Markets and cash transfers in Ethiopia:

insights from an initial assessment.

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Data collected in October 2012

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Executive Summary

In line with the government's 'cash first' policy for social transfers, the World Food Programme (WFP) is preparing the introduction of cash or voucher transfers in Ethiopia. This market assessment offers considerations that inform the design of such interventions for WFP. The report relies on secondary data analysis, consultations with WFP partners and a primary data collection exercise that covered 17 markets of Amhara, Somali and Tigray regions in October 2012.

In Ethiopia, years of double-digit GDP expansion, and strong demographic growth adding some 2m people to the population each year, are supporting **an increase in aggregate domestic food demand**. Although the country is self-sufficient for many staples, domestic food production is struggling to keep up with buoyant demand, making imports of wheat, vegetable oil and sugar necessary. Persistent food inflation – which has made nominal food prices triple since 2007 - has at times prompted authorities to restrict trade in cereals, or to set price ceilings on selected commodities. Cash or voucher transfer programs would therefore be implemented in a context of buoyant prices and dynamic macroeconomic conditions.

Economic analysis confirms that cash or voucher transfers usually constitute a cost-efficient transfer mechanism in Ethiopia, compared to in-kind food aid. However **substantial seasonal changes** in local food prices, exchange rate variations and volatile international market conditions **have a strong bearing on the cost efficiency of cash or voucher transfers**. Market integration - a necessary condition for the implementation of cash or voucher transfers at scale **- is stronger for maize than for wheat**. Average price correlations reach 0.6 for maize, against 0.4 for wheat, on 34 markets monitored by WFP. Although there is evidence of strong market integration in Oromiya and Dire Dawa, in Amhara and the Southern Nations Nationalities and People's (SNNP) region for maize, and for wheat in Tigray; whereas lower levels of food market integration in Afar, Gambella and in more remote sections of other regions argue against large-scale cash or voucher transfers in those areas.

Primary data shows that **markets that are either 'large'** (with weekly transactions exceeding 500 tons of grain) **or where maize or imported rice is the dominant commodity are most likely to react well to cash transfers**. Although it has long been considered off-limits to cash transfers, the northern tier of Somali region is found to have characteristics supportive of cash transfers due to strong links to international markets. In order to enhance market response to cash transfers, WFP will consider ways of overcoming the constraints that traders face, such as access to working capital, restrictions on storage, and quotas on imports.

Looking ahead, WFP's approach to cash or voucher programming will be **flexible**, and will provide for adaptations as market conditions change. In-kind food transfers could continue to be a complement to cash transfers at times of the year when stocks are low, during poor years or in areas where markets remain insufficiently developed. **Close monitoring of the dynamic economic conditions** at play in Ethiopia will be necessary. Consideration will be given to engaging in **policy advocacy** with the government on measures that could affect market's capacity to accommodate cash or voucher transfers. As the methodology used in this report falls short of offering a detailed local analysis of market functionality, WFP will carry out further in-depth localized analysis of market conditions in the country, with reference to the broad criteria this report has identified.

Acknowledgements

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Acronyms

CFSAM: Crop and Food Assessment Mission
CPI: Consumer Price Index
CSA: Central Statistics Agency
DRMFSS: Disaster Risk Management and Food Security S
FAO: Food and Agriculture Organization
FOB: Free on Board
EGTE: Ethiopian Grain Trading Enterprise
ETB: Ethiopian Birr
GDP: Gross Domestic Product
PSNP: Productive Safety Net Programme
SNPPR: Southern Nationalities and Peoples' Region
USDA: United States Department of Agriculture
USAID: United States Agency for International Development
USD: United States dollar
WFP: World Food Programme

Contents

List of Tables and Figures

1-Background and scope

This initial section is meant to offer an overview of study objectives, and to present the methods used to support this report's findings.

1.1 Rationale and objectives

Since the introduction of the Productive Safety Net Programme (PSNP) in 2005, Ethiopian authorities have sought a 'cash first' principle in the delivery of assistance to programme beneficiaries. Cash programs have a history of being implemented at scale in Ethiopia - the PSNP targeted in 2010/2011 some 7.7m beneficiaries, of which over 4m received cash assistance. WFP is now considering the introduction of cash or voucher modalities in its country portfolio, as it revises its Protracted Relief and Recovery Operation for 2013-2014.

This study offers analytical support to WFP's decision making as cash transfer activities are designed. It includes:

i) an overview of basic conditions and market integration in Ethiopia;
ii) analysis of the cost-efficiency of cash or voucher programming ;
iii) an overview of market response capacity in Amhara, Somali and Tigray;
iv) recommendations for follow-up actions for the WFP country office.

The assessment focused on Amhara, Somali and Tigray regions, identified by WFP Ethiopia as priority areas for market analysis.

1.2 Methodology and Limitations

This assessment relies on secondary data analysis and primary data collection. Food supply data from the Food and Agriculture Organization (FAO) and the US Department of Agriculture (USDA) were used. Price data collected by WFP sub-offices were used for the cost efficiency calculations. Price data from the Somalia Food Security and Nutrition Analysis Unit were used.

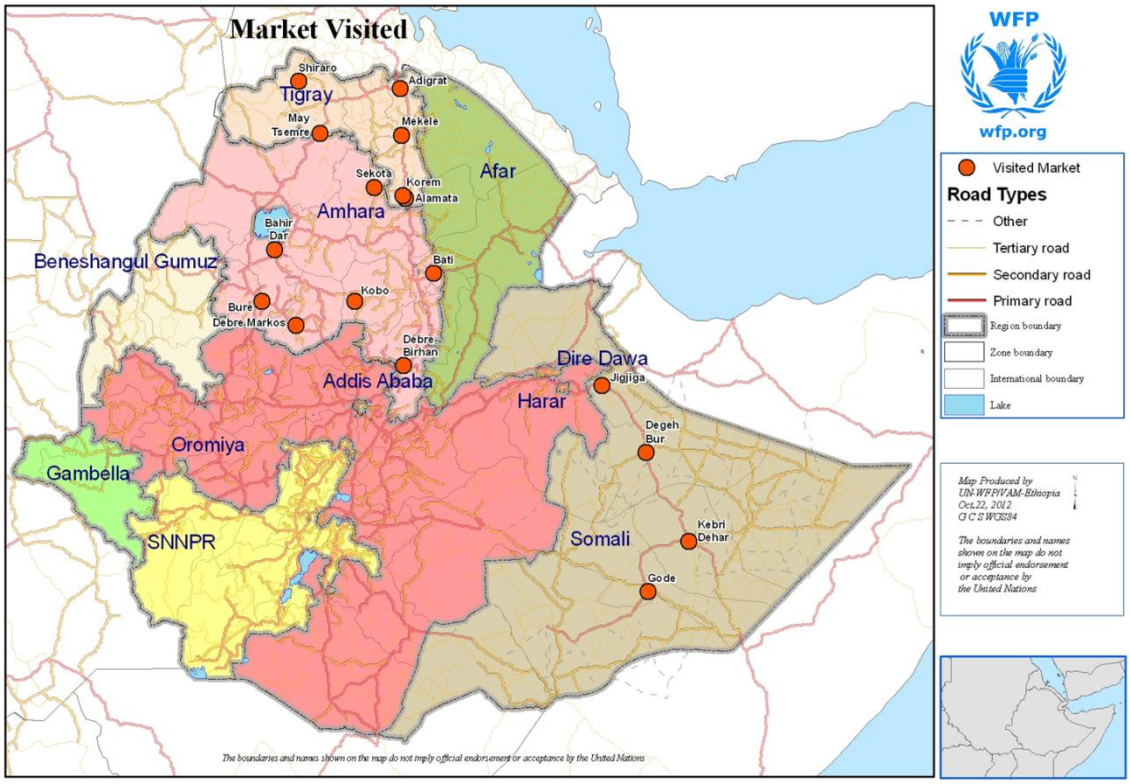
Primary data collection was undertaken October 12th through 20th, 2012 in 17 markets of Amhara, Somalia and Tigray regions (Table 1), using a market questionnaire that involved soliciting focus groups of traders. These 17 markets were purposively selected; the list includes both remote and accessible markets. The sample also includes major cereal-supplying markets of Amhara region. The sample therefore offers a perspective covering surplus and deficit areas of in the regions of concern.

The questionnaire included modules on supply, trade volumes, transportation, storage, market response capacity and trader constraints. The questionnaire was tested in Debre Birhan on October 11. Data collection took place with the support of WFP sub-offices and sub-office food monitors.

TABLE 1: MARKETS VISITED FOR PRIMARY DATA COLLECTION

Region	Zone	Market Name
Amhara	Bati	Bati
	Kobo	Kobo
	Sekota	Sekota
	Bahir Dar	Bahir Dar
	Bure	Bure
	Debre Markos	Debre Markos
	Basona	Debre Birhan
Somali	Fafan	Jijiga
	Shabelle	Gode
	Korahe	Kabri Dehar
	Jarar	Degahabur
Tigray	Raya Alamata	Alamata
	Ofla	Korem
	Tseleti	May tsebri
	Sheraro	Sheraro
	Ghanta Afshum	Adigrat
	Enderta	Mekelle

FIGURE 1: MARKETS VISITED FOR PRIMARY DATA COLLECTION



This study aims to support WFP's introduction of cash or voucher transfers in Ethiopia in the short-term. The team therefore opted for data collection methods that could provide conclusions within a short time frame. Limitations of this study include the inherent seasonal variation in many of the indicators presented. Findings presented in this document amount to the outcome of a rapid and thematically focused survey; insights derived from this exercise would only remain valid until a more robust assessment is carried out. It is noted that the Disaster Management and Risk and Food Security Sector (DRMFSS) coordination has planned to conduct a comprehensive study of Ethiopian food markets in 2013.

The mission met with government representatives, including the DRMFSS, the Ethiopian Grains Trade Enterprise (EGTE), the World Bank, and with the NGOs Action Contre la Faim, Oxfam Great Britain and Save the Chilldren. Extensive internal consultations took place with the WFP country office. Initial findings were presented to WFP management on October 22, 2012.

2. A Dynamic Market Environment

This section offers an overview of basic conditions governing the behaviour of food markets in Ethiopia, considering macroeconomic trends, food supply patterns, and the policy environment. Robust growth in aggregate demand, chronic food price inflation, strong government intervention and a depreciating exchange rate are essential features of the environment in which WFP would implement cash or voucher transfers.

2.1 Sustained economic and demographic growth is fuelling a rise in aggregate food demand

Strong demographic and economic growth has been driving increasing aggregate food demand in Ethiopia. While per capita income remains well below the sub-Saharan African average, the country has experienced years of strong economic growth, with real GDP rates above 10 per cent over the past five years (Table 2). The 2012 FAO/WFP Crop and Food Supply Assessment Mission (CFSAM) report indicates the population of Ethiopia, estimated at some 84m as of mid-2012, is increasing by 2m people each year.

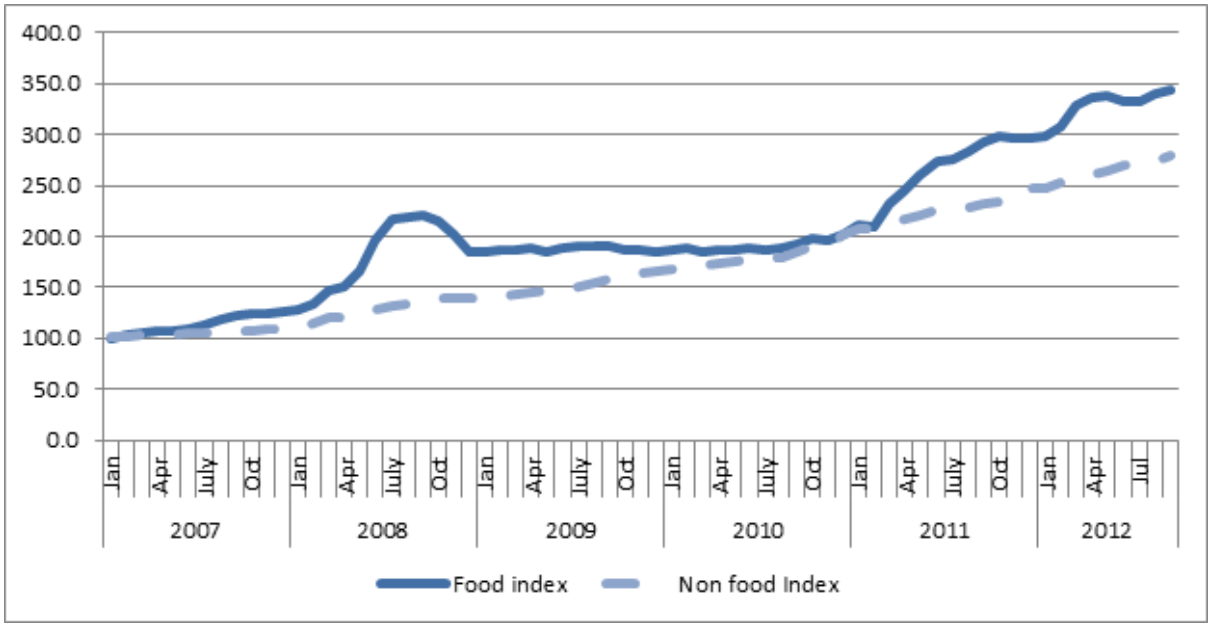
TABLE 2: SELECTED MACROECONOMIC INDICATORS

	2007/2008	2008/2009	2009/2010	2010/2011
Real GDP growth	11.6 %	10.1%	10.6%	11.4%
Inflation (12-month moving average)	18.4 %	40.6 %	10.8%	9.4%
Food inflation	23.6 %	54.1%	6.4 %	3.4%
Exchange rate Birr/USD	9.24 %	10.4%	12.89%	16.11%

Source: FAO/WFP (2012)

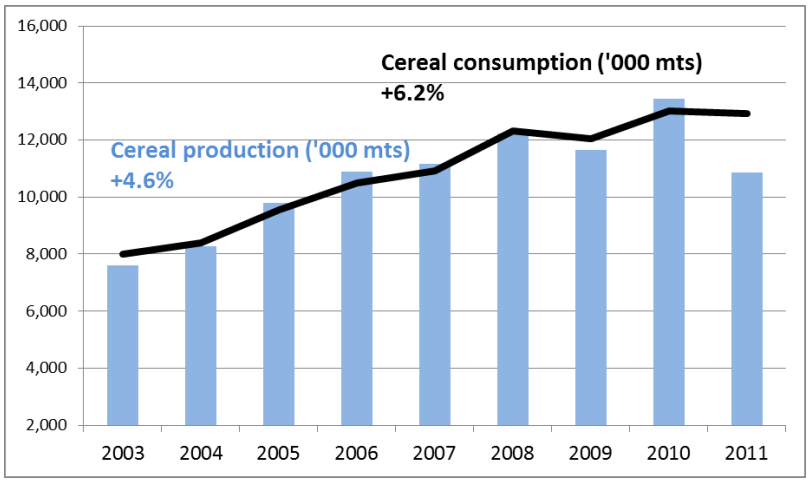
In a context of rapidly rising incomes and population levels, food inflation has understandably become a feature of the Ethiopian macro economy. As Figure 2 shows, the food component of the consumer price index (CPI) has increased by a factor of 3.5 since 2007. The food component of the CPI increased faster than overall inflation from mid-2007 into 2008, in tandem with rising international commodity prices. Food prices subsequently remained stable until 2011, when increases began anew, lasting through 2012.

FIGURE 2: FOOD AND NON FOOD PRICE INDICES, 2007-2012



Although Subran (2007) has argued that the increase was mainly driven by monetary expansion, it appears that growth in aggregate demand has also been a contributing factor. At 6.2% a year since 2003, consumption growth for barley, maize, sorghum and wheat has outstripped production of the same items, at 4.6% (Figure 3).

FIGURE 3: TRENDS IN CONSUMPTION AND PRODUCTION OF BARLEY, MAIZE, SORGHUM AND WHEAT 2003-2011.



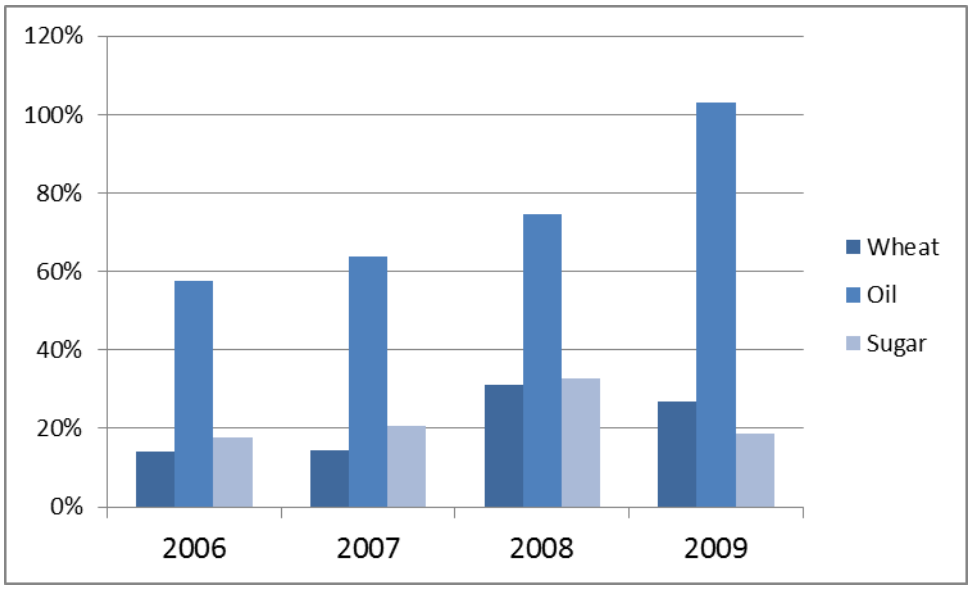
Source: data from USDA (2012)

As the Ethiopian economy has expanded, so has demand for livestock products. Feed use has therefore been rapidly rising, rising from virtually nil in the 1990s to an estimated 400,000 tons in 2011, according to USDA (2012). It is thought that some 3 per cent of sorghum and 6 per cent of Ethiopian domestic maize production is used for animal feed, further fuelling domestic demand growth for cereals.

Although the sector is receiving substantial investment, food production in Ethiopia remains volatile and subject to shocks that can lead to substantial changes in annual food production levels. For instance, USDA estimates show that in 2011 domestic production of barley, maize sorghum and wheat declined by 8 per cent compared to the previous year, due to erratic rains. Strong demand fundamentals are likely to result in sustained upward pressure on nominal domestic food prices, a factor that WFP would have to monitor as it designs and implements cash or voucher interventions, as there would be implications for cost-effectiveness and the sizing of entitlements.

The expansion of aggregate demand is also 'pulling in' imports. While local production continues to account for the bulk of domestic food supply, Ethiopia has been reliant on commercial imports for specific food items. As shown on Figure 4, imports have accounted for 15 to 35 per cent of domestic wheat supply, 12 to 25 per cent of the sugar supply and more than half of domestic vegetable oil supply from 2005 to 2009. In fiscal 2011-2012, EGTE - in practice the sole importer of wheat - has imported some 600,000 tons of the commodity, primarily from the Black Sea. Over the past 5 years, Ethiopia has imported on average some 160,000 tons of vegetable oil, primarily palm oil. In In 2009 and 2010, according to data available on FAOSTAT, vegetable oil imports exceeded 200,000 tons. Some 75,000 to 175,000 tons of sugar were imported on an annual basis between 2005 and 2009.

FIGURE 4: IMPORTS AS A SHARE OF DOMESTIC SUPPLY, WHEAT, VEGETABLE OIL AND SUGAR, 2005-2009



Source: FAOSTAT data

Ethiopia's reliance on imports for commodities used in food aid programs implies that global market conditions have an impact on decisions to source commodities and in the cost-efficiency of in-kind assistance. In-kind food aid in Ethiopia is sourced from local markets, with combined needs for the PSNP and WFP programs running close to 1m tons of cereals for 2012. According to FAOSTAT, Ethiopia imports some 500,000 tons of food aid per year.

Considering the substantial implications of macroeconomic trends on operational matters, WFP will monitor the cost of the food basket in its areas of intervention, in order to allow for timely and adequate adjustments to transfer rates. On a monthly basis, WFP will monitor changes in the cost

effectiveness of cash or voucher distributions against in-kind assistance, in order to understand whether economic circumstances argue for a shift from cash to food or vice-versa.

2.3 Policies aim to keep food prices low

In a context of rising food inflation, the government closely monitors food markets and will intervene in markets to keep prices low. Import and export bans have been in place at various times in past years. As food costs spiralled in Ethiopia in early 2011, the Federal Ministry of Trade set retail price ceilings for 18 basic food products, and implemented direct sales of cooking oil and sugar. As of 2012 price ceilings remain in place for sugar, vegetable oil and imported wheat.

Although import of the commodity is unrestricted, EGTE is in practice the country's sole importer of wheat. The commodity is sold at a fixed price to traders and wheat mills. Subsidized imported wheat is distributed through consumers associations that run shops throughout country. Sugar and edible palm oil imports take place through the state-owned Merchandise Wholesale and Import Trade Enterprise (MWITE). The Ethiopia Sugar Corporation is mandated to supply sugar (imported and locally produced) to MWITE for distribution. Palm oil and sugar are distributed to private traders, consumer associations, and farmer cooperatives that are selected by the regional government. Ethiopian food traders are subject to the close scrutiny of authorities, and face measures that include restrictions that are meant to discourage hoarding. In practice, if food inventory value exceeds registered capital +25 per cent, traders are subject to fines.

Ethiopia's Emergency Food Security Reserve Agency is able to store over 400,000 tons of grain. According to USAID (2012), the reserve loaned grain to humanitarian agencies against a promise of replenishment. However, since 2008, the Ethiopian government has borrowed against the reserve in order to sell grain and stabilize prices. As of October 2012, FSRA stocks at hand were estimated at 178,000 tons.

Since 2008, the central bank's policy has been to let the birr gradually decline against the US dollar. Although the 20 per cent ordered devaluation of the Birr in September 2010 did not translate to an immediate increase in inflation (USAID, 2011), the decision nonetheless had implications for the competitiveness of local goods relative to imports. The birr has been steadily declining in value over the past decade.

Basic conditions – Key messages

- **Aggregate demand for food is rising rapidly** due to economic and demographic growth, fuelling **buoyant food prices** and the need for imports.
- Government **actively intervenes in national food markets**, through state enterprises and regulations that restrict trade and prices;
- Cash programming in Ethiopia would therefore take place in a **dynamic economic context**; a constant **stream of updated economic analysis** is required to support informed decision-making for the implementation of cash or voucher programs.

3. Market integration: can markets adjust to increased demand?

Cash and voucher transfer systems rely on integrated food market systems that allow supplies to flow from surplus to deficit areas, allowing an increase in demand to take place without undue price increases. Integrated markets limit price spikes and are most stable than isolated market systems. This section assesses the extent to which Ethiopian markets are integrated. According to data available from FAOSTAT, maize is the most important contributor to Ethiopian food supply (43 kg/capita), followed by wheat (34kg). The analysis presented in this section therefore focuses on those two commodities. This section also offers more qualitative insight into market integration in the Somali region.

3.1 Price correlations indicate a higher level of integration for maize than wheat

Price correlations offer an indirect indication of the extent to which markets are integrated. A coefficient of 1 indicates a synchronous variation of prices in the two markets. A value of zero indicates no relationship in price variation. A coefficient of -1 expresses an inverse relationship, with a price rise in one market being matched by a decline of equal magnitude in the other, and vice-versa. Higher coefficients indicate a higher degree of integration. Markets showing low coefficients should be considered as unsuited to cope with the surge in demand that large-scale cash or voucher programs would create. Analysis of price correlations for maize (34 markets) and wheat (31 markets) were calculated over 2006-2012. Full output tables are available in Annex 1.

The first insight this analysis offers is that coefficients tend to be higher for maize (0.6) than for wheat (0.4). This suggests that maize acts as the 'swing' commodity that accommodates changes in supply and demand at the national level. Nonetheless, the local maize market value is characterized by inefficiencies, that include i) price volatility, ii) seasonality in marketing, and iii) lack of depth as outlined in IFPRI (2010). The wheat market seems more fragmented than for maize, with the commodity playing a limited, localized role in supporting market integration. This suggests that the functionality of the national maize market is an important factor for a successful large-scale cash or voucher intervention in Ethiopia.

Secondly, the analysis suggests that significant geographical disparities exist in market integration. The markets of Oromiya, Dire Dawa show high levels of price co-variation for both maize and wheat, indicative of an adequate level of market functionality. Markets in Amhara show above average coefficients for maize, while coefficients for wheat are lower. Market integration seems adequate in eastern Tigray, where coeffciients suggest that a fairly functional wheat market exists in spite of low market integration for maize. Although correlation coefficients are generally below average for both commodities in SNNP, some markets of the region demonstrate high levels of integration for maize. The regions of Afar and Gambella stand out as poorly integrated with other markets of Ethiopia for both wheat and maize.

For maize, coefficients are elevated in the markets of Amhara, Oromiya, Dire Dawa, parts of Tigray (Alamata , Korem and Abi Adi,) and SNNP (Wonago/Dila, Meskan/Esenso, Sodo, Hossana and

Awassa Zuriya). Low levels of maize price co-variation are however evident in the markets of Afar, in Gambella as well as in the remaining parts of Tigray (Adwa, May Tsebri, Sherar, Adigrat and Hawzen) and SNNP (Aleta, Wendo, Hadero and Dalocha). In the case of wheat, the markets of Tigray, Sodo and Amaro in SNNP, Mota (Amhara) and Dire Dawa show price correlation coefficients above 0.6. Weaker correlations are seen in the remaining markets of Amhara (Ajeber, Debark, Sekota, Ebinat, and Nefas Mewcha), SNPPR (Hadero, Dila, Meskan, Awassa, Hosaena), as well as the markets of in Afar and Gambella region.

3.2 Market integration in Somali region and the four Somali myths

The specific situation of market integration in Somali region deserves more extensive commentary, due to the existence of 'Somali myths' heard in food security circles. They are paraphrased below:

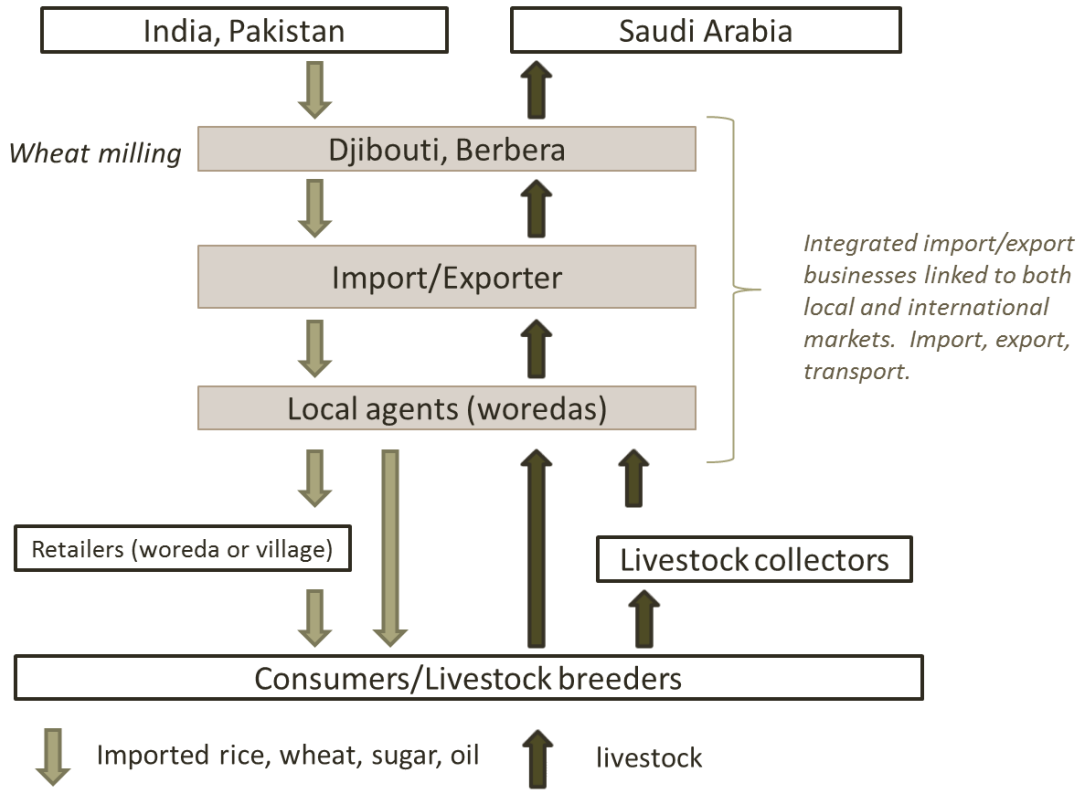
i) *Markets in the Somali region are not integrated;*
ii) *Restrictions on movement and trade in Somali region reduce market functionality;*
iii) *Food availability is too low in Somali region to support cash programming;*
iv) *In-kind food aid distributed in Somali region is critical to support local availability.*

Along with Afar, Somali is the only region of Ethiopia where the PSNP exclusively distributes in-kind assistance to beneficiaries, suggesting that these 'Somali myths' have influenced decision making. This report argues for a more nuanced view of food market integration in Somali region.

Myth 1 –' Markets in Somali region are not integrated'

Contrary to myth, the northern reaches of Somali region are anchored to global markets thanks to the vigorous circulation of goods and capital the area's livestock export trade generates. The zones of Diti, Fafan and most of Jarar are well integrated with the world market, the buoyant livestock export trade 'pulling' in imports from overseas. The vibrant two-way trade is directed by importer/exporters, vertically integrated businesses with access to foreign exchange that are able to order food from overseas, import, store, and tranship commodities to the markets of Somali region, as illustrated in Figure 7. Staple food importers are also livestock exporters, collecting and shipping animals for export to the Middle East through the ports of Djibouti and Berbera. On a daily basis, some 800 small ruminants are sold on a market such as Degahabur, generating sales equivalent to some USD 12-15m on an annual basis for that sole market. The livestock trade generates the foreign exchange required to import the staple foods that the predominantly pastoral population requires.

FIGURE 5: IMPORT AND EXPORT FOR STAPLE FOODS AND LIVESTOCK



Source: market questionnaires

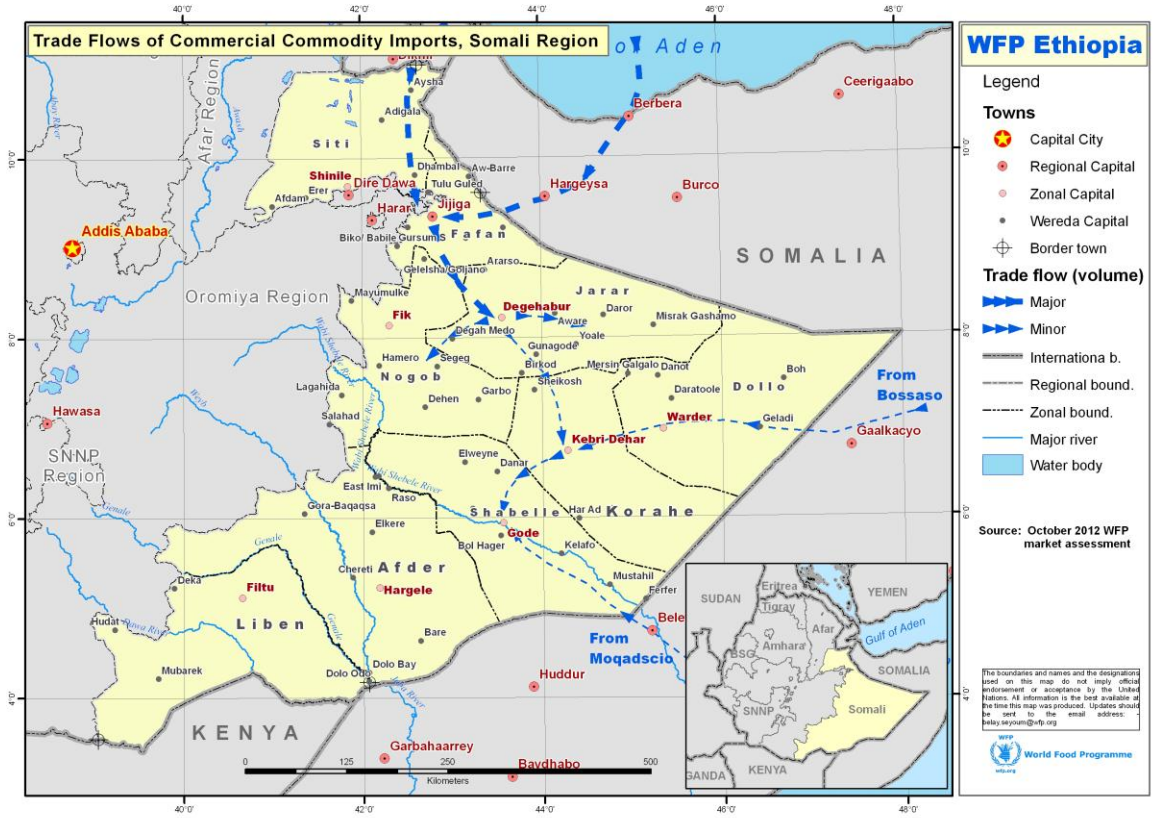
The functionality of this system should nonetheless not be overstated; the livestock market is less functional in central and southern parts of Somali region. It is the case, for instance, that pastoralists will trek from southern *woredas* to Jarar to sell their animals, before returning south with food. Market access is less functional outside of Somali region's northern tier.

Myth 2- - 'Restrictions on movement and trade limit market functionality in Somali region';

Due to the presence of armed groups in Somali region, authorities impose escorts on some routes in Somali region, preventing the free movement of goods. Areas such as Nogob (Fik) are indeed very difficult for traders to access – as traders report having to wait for days to obtain escorts. The import quota for Nogob is in fact undersubscribed, a clear indication that the private sector is unable to serve the area, and that in-kind food assistance probably serves a determining role in supporting local supply. However, traders in central and southern woredas report being able to carry out sustained long-distance trade with importers based in Somalian ports of Berbera, Bossaso and Mogadiscio (Figure 8).

Although government restrictions on imports have been a prominent feature of trade in the region since 2011, a large illegal trade with Somalia allows traders to import quantities above official quotas, albeit at the risk of being subject to customs seizures.

FIGURE 6: TRADE FLOWS OF COMMERCIAL COMMODITY IMPORTS, SOMALI REGION



Myth 3 –' Restrictions on movement and trade in Somali region reduce market functionality';

With Afar, Somali region is the only region of Ethiopia where the PSNP distributes food only. In 2012 the PSNP caseload was 700,000 beneficiaries in Somali region. The choice suggests that practical considerations argue against the use of cash transfers in Somali region.

As analysis presented in section 3 shows, there is some integration of markets in Somali region to others in Ethiopia, especially in Oromiya and Dire Dawa. Markets in the more integrated and secure northern tier of Somali region could support cash programming, as supply can be expected to respond efficiently to increased demand. Particularly in Fafan, Siti and Jarar, market functionality should be sufficient to support cash transfer programs. It is not advised to implement cash or voucher distributions in the areas of Somali region affected by insecurity and restrictions on movement, notably Nogob *woreda* and adjacent areas.

While restrictions on trade do exist in Somali region – notably import quotas - these do not seem to constitute an immediate obstacle to food availability, especially in the more integrated areas of the northern tier of the region. This ties in to myth 4, regarding food availability in Somali.

Myth 4 –' In-kind food aid distributed in Somali region is critical to support local availability'.

The role of food aid in supporting availability is controversial. Humanitarians stress that in-kind aid is a fundamental contributor to local food availability. The claim probably arises from the weakness of local production: at an estimated 33,000 tons (2012 CFSAM), equivalent to less than 7kg of grain per

capita, local grain production is a marginal contributor to aggregate cereal availability in Somali region. WFP figures show that in 2011, WFP distributed the equivalent of 170,000 tons of cereals, equivalent to 34kg per person that year. The PSNP food distributions, totalling some 51,000 tons of cereals, contribute a further 10kg a year. With reference to the 160kg cereal consumption benchmark for Ethiopia, it seems that licenced commercial imports in Somali region account for half of the region's consumption needs, probably more should informal imports be included. In-kind food aid from WFP and the PSNP cover between a quarter to a third of grain availability in Somali region(Table 3).

TABLE 3: ANNUAL IN KIND FOOD AID AND LICENSED IMPORT VOLUMES IN SOMALI REGION

Source	Aggregate (cereals) – tons	Per capita (assuming 5m) –kg
WFP in-kind	170,000	34kg
PSNP in-kind	51,000	10 kg
Local production	33,000	7 kg
Licenced imports	~400,000	~80kg
Informal imports	Undetermined	Undetermined
Total, exclusive of informal imports	~524,000	~130kg

Source: WFP and PSNP distribution reports, interviews with traders in Somali region

Contrary to myth, licensed commercial food imports constitute the cornerstone of food supply in Somali region. The government authorizes the private sector to import some 300,000 tons of rice alone on an annual basis, equivalent to 60kg of that cereal for each inhabitant of the region. If the wheat flour and pasta quotas are added, per capita availability emanating from licensed commercial imports exceed 80kg of grain per person. This amount is exclusive of informal imports, which account for a substantial share of availability in border *woredas such as* Dollo, Korahe and Shabelle. The fact that some re-export of imported goods to other parts of Ethiopia take place seems to bear witness to the market system's ability to respond to price signals.

The government import licensing system in Somali is implemented to keep prices low. Importers report that they are expected to bring food cheaply, or risk losing their license. Considering their large share of aggregate availability and their relatively low price, imports – rather than in-kind food aid – are the key to supporting the stability of Somali region's markets, and low prices for the population.

Market integration – key points

- **The market for maize** generally seems more integrated than the market for wheat. The national maize market's functionality should therefore be monitored, as its capacity to adjust to changes in demand would be critical for cash and voucher programs;
- In Oromiya and Dire Dawa , both maize and wheat markets are well integrated. The maize market is well integrated in Amhara. Parts of Tigray, Afar and Gambela show very low levels of price co-variation for both wheat and maize, suggesting that markets there would not support large scale cash or voucher transfers without leading to substantial price effects;
- Although Somali region faces tight government regulation and insecurity**, markets in the region's northern tier** are well integrated and could support cash or voucher transfers.

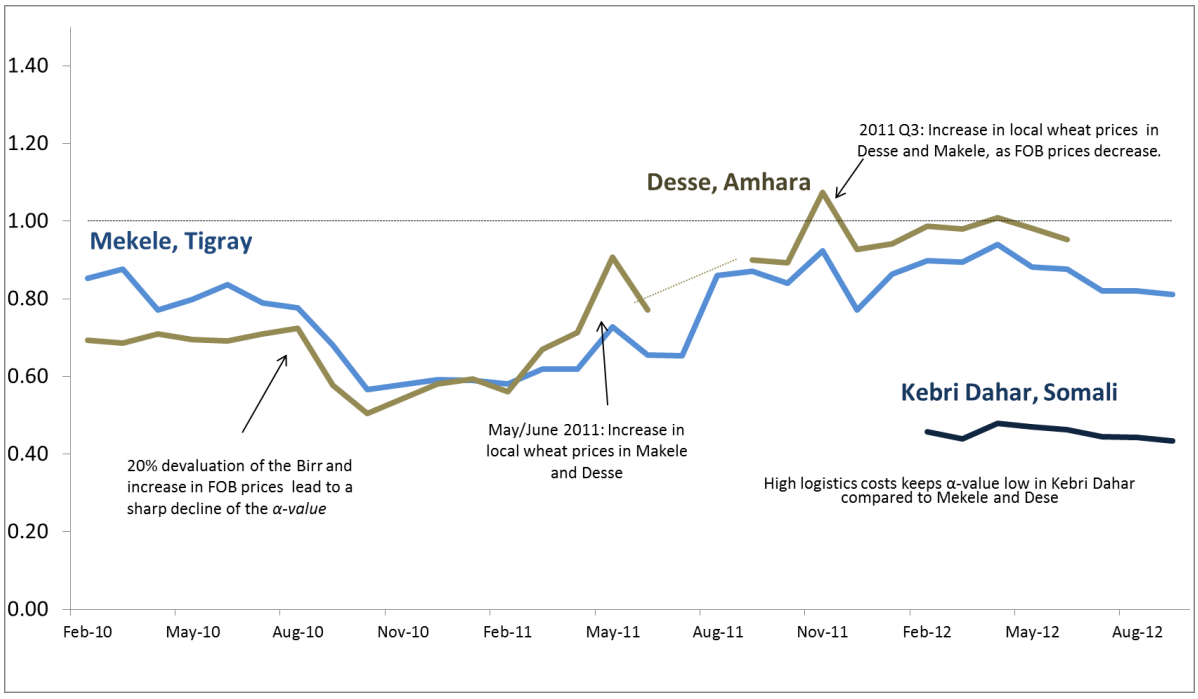
4. Cost efficiency of food and cash transfers

The alpha value expresses the ratio the WFP food ration's market value to the cost of delivering the same ration as food aid. A value above one indicates that in-kind food is cost-effective relative to cash or voucher transfers. A ratio below one indicates that the market is cheaper than in-kind food aid, and that alternatives to in-kind food aid should be considered. It is acknowledged that WFP is currently piloting more sophisticated approaches to assess cost-efficiency; due to limitations in time and in data availability, the analysis offered here focuses on the alpha value. Analysts at WFP Ethiopia should attempt to further explore cost efficiency of cash transfers as guidance becomes available.

The alpha value was calculated from February 2010 through September 2012 for three Ethiopian markets, Desse (Amhara), Kebri Dahar (Somali) and Mekele (Tigray). For the purposes of this exercise, the ration considered is the WFP relief ration (135 kg wheat, 13.5 kg pulses and 4 kg vegetable oil, on an annual basis). The alpha value calculation presented here does not include blended food, as price data for that commodity is not available. The alpha value calculation for Kebri Dehar does not include pulses, as the commodity is not available at retail on that market. The data series for Kebri Dehar is also shorter than for the other markets. Data on WFP operational was derived from WFP project data and internal sources. Retail price data was obtained from WFP sub offices and the Central Statistics Agency (CSA).

Results appear in Figure 7. As expected, the alpha values are generally below 1 in the markets considered, indicating that cash or voucher transfers are usually cost-effective compared to food. The analysis also provides insights into the seasonal variability in the alpha value, and geographic disparities in alpha value levels, both issues that warrant further discussion.

FIGURE 7: THE ALPHA VALUE FOR MEKELE, DESSE AND KEBRIDAKAR, 2010-2012



Source: WFP project and price data. CSA for vegetable oil and pulse prices. Exchange rate data from oanda.com.

Firstly, the analysis shows that **alpha values vary substantially from month to month**, as seasonal price changes take place, and as international market conditions evolve. Factors that lead to a decline in local prices – such as the arrival of the harvest or the onset of a devaluation – push down alpha values, as local markets become more competitive relative to imports. For instance, the sharp decline in the alpha value from 0.8 to 0.6 in Desse and Mekele in September 2010 is attributed to the 20 per cent overseen devaluation of the birr against the US dollar. Similarly, an increase in international food prices will also reduce the alpha value, as local goods become cheaper relative to imported in-kind food aid.

It is known that Ethiopian grain markets experience substantial variation from season to season, as prices plunge following the harvest, only to rise during as the lean season. These seasonal peaks and troughs in local food prices lead to a similar pattern for the alpha value – implying that the cost effectiveness of cash or voucher interventions relative to in-kind food aid varies from season to season. The increase in the alpha value observed in Desse in March-May 2011 is linked to a seasonal spike in local food prices. Figure 7 shows that the alpha value tends to be higher midyear quarter, only to drop at thereafter, in the cases of Mekele and Desse.

The substantial inter and intra-annual variation of the alpha value indicates that the cost effectiveness of cash or voucher interventions is highly sensitive to macroeconomic trends and to seasonal trends in domestic food availability. Whereas cash or voucher interventions were cost-effective in Desse for much of 2010, the cost effectiveness of such modalities declined in 2011, and at one point food was cost effective compared to food. Decision makers should be aware that although cash or voucher interventions are generally cost effective relative to in-kind food aid, variations in international prices, changes in Ethiopian macro economy and inherent instability of local food prices have a substantial bearing on the cost effectiveness of a given transfer modality. In the case of a major shock to domestic prices (i.e. after a drought), in-kind assistance can, temporarily, become cost effective compared to cash or voucher transfers.

Another important feature of the alpha value in Ethiopia is **the important geographical differences in the cost-effectiveness of cash or voucher interventions** relative to in-kind food aid. Figure 2 shows that the alpha value in Kebri Dehar (Somali region), at 0.4, is well below the levels observed in Desse and Makelle (0.5-1). High WFP logistics costs are the main driver of the low alpha value in Kebri Dahar. The short series available seems to indicate that seasonal supply factors have less of an influence on the alpha value in Somali region, the fact that the 'comparator commodities' are imported and therefore not subject to seasonal price variations would explain that stability in the series.

Changes in Ethiopia's macroeconomic environment or usual seasonal variation in domestic food prices have substantial and immediate repercussions on the cost effectiveness of cash or vouchers. WFP would need to monitor these indicators in order to make informed decisions on the transfer modalities it would adopt, and in order to update transfer values as underlying prices changes. Approaches that provide for cash transfers during the post-harvest period, and in-kind assistance during the lean season, could well be appropriate in some cases.

In closing, a caveat is necessary. It is recognized that the alpha value does not capture the full picture of the cost-efficiency of a cash operation, as it does not account for distribution costs. The analysis presented here has only covered three markets; it would be useful to have this information for more

markets in more regions of the country. As additional information becomes available, it is recommended that WFP conduct more refined analysis of cost-efficiency. As it has been established that alpha values varies substantially by location, it is recommended to conduct this analysis for more markets in Ethiopia.

Cost-efficiency – key points

- Cash and vouchers are generally cost-efficient compared to in-kind assistance. However, the **cost efficiency of cash and voucher transfers substantially** under the influence of macroeconomic trends and seasonal factors. The analysis presented suggests that food can be cost effective compared to cash or vouchers after a large domestic price shock.
- A **combination of food and cash** could be the cost-efficient option in markets where the alpha value is low post-harvest, but high in the lean season (case of Desse in Amhara);
- There are **sharp regional disparities** in the cost effectiveness of cash and voucher interventions compared to in-kind assistance. Whereas the alpha value fluctuates between 0.5 and 1 in Amhara and Tigray, it is much lower in 0.4 Somali region, due to high WFP logistics costs. Cash interventions in Somali regions, where conditions permit, would allow substantial cost savings compared to in-kind food distributions.

5. Market response capacity

The alpha value indicates that cash or voucher transfers would often allow WFP to deliver assistance at a lower cost. One must, however, understand markets' capacity to react to the expected increase in demand in order to correctly design cash or voucher transfer scheme. This section offers an assessment the strengths and weaknesses of local markets, drawing from interviews that took place in 17 markets in Amhara, Somali and Tigray. It indicates that although markets do accommodate large seasonal swings in demand, they adjust through significant price changes. Markets that are larger, or trade in maize and rice, tend to respond better to increasing demand. Trader's poor access to capital could limit their ability to respond to additional demand.

5.1 Message 1 – market response capacity is subject to large seasonal swings

Surveyed markets already seem to accommodate swings in supply and demand, especially in the food deficit Somali and Tigray regions, as shown in table 4. In Tigray, volumes of maize and sorghum handled on a weekly basis double within the year, as household food sources shifts from own production in the post-harvest period to market purchases during the lean season. Likewise, in Somali region, traders claim that aggregate demand doubles during the dry season, as pastoralist households resort to market purchases. Rural food demand in Somali region ebbs during the rainy season, as pastoralists consume more animal products. In Amhara volumes tend to be more stable that in the other regions.

TABLE 4: CHANGES IN TRADED GRAIN VOLUMES FROM PEAK TO TROUGH

	Maize	Sorghum	Wheat	Rice
Amhara	+23%	n/a	+54%	n/a
Somali	n/a	n/a	n/a	**+103%**
Tigray	**+126%**	**+127%**	1%	n/a

Source: trader focus groups. n/a = non applicable

Market structure also varies: although the number of wholesalers tends to remain constant throughout the year, informants estimate that the number of retailers present on markets, increasing and shrinking by 20 to 40 per cent as demand shifts. During periods of high demand, more retailers are found on markets.

Resupply times are reasonable, even during the lean season. At harvest, traders are able to secure new supplies within a day in most markets of Amhara and Tigray. Resupply times increase during the lean season to 2 days in Amhara and 3 days in Tigray, as markets in food deficit areas resort to sourcing grain from more distant points, such as Bure in Amhara and Nekempt in Oromiya. Interestingly, the resupply times for maize that key informants report are lower than for sorghum or wheat, confirming its role in allowing market adjustments.

TABLE 5: SEASONAL VARIATION IN RESUPPLY TIMES

	Maize		Sorghum		Wheat		Rice	
	High	*Low*	*High*	*Low*	*High*	*Low*	*High*	*Low*
Ahmara	2	1	3	3	1	1	n/a	n/a
Somali	4	3	7	4	7	5	6	4
Tigray	3	1	3	2	1	2	n/a	n/a

Source: trader focus groups

In Somali region, road access is the main determinant of market response capacity, as the region relies on overland supply routes to Somalian ports. Although the rainy season does not increase resupply times in the parts of Somali region that have surfaced roads, transportation times double on the corridor linking Kebri Dehar and the Somali port of Bossaso, which accounts for a large share of local supply in that specific market. Transport times also increase in Tigray (Alemata and Korem) and Amhara (Bure, Debre Markos and Sekota) as seasonal rains slow transportation between surplus areas and markets.

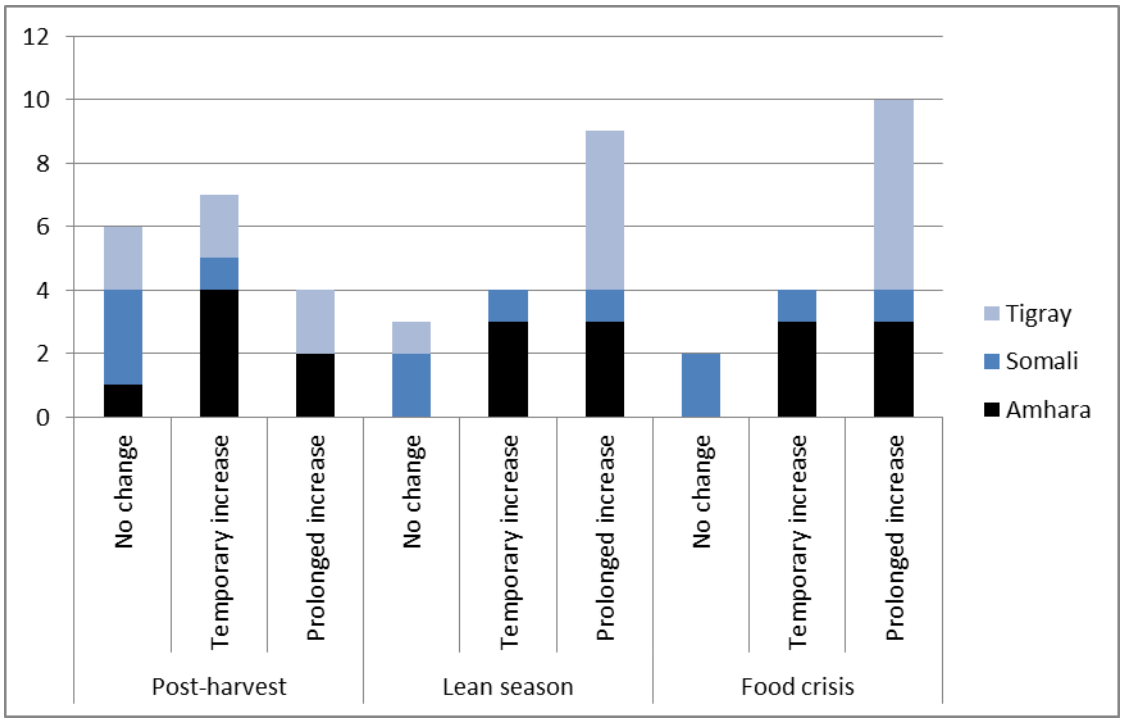
The implication for cash and voucher programs are twofold. Firstly, the market system performs variably during the year, calling for approaches that take account in seasonal variation in market performance, and especially longer response times **during the rainy or lean seasons**. Secondly, although the trading system does adjust to seasonal changes in demand, it does **so with an impact on prices** for locally produced staples. According to IFPRI (2010), intra-annual price variations of 40-50% are typical for maize in Ethiopia, implying that price volatility is a chronic feature of the local cereal market, characterized as 'thin' and highly seasonal. Promoters of cash programs therefore implicitly accept **the risk of some of price impact**, especially when cash distributions take place after the 3-4 months of high availability that following the main *meher* harvest. Price risk is probably lower on markets where the bulk of supplies are imported, such as Somali region.

5.2 Message 2 – Larger markets trading in maize and rice are more likely to accommodate increased demand than smaller ones trading in sorghum and wheat.

Given the sharp seasonal variation in market performance, one should expect seasonal variation in the price impacts of cash or voucher distributions. Primary data bears this hypothesis out. Traders focus groups were asked to assess how the market would react to a 50 per cent one-off increase in demand.

As figure 8 shows, **market impacts are relatively modest under the hypothesis of an increase in demand in the post-harvest period**. On 6 of 17 markets, the increased demand would be price-neutral in a post-harvest scenario. A temporary increase would be expected in 7 of 17 markets. Only 4 of 17 markets in Tigray and Amhara would experience prolonged price increases under a post-harvest scenario. Assuming a 50 per cent increase in demand during **the lean season**, only 3 markets were thought to be able to absorb without price changes, 4 would experience temporary increases, whereas 9 would experience prolonged increases. In a food crisis comparable to 2011, nearly all markets become susceptible to temporary or prolonged price increases when demand increases.

FIGURE 8: EXPECTED PRICE EFFECTS OF A 50 PER CENT INCREASE IN DEMAND



Source: trader focus groups

Beyond the obvious issue of seasonality which was discussed earlier, three additional factors seem to drive markets' capacity to absorb price increases:

Commodity type. As illustrated in Table 6, the commodities traded on a given market heavily influence its capacity to handle higher demand, presumably due to the innate characteristics of the cereal supply chains in place. Notably, markets where imported rice accounts for the bulk of supply tend to accommodate changes in demand without suffering from undue price swings. In the well-integrated markets of northern Somali region (Jijiga, Dehagabur), informants reported that a surge in demand would be price neutral, regardless of the season, thanks to elastic supply of imported rice – the ports of Djibouti and Berbera are two days away, ensuring that supply would rapidly adjust to higher demand. In the case of maize, response is good during the post-harvest but more uneven during the lean season. Markets where sorghum and/or wheat are the main source of supply are generally less able to handle additional demand. This seems to confirm the important role of the maize trade in market integration

Market size. Smaller markets (by commodity volume) tend to be more susceptible to price increases when demand surges. The markets where extended price increases are expected are smaller, more remote. Larger markets – such as Bure, Debre Markos, and Jigiga, where at least 500 tons of grain are exchanged on a weekly basis – are generally able to absorb additional demand without undue price effects. Market size is a proxy for storage and transportation availability; larger markets tend to have a 'critical mass' of supporting services that enhance response capacity. Some smaller markets such as Debre Birhan (Amhara) and Gode (Somali) seem to be able to cope to some extent with increasing demand, thanks to their reliance on maize and imported rice, respectively,

suggesting that under certain conditions, a market's dominant commodity trumps market size in determining its capacity to accommodate increased demand.

Distance from supply sources. Markets that are more accessible to trade are less likely to experience undue price increases. This is the case for Amhara and Somali region. Tigray, a food deficit region with long-distance links to surplus producing areas, tends to rely on (volatile) sorghum supplies, lowering its capacity to adapt to changes in demand.

The implication in terms of programme design would be to roll out in places where market integration for maize is strong (Annex 1), or in areas that have convenient access to imported rice supplies. Generally speaking, targeting beneficiaries with access to a large market – exceeding 500 tons worth of transactions in grains a week – would limit cash or voucher-induced price effects. Markets with good year-round transportation to supply sources would also cash or voucher interventions.

TABLE 6: MARKET REACTION TO AN INCREASE IN DEMAND, MARKET SIZE AND DOMINANT COMMODITY

Region	Market	Market size	Dominant commodity	Anticipated effect of increased demand on grain prices
Somali	Jijiga	large	rice	None
	Gode	medium	rice	None
	Kabridehar	small	rice	Moderate
	Degahabur	medium	rice	Low
Tigray	Alamata	small	sorghum	Moderate
	Korem	small	sorghum	Moderate
	May Tsebri	small	maize and sorghum	High
	Sheraro	small	sorghum	Moderate
	Adigrat	small	sorghum	High
	Makele	medium	maize and wheat	High
Amhara	Bati	small	maize and wheat	High
	Kobo	medium	maize and sorghum	High
	Sekota	small	maize and sorghum	Low
	Bahir Dar	medium	maize and sorghum	Low
	Bure	large	maize	Low
	Debre Markos	medium	maize	Low
	Debre Birhan	small	maize and wheat	Low

Source: market questionnaires

Table7 outlines key characteristics for the supply chains for local and imported goods, identifying factors that limit or enhance market response capacity. Reference to these factors should be made in future decentralized market assessments in Ethiopia, in order to capture risk of price increases in a given area.

TABLE 7: CHARACTERISTICS OF LOCAL AND IMPORTED SUPPLY CHAINS

Local goods	Imported goods
• Variable supply (harvest/lean season); • Low resupply times; • Fragmented supply chains for local wheat, somewhat more functional for maize; • Subject to government restrictions on storage.	• Elastic supply; • Low resupply times (2-3 days) in integrated areas; • Presence of vertically integrated actors with access to transportation, warehouses and credit (imports/exports); • Subject to quotas and licenses (specific to Somali region)

5.3 Message 3 – Low capital could limit traders' capacity to respond to higher demand

In Amhara and Tigray, traders generally lack adequate access to capital. Although credit exists, it is usually an in-kind merchandise advance from their supplier, to be reimbursed before the next delivery. This low-quality of credit is not what traders need to invest or increase their turnover. Although access to capital is insufficient, it seems that traders do use banks to transfer money, if only to avoid the risk of carrying large amount in cash. Low demand also appears as one of the top constraints for traders in Amhara and Tigray regions. Although traders in the two regions have some access to loans from micro-finance institutions, such loans are probably insufficient to meaningfully improve trader's ability to respond to an increase in demand.

In Somali traders tend to rely on trading relationships with suppliers in Somalia, who take payments in US dollars. Access to foreign exchange remains a major constraint in that region— in fact, trader have come up with imaginative solutions around this problem, such as resorting to barter, or to a *howalla* system to exchange birr for dollars, as well as other informal mechanisms.

TABLE 8: MAIN CONSTRAINTS FOR TRADERS

	1st constraint	2nd constraint	3rd constraint
Amhara	Insufficient capital	Insufficient storage	Low demand
Somali	Poor access to foreign exchange	High taxes	
Tigray	Insufficient capital	Low demand	Poor freight transportation services, unreliable supply

Source: market questionnaire

These constraints suggest that promoters of cash programs consider market support interventions that would 'lubricate' trade, support delivery of cash assistance and avoid short term price increases that could be feared. For instance, traders participating in a voucher system should receive working capital loans in order to allow them to cope with higher demand. Contracts with WFP could

potentially be used as collateral. Traders in Amhara and Tigray seem to have access to microfinance; this avenue should be further explored.

5.4 Message 4 –Market demand from beneficiaries will differ from the standard WFP food basket

Importers and wholesalers in Somali region clearly indicate that consumers in the region buy sugar, rice and wheat products. In fact, by volume, sugar is the highest-selling product, before cereals, on the markets of Somali region. Pulses are hardly consumed in Somali region and are not found in bulk quantities on the market. Latent food demand in Somali region is therefore very different from the ration of wheat, pulses, vegetable oil and blended food that WFP commonly provides. Traders reported that beneficiaries commonly exchange commodities that WFP distributes for the sugar and rice and wheat products they prefer.

Considering these food preferences, it is likely that additional food demand following a pure cash transfer would materialize as sugar and rice purchases, rather than in additional demand for local cereals, pulses and vegetable oil. Should WFP ever implement cash distributions in Somali region, consideration should be given to monitoring supply of the food items that beneficiaries actually purchase, rather than the 'standard' WFP food basket.

5.5 Message 5 - Engage with the Government on food policies affecting market response to cash or voucher transfers

Government policies aim to keep prices low, and measures are taken to protect consumers' purchasing power. For instance, traders of local cereals and pulses in Amhara and Tigray report being subject to measures preventing them from storing food for excessive amounts of time: in practice traders are fined if the value of their grain inventories exceeds the total value of the capital reported on their business licenses and a margin of 25 per cent. Ostensibly meant to prevent hoarding, such regulations might, over the medium term, reduce incentives for investments in storage capacity and exacerbate seasonal price swings.

In Somali region, since 2011, government-issued licences are necessary to import sugar, rice, wheat flour, pasta and vegetable oil duty free from Somalia and Djibouti. The licensing system allows the government to monitor the traders who benefit from duty exemptions and manage the availability of imported food in import-dependent Somali region. The system has imperfections: in some areas, the quotas seem to be insufficient compared to demand, leading to smuggling. The 'low' quotas fuel a secondary market in import permits between licensed traders with unused quotas and licenses traders that have exhausted their allocation. This increases costs for licenced traders and probably to consumers. The insufficiency of quotas in Somali region is probably linked to the likely (illegal) re-export of goods from Somali region to other parts of Ethiopia where prices for these commodities is comparatively high.

The insufficiency of quotas compared to latent demand is presently driving large-scale smuggling in sugar, rice, and vegetable oil and other imported commodities in Somali region. In Gode, it is informants estimate that two thirds of the supply on the market originates from such illegal, off-quota imports. However unlicensed traders found to violate the license regime are subject to search and seizure by customs.

Were a cash or voucher program cause demand to substantially increase in Somali under present conditions, illegal trade with Somalia would cover much of the additional supply. Were cash programming to be introduced in Somali region, it would be advisable to negotiate an increase in the quota allocation equivalent to the estimated additional demand.

In Amhara and Tigray, storage restrictions could be reviewed in order to allow for storage in weeks prior to cash or voucher distributions, with the expected result of neutralizing unwanted short-term price effects. These issues should be raised with Ethiopian authorities in order to improve the market's ability to respond to additional demand with a minimal impact on prices. Other mechanisms could further the same objective – increasing the threshold above which traders are fined for hoarding (presently registered capital + 25 per cent). Considering that traders are likely to be reluctant to register their actual working capital, any change would necessarily involve improved communication and coordination between traders and the government.

6. Recommendations

6. 1 Information gaps

The study allowed the identification of considerations that allow WFP to proceed in the design of a cash transfer strategy in Ethiopia. However the 'resolution' of the study is too coarse to support the more granular understanding of local market systems that is required to effectively size and monitor such programs. Studies conducted according to the Emergency Market Mapping Analysis methodology would contribute important context-specific information on trader capacities and market support options. This assessment did not consider the retail sector in detail, an element that would require additional attention prior to project implementation.

This study suggests that further analysis of demand would be useful in estimating the volumes of additional demand that cash transfers would generate, and what food commodities or other items programme beneficiaries are most likely to purchase. This information would allow decision makers to better gauge the possible market impacts of a cash intervention prior to its implementation.

6.2 Conclusions and recommendations

The following recommendations were developed during the October 22 debriefing organized at the WFP country office. These recommendations are time-bound, valid until further detailed analysis is carried out.

Conclusion	Recommendation
Markets are **dynamic**, influencing the **cost efficiency and feasibility** of cash or voucher transfers.	WFP should **closely monitor economic trends in country**. Economic information should feed into decision making processes. WFP should be ready to **adapt its transfer modalities** as economic conditions change. Cash and voucher programs are less feasible and cost-efficient during periods of local market stress (lean season and food crises).
Seasonal and **geographical factors** influence market functionality, with strong implications for the programming of cash or voucher interventions.	*Woreda* level targeting is to be determined by further study in consultation with WFP's operational partners, considering the following o Afar and Gambella as areas less favourable for cash and vouchers. o Conversely some potential in Oromiya, Dire Dawa, and the parts of Amhara and Tigray that are well anchored to the national trading network o There is strong market potential in parts of Somali region as well. o Targeting should focus on larger markets that trade in maize and/or imported rice. Markets where sorghum dominates are less to handle changes in demand. WFP should consider having approaches that vary by season. Considering the sharp seasonal variation in cost effectiveness of cash and in market response capacity, WFP may wish to limit pure cash transfers in market systems that experience.
More detailed and localized economic analysis is required to inform the operational set up	A better knowledge of the retail would support the operational phase of cash and or voucher transfers. Use the tools tested in this study, such as the alpha value and market integration tests, at the local level. WFP should participate in the DRMFSS study on the PSNP cash component, scheduled in 2013.
Some government regulations may hamper market response capacity.	WFP and its partners should consider engaging in **policy advocacy** on these issues.
Knowledge sharing among agencies involved in cash or voucher transfers in Ethiopia remains limited.	WFP should advocate for knowledge sharing in the appropriate coordination fora. WFP should widely disseminate its economic analysis with other agencies involved with cash or voucher transfers.

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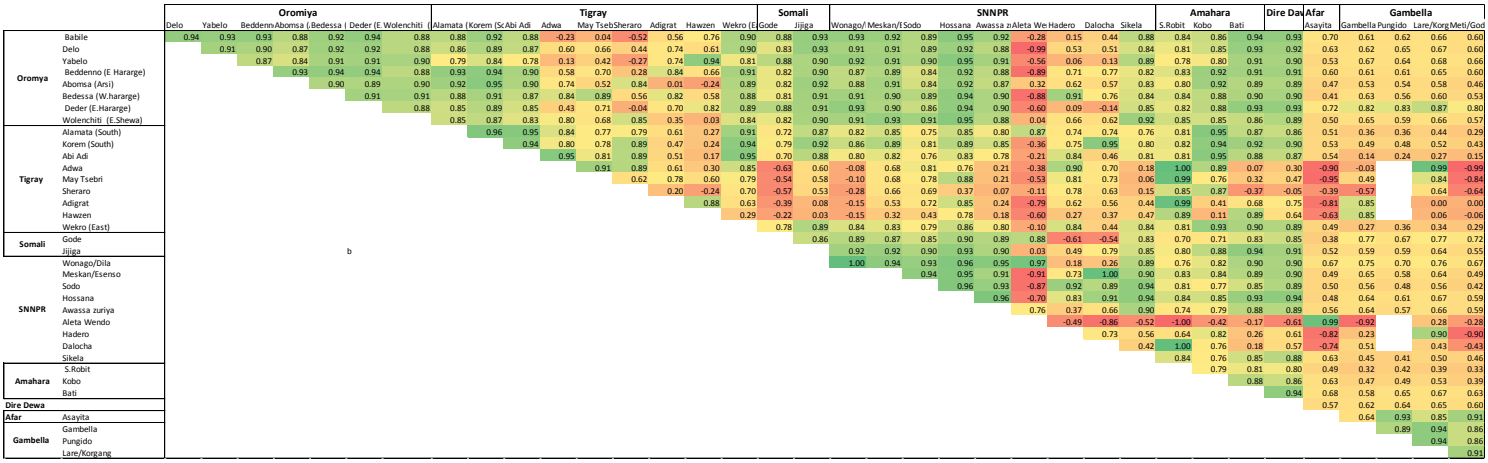
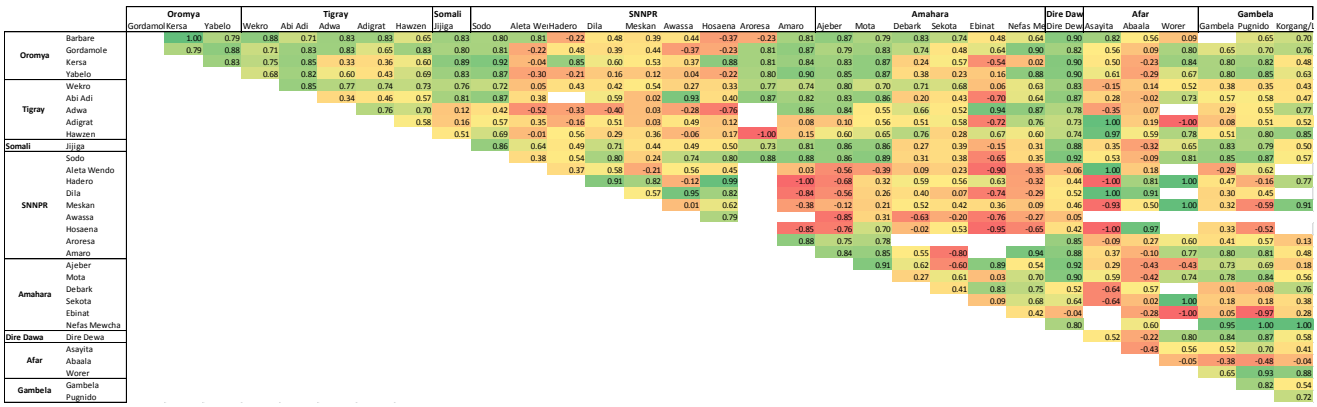
Annexes

FIGURE 9: PRICE CORRELATION COEFFICIENTS FOR MAIZE, 2006-2012



Source: WFP price data

FIGURE 10: PRICE CORRELATION COEFFICIENTS FOR WHEAT, 2006-2012



Source: WFP price data

FIGURE 11: PER CAPITA STARCH SUPPLY, 2005-2009. IN KG/YEAR

Commodity	Supply (kg/year)
Maize	43
Wheat	34
Other (including teff)	27
Sorghum	24
Roots and tuber dry equivalent	17
Barley	14
Millet	5
Oats	1
Rice	1
Total	**165**

Source: FAOSTAT data