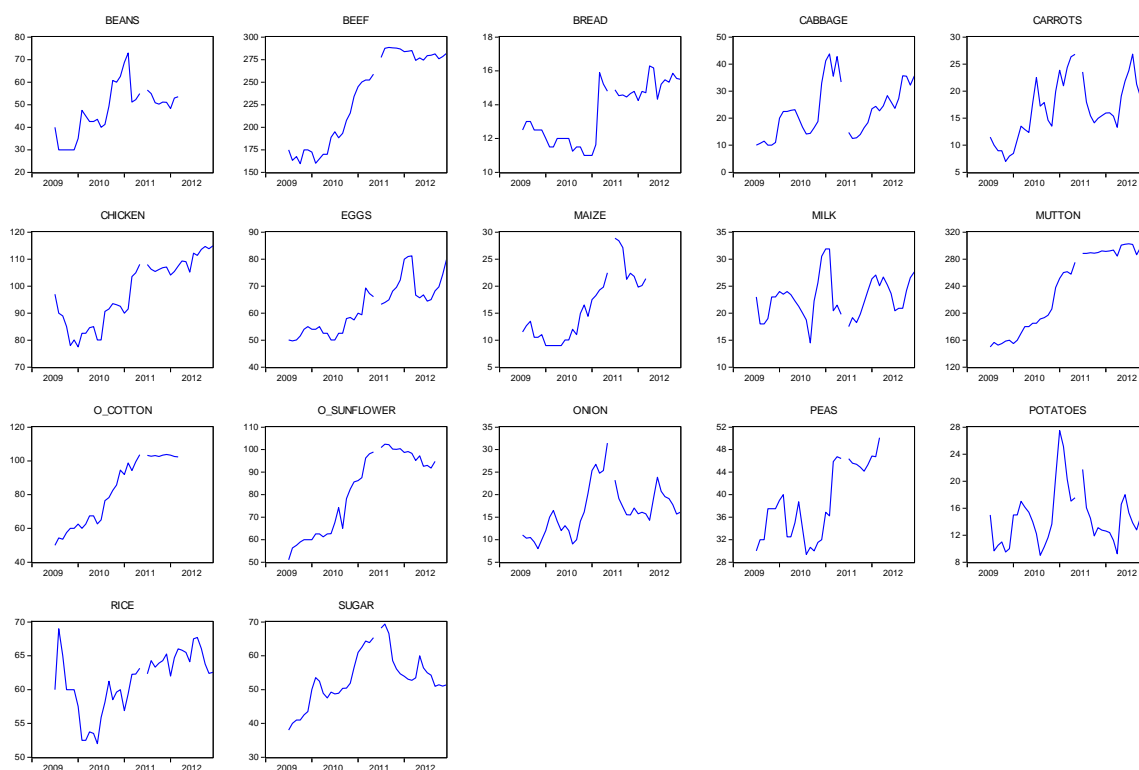
Interestingly, **bread** not only showed a high recent volatility but also a structural break as of the beginning of 2011, when prices skyrocketed to later show an upward shifted random walk.

**Milk** prices present quite a marked seasonal trend, as well as vegetables and pulses. Still, irregular increases often altered price trends substantially (i.e. potatoes, onions and cabbage). The same applies to sugar.

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<sup>14</sup> Based on national averages.

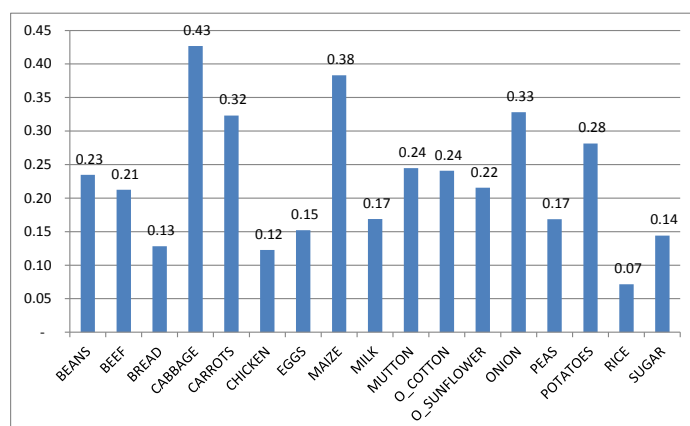
Figure 29 - Price Trends of the Food Basket Items



SOURCE: WFP - VAM Food and Commodity Prices Data Store

In terms of setting the stage to market-based transfers, Figure 30 summarizes trend behaviours by means of the coefficients of variation, providing useful information on the commodities that might be more prone to price volatility. Among those, the **evolution of cabbage, maize, onion, and potatoes prices would require a close monitoring, as well with mutton, beef, vegetable oils and beans to a lower extent. Differently, rice, sugar, chicken, and bread are less likely to present price changes as such to hinder the value of the transfer, at least in the short run.**

Figure 30 - Food Basket Coefficients of Variation



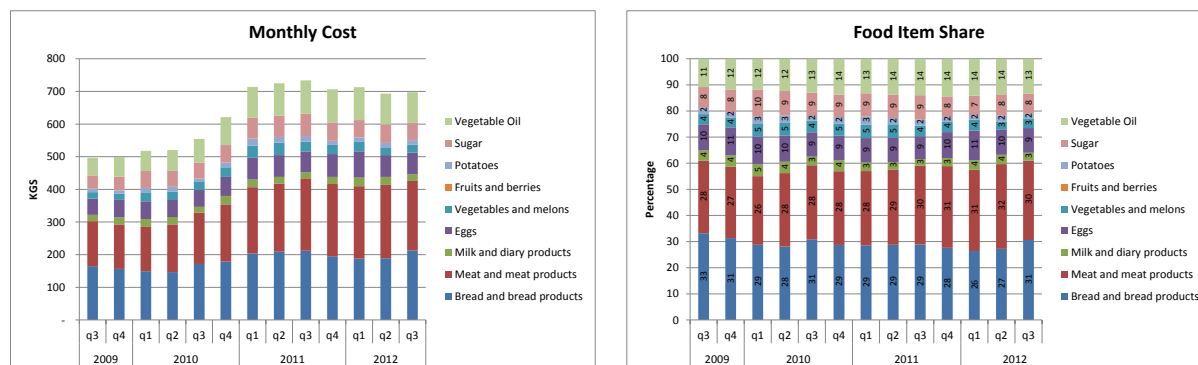
SOURCE: Authors' elaboration based on WFP - VAM Food and Commodity Prices Data Store

Overall, the evolution of the cost of the monthly food basket increased substantially since the second half of 2009. Built on actual average per capita consumption in Kg per month, the cost of the food basket estimated in Figure 31 provides mostly a reference to the changes on the cost itself



rather than informing on its actual value. In fact, it was not possible to take into account quantities actually consumed, thence the estimated values of the selected categories may end up being biased due to price averages of the commodities falling in each category.

Figure 31 - Cost of the Food Basket (excluding fruits)



SOURCE: Authors' elaboration based on WFP - VAM Food and Commodity Prices Data Store and National Statistics Committee.

Yet, it is worth noting that within the food basket, the share of each category does not change significantly across the years and within the quarters. For instance, cereal and meat products account for 60% of the total cost (and about 30% each), while vegetable oil some 13-14% and sugar 7-9%. Even though there may be relevant changes within the broader categories, still those percentages may be useful to derive the composition of food vouchers.

## 8. CONCLUDING REMARKS

This report describes food markets in Kyrgyzstan, focusing mostly on wheat. Its overall goal was to provide an understanding on the overall market functioning in the country, with specific insights relevant to gauge the feasibility of market-based programme interventions such as cash or voucher transfer.

Most of the analysis focuses on Bishkek, the capital city, and on Osh, the most important town in the south, where food insecurity bites also as a consequence of civil unrest in 2010. Besides, poor food consumption scores are also reported in Jalal-Abad, another area of possible interest for food assistance.

The findings are mostly based on secondary data review, with very limited primary data collected to map wheat/flour supply chains and trading flows; additional primary data collection may be therefore advisable to confirm or discard key results, in particular in Osh, where evidence based on price trends suggests that the market recently changed its functioning. Similarly, if other areas of the Kyrgyz Republic warrant intervention, analysis may need to be expanded to those.

The country is vulnerable to global supply downturns because of its import dependency. Another source of vulnerability comes from the overall economic dependency from the Russian Federation and Kazakhstan, including the significant flows of remittances from those countries.

Actually, the economic backdrop worsened progressively as the country has been facing several crises and very different in nature in the past few years. Poverty was estimated to have increased in

2010 as a consequence of civil unrest and violence outbreak, up to 33.7%. Despite more updated figures not being available to the best of authors' knowledge, still food insecurity was substantial, as reported in the assessments undertaken by WFP in 2012, in particular in Jalal-Abad and Osh provinces.

Most of the caloric intake is secured by wheat, followed by milk, sugar, potatoes and maize. The former two are also the major protein contributors.

Despite all staples being produced domestically, self-sufficiency is achieved only for potatoes, maize, milk and barley, while Kyrgyzstan is a net exporter of vegetables. Conversely, most of the unmet demand for other food is fulfilled by imports, predominantly for vegetable oil and wheat. Overall, some 45% of total cereals are used for human consumption, a substantial part of which is imported.

The country's cereal stocks have been severely affected by the low 2012 production figures, and the recent and enhanced reliance on imports may also be considered in the views of rebuilding the strategic reserves. Yet, provided that crop productivity is an issue, the overall wheat production has been erratic in the past years, with poor recent yields hindering latest harvest results. The wheat stock-to-use ratio has in fact declined by 44% from 2011/12 season.

Thence, concerns over potential adverse impacts on the Kyrgyz Republic arise as global grains market have been tightening after the extreme summer heat and droughts in 2012, offsetting production in most of the major exporting countries, including Kazakhstan<sup>15</sup>.

Unless food shortage becomes an issue, it may be advisable gearing up C&V interventions in the country to secure the purchasing power of those households likely affected by prospective price increases.

Food markets are potentially functioning well, in particular in Bishkek, where trading flows are secured either by domestic produce, being surrounded by Chuy province, the food basket of the country, or by proximity to the Kazakhstan border. Most of the wheat and wheat flour are in fact imported by railway into the capital city, and then traded with trucks in the rest of the country. The railway allows Kazak wheat to arrive directly in southern provinces, and specifically in Osh, via Uzbekistan, thus reducing costs since the loading capacity is bigger, even if rigid custom standards may jeopardize or delay the passing of goods.

There are few big importers for wheat, playing also the role of millers. Significantly, since the violence outbreak in 2010 jeopardized their productivity, wheat flour imports increased dramatically in 2011 to partially offset their reduced milling capacity. The strong reliance on few actors may be a risk factor, even though apparently there are no price makers among traders. However, considering no traders' survey was conducted, there is potential for spot market unbalances that may be monitored in case of market-based interventions.

In addition, limited quantities of wheat are traded locally from small farmers to minor processors, and then sold directly to local rural population. It may be advisable exploring also this distribution channel in the design phase of a market-based intervention, to be closer to potential beneficiaries in

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<sup>15</sup> Whose stock-to-use ratio declined as well by 52%. See WFP, *The Market Monitor*, issue no. 18, January 2013.

rural settings and avoid full reliance on major actors. Potential positive side effects may also spill over on local farmers enhancing their wheat profitability.

Still, price trends and transmission analyses provide evidence of how the country is vulnerable and liable to international price volatility, with the overall long-run cycles being more effective in driving prices up and down than seasonality itself and local shocks. However, the violence outburst occurred in 2010 overlapped with the increase of international prices, which further boosted pressure on domestic prices. As a result, wheat prices in local markets are more elastic to exogenous price increases than to price decreases, suggesting that their cyclical patterns tend to be shifted upward at every price crisis. Moreover, when export milling wheat price in Kazakhstan is substantially higher than Hard Red Winter no.1, FOB Gulf of Mexico, then domestic prices in Kyrgyzstan are likely to follow the former and are bound to increase. A closer monitoring on Kazak price evolution may therefore be a strategy to forecast price changes on local markets and suggest vouchers fine-tuning.

Notwithstanding this inherent vulnerability, markets in Kyrgyzstan are fairly integrated, and wheat prices present high correlations across the country. Still, considering wheat prices in Osh as compared to Bishkek, it can be noted that a structural change have occurred in the past year and a half, driving Osh prices well above the national average, while in the past it used to be the opposite. This finding may infer to supply challenges occurring in that province, as also informal trade suggests. Besides, price in Osh are less correlated with international prices, and seasonality is more effective to drive price changes; as a conclusion, it is possible to speculate that local supply contributes relatively more in meeting the demand in Osh than in other markets, thence allowing further concerns once local produce is weak. In the wake of market-based intervention, it may be recommendable testing traders' capacity to respond to increased demand, when local supply is poor.

In order to buffer the value of potential cash/vouchers against inflation, it is advisable to adhere to the upper band forecasts presented in the text, in particular when price variability is higher, i.e. May-July and October-November in Osh. This recommendation holds broadly for the other markets as well.

With regards to other food items, as the share of the cost of the food basket within the different food categories has been constant in the past two years, it is advisable to design the food basket contemplating 30% of the value for cereals, 30% for meat, 14% for vegetable oil, 8% for sugar, and the remainder for other items. This recommendation holds unless nutritional gaps are envisaged, and may be desirable targeting specific foods in the frame of food assistance interventions. Still, as most prices are steadily increasing, the value of the transfer needs to be reviewed and/or revised potentially every quarter, and be constantly monitored to allow appropriate fine-tuning.

Finally, the feasibility of market-based intervention is appropriate, at least in the major cities, where traders are able to channel food adequately and where apparently there is limited risk to drive inflation beyond its natural cycle pattern. The presence of few importers also involved in processing activities may be a risk factor to be addressed in the design phase, by also involving those actors in the whole process. Still, reduced availability resulting from Kazakhstan supply drawbacks remains a major threat that may hinder the overall feasibility of market-based programmes.

With regards to Osh, additional concerns apply as the market presents spot unbalances that may require further inquiring or at least a close monitoring starting from the very beginning of the implementation phase. Besides, in outskirts locations and in rural settings, there is room for potential distortion of the market functioning, even though the involvement of local small actors may be an opportunity to be explored.

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