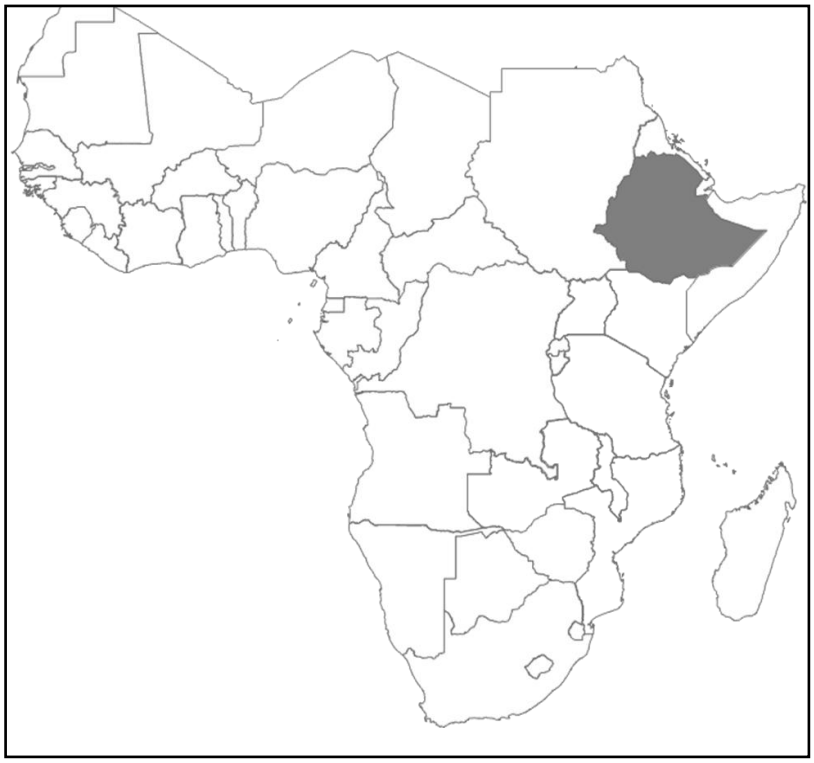
Staple Food Prices in Ethiopia



Shahidur Rashid[1]

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[1] Senior Research Fellow, Markets, Trade, and Institutions Division, International Food Policy Research Institute, Addis Ababa, Ethiopia. Contact: s.rashid@cgiar.org.

1 Introduction

Cereal production and marketing are the means of livelihood for millions of households in Ethiopia. It is the single largest sub-sector within Ethiopia's agriculture, far exceeding all others in terms of its share in rural employment, agricultural land use, calorie intake, and contribution to national income. Therefore, while the country has experimented with almost all dominant forms of political and economic ideologies,[2] keeping the cereal subsector stable has influenced the agricultural policy thinking of all three political regimes over the past half century. The monarchic regime instituted grain market board; the central planning region (1974-91) renamed it the Agricultural Marketing Corporation (AMC) and expanded its scope to practically take over the staple food markets; and while the current government implemented substantial reforms, it continues to maintain the necessary policy instruments to intervene in case of emergencies.

There is a widespread recognition that parastatal-centric policies of cereal price stabilization proved expensive and led to inequitable distribution of benefits. However, recent policy actions suggest that, like many other developing countries, Ethiopia is not yet ready to fully rely on markets. This became particularly evident during the food price crisis when the government re-instituted urban food rationing programs, carried out open market sales, and suspended local procurement by the World Food Programme (WFP), country's food logistic agency (Ethiopian Grain Trading Enterprise), and non-governmental organizations (NGOs). This perhaps reflects the fact that risks of price instability—in term of economic, human, and political costs—is still the predominant consideration in food policy making of the country.

This paper discusses the sources of such concerns and how they are reflected in recent policy actions. It provides evidence of the subsector's significance; characterizes the key cereal markets in terms of production, trade, and price patterns; and summarizes the policy actions following food price crisis. The evidence on the importance of selected cereals is presented in Section 2, which is followed by a discussion of production and trade of those cereals. Section 4 analyzes price patterns, focusing on seasonality and tradability. A summary of public policy actions following the global food crisis is presented in Section 5; and the paper concludes with a summary and implications.

2 Importance of staple foods

2.1 Overall significance and policy emphasis

Cereal production and marketing constitute the single largest sub-sector in Ethiopian economy. It accounts for roughly 60 percent of rural employment, 80 percent of total cultivated land, more than 40 percent of a typical household's food expenditure, and more than 60 percent of total caloric intake.[3] The contribution of cereals to national income is also large. According to available estimates, cereal production represents about 30 percent of gross domestic product (GDP). This calculation follows from the fact that agriculture is 48

[2] Imports substitution and monarchic rules in late 1950 until the fall of the regime in 1974; central planning during 1974-1991; and gradual move towards a market economy since the mid-1990s.
[3] These numbers are taken from various CSA publications

percent of the nation's GDP (World Bank, 2007), and that cereals' contribution to agricultural GDP is 65 percent (Diao et al. 2007).[4]

Thus, it is no surprise that sub-sector has received so much policy attention. The government places heavy emphasis on cereals in almost of all of its development strategy documents. The Agricultural Development Led Industrialization (ADLI), the Sustainable Development and Poverty Reduction Plan (SDPRP), the Sustainable Development to End Poverty (PASDEP)—all highlight the importance of cereals in overall economic development. The Participatory Demonstration and Training Extension Systems (PADETS), instituted in the mid-1990s, were especially designed to increase cereal production through demonstrations of seed-fertilizer technology. As part of these strategies, the Government of Ethiopia (GoE) has undertaken substantial market reforms, accelerated investments in road and communication networks, and adopted major programs to increase cereal production through demonstrations of the benefits of modern seeds and greater fertilizer use. This policy emphases on cereals, both for economic growth and poverty reduction, has resulted in significant changes in the structure and performance of the cereal markets.[5]

2.2 Importance of cereal in household diets

In term of caloric intake, cereals dominates the diets of Ethiopian households. The FAO estimates from 2003, presented in Table 1, suggest an average Ethiopian consumes 1858 kilocalories. Of the total calorie consumption, four major cereals (maize, teff, wheat, and sorghum) account for more than 60 percent, with maize and wheat representing 20 percent each. The low share of teff in calorie consumption often come as surprise to urban Ethiopians, as teff is the predominant staple in the of the middle- and high- income households.

Table 1. Importance of staple foods in diet of Ethiopia (2003)

Commodities	Daily caloric intake	Percentage of daily caloric intake
Maize	383	20.6
Wheat	364	19.6
Teff	254	13.7
Sorghum	191	10.3
Other	666	35.8
Total	1,858	100.0

Source: Teff numbers are from the CSA and others from FAOSTAT

While Table 1 shows the importance of cereals only at the aggregate level, it conceals some important facts about the link between income and cereal consumption. To illustrate that link, disaggregated estimates from the Ethiopian Household Income, Consumption, and Expenditure survey is presented in Table 2. A few important points can be made based on these numbers. First, except for teff, caloric intake from cereals declines with the increase

[4] Note that, although major cereals are teff, maize, wheat and sorghum; the calculation here includes other cereals (millets, rice, barley, etc) and pulses.

[5] Rashid and Negassa (2009) examines changes in the structure and performance

in income—that is, moving from quintile 1 to 5. Second, rural households appear to derive more calories from cereals than urban households.

Table 2. Calorie intake from cereals by income group and location (rural/urban)

	Teff	Wheat	Barley	Sorghum	Maize	Other Cereals	Processed Cereals	Total Cereals
National	**8.9**	**8.9**	**4.4**	**8.2**	**8.6**	**1.6**	**3.2**	**43.8**
Income groups								
Quintile 1	8.9	9.6	6.9	9.5	10.5	1.5	1.4	48.3
Quintile 2	9.2	9.6	5.5	7.9	10	2	2.1	46.3
Quintile 3	8.3	8.9	5.3	7.9	10.2	1.9	2.4	44.9
Quintile 4	8.7	9.2	2.4	10	7.7	1.4	3.6	43.0
Quintile 5	9.4	7.5	3.1	6.1	5.9	1.4	5.5	38.9
Urban / Rural								
Urban	16.7	4.9	1.1	1.8	1.9	0.9	12.6	39.9
Rural	7.5	9.6	5	9.3	9.9	1.7	1.5	44.5

Source: IFPRI calculations based Household Income, Consumption, and Expenditure Survey of CSA

Finally, the contribution of processed cereals is still very low in Ethiopian diets, representing only 3.2 percent at national level, 12.6 percent among urban households, and only 1.5 percent among rural households. Across different income groups, the share of processed cereal ranges from 1.4 percent among the poor and 5.5 percent among the rich. This implies that processing is still at rudimentary level. With current trends in income growth, there are likely to be changes in the consumption pattern and hence more demand for processed cereals.

3 Production and trade of main staple foods

3.1 Aggregate cereal production patterns

It is clear from the previous section that cereal production in Ethiopia is fairly diversified. According to FAOSTAT data, maize has been the largest cereal crops since the 1990s: its production has increased from an average of 2.3 million tons in the 1990s to 3.2 million tons in the early 2000s.[6] Production of other major crops has increased as follows: teff production from 1.6 million to 2.0 million tons; wheat production from about 1.0 million to 1.9 million tons; and sorghum production from 1.2 million to 1.8 million tons. With an average production of 3.2 million tons in the 2000s, maize is the largest cereal crop in the country, followed by teff (2.0 million tons), wheat (1.9 million tons), and sorghum (1.8 million tons) (Table 3). Note that production of all major cereals has increase over the past two decades in the country, which is perhaps a reflection of heavy policy emphasis on cereals. Largest production growth is observed for wheat, which has almost doubled.

[6] Note that FAO data series has not been updated since 2003.

Table 3. Production and trade of staple foods in Ethiopia

	Commodity	Production ('000 tons)	Imports ('000 tons)	Exports ('000 tons)	Imports as % consumption	Exports as % production
2000's	Maize	3217	24	4	0.7	0.1
	Wheat	1922	877	0	31.3	0.0
	Teff	2002	0	0	0.0	0.0
	Sorghum	1809	9	3	0.5	0.2
	Total	10680	956	21	8.2	0.2
1990's	Maize	2310	28	1	1.2	0.1
	Wheat	1047	417	0	28.5	0.0
	Teff	1588	0	0	0.0	0.0
	Sorghum	1248	55	0	4.2	0.0
	Total	7398	602	16	7.5	0.2

Source: FAOSTAT except for teff, which compiled by the authors

*Apparent consumption is production plus imports minus exports and non-food uses.

3.2 Sources of cereal production growth

Cereal production growth comes from two potential sources: area expansion and yield improvement. Ethiopia's cereal production increase in recent years appears to be a combination of both. For the three major cereals (maize, wheat, and teff), both acreage and yield have increased significantly since 2004 (Table 4). Total production of these cereals has jumped from 5.7 million tons in 2004 to 9.3 million tons in 2007, representing an overall growth of 63.5 percent. Of the three cereals, wheat experienced the most growth (75%), followed by teff (61%) and maize (58%).

Table 4. Trends in land use and productivity of main cereals

	2004	2005	2006	2007	Change since 2004 (%)	Change since 2006 (%)
Teff						
Area ('000 hectares)	1,978	2,131	2,241	2,358	19.2	5.2
Yield (tons/ha)	0.80	0.95	0.97	1.08	34.9	11.7
Production ('000 tons)	1,588	2,022	2,172	2,553	60.8	17.5
Wheat						
Area ('000 hectares)	1,091	1,375	1,446	1,529	40.1	5.70
Yield (tons/ha)	1.45	1.56	1.53	1.81	24.6	18.6
Production ('000 tons)	1,585	2,152	2,209	2,768	74.6	25.3
Maize						
Area ('000 hectares)	1,415	1,356	1,483	1,743	23.2	17.5
Yield (tons/ha)	1.77	1.74	2.21	2.27	28.3	2.9
Production ('000 tons)	2,503	2,365	3,274	3,958	58.2	20.9
Total						
Area ('000 hectares)	4,484	4,862	5,170	5,630	25.6	8.9
Yield (tons/ha)	1.27	1.34	1.48	1.65	30.2	11.3
Production ('000 tons)	5,675	6,538	7,655	9,279	63.5	21.2

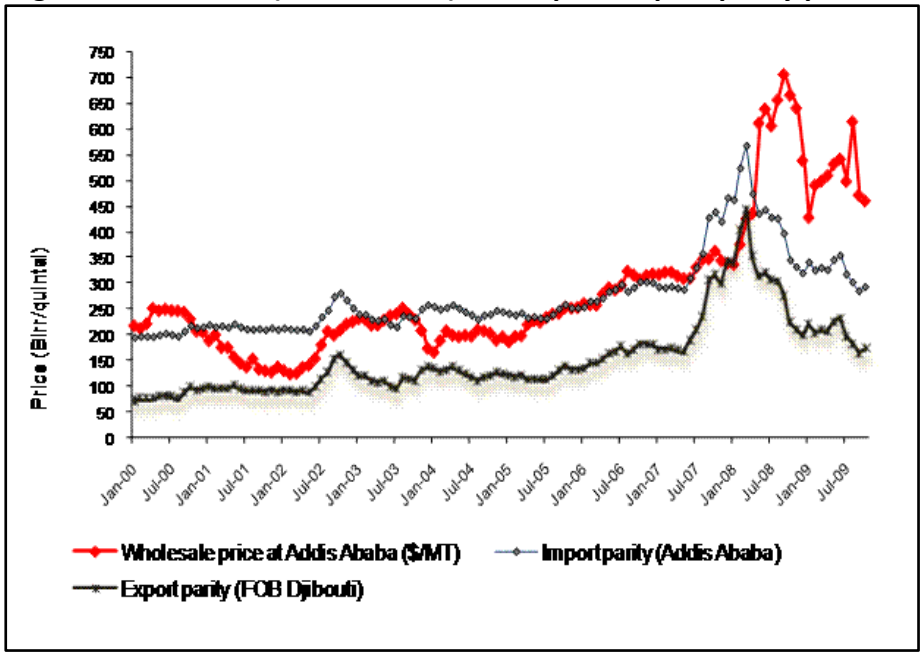
Source: Authors' calculations based on various Central Statistical Agency (CSA) publications

Besides these broad trends, Table 4 shows two other important changes in the Ethiopian cereal markets. First, the country experienced double-digit growth in the production of both teff (17.5%) and maize (25.3%), along with very impressive yield growths of 11.7 percent and 18.6 percent, respectively. A comparison of these numbers with those in Table-3 offer some interesting insights about changes in the cereal crop composition in the country. With an average production of 1.0 million tons, wheat ranked last among the four major crops in the 1990s. By 2007, wheat production had jumped to 2.77 million tons, making it the second largest cereal crops in the country.

3.3 Cereal trade in Ethiopia

Despite the increase in production, most cereal are internationally non-tradable. In other word, domestic prices fall between the import and export parity prices, and hence cereals are neither exportable nor importable. However, two important qualifications need to discussed to validate non-tradability of major cereals in the country. First, with an import of roughly 30 percent of consumption (Table 3), the numbers for wheat appear to tell a different story. However, these numbers are deceiving, as cereal import data for Ethiopia include food aid, which averaged more than 700 thousand tons between mid-1990s and 2004/05. Although it declined to about 225 thousand tons following the introduction of a cash-based social safety net program in 2005/06, food aid imports went up to roughly half a million tons in 2008. Second, domestic prices of wheat and maize went above the import parity price in 2008 by as much as US$300 per ton (Figure 1). However, this resulted from a balance of payment crisis that led to foreign exchange rationing. Therefore, even though prices were way above import parity, there were no private sector imports of cereals to the country because private traders could not obtain the necessary foreign exchange.

Figure 1. Domestic (Addis Ababa) and Export-Import parity prices of wheat



While cereals remain largely non-tradable internationally, domestic trade of cereals is critically important in the country. This is mainly due to the regional concentration of cereal production. Only two regions, Amhara and Oromia, account for 87 percent of teff and wheat

production and about 82 percent of maize production of the country (Table 5). Therefore, given the size of the country, cereals need to be transported to deficit cities and rural towns some of which are hundreds of miles away from the surplus production zones.

Table 5. Regional patterns of cereal production, 2003-07

	Teff			Wheat			Maize		
Region	**2004/5**	**2005/6**	**2006/7**	**2004/5**	**2005/6**	**2006/7**	**2004/5**	**2005/6**	**2006/7**
Tigray	882	1,244	1,481	859	1,007	1,438	539	803	926
Amhara	8,137	8,658	10,460	5,694	6,075	7,609	4,972	7,257	9,833
Oromia	9,451	10,225	11,846	13,028	13,177	16,805	14,526	20,317	22,975
Benishangul	117	134	129	-	29	-	500	627	667
SNNPR	1,629	1,455	1,609	1,936	1,799	1,831	3,113	3,740	5,180
Other regions	40	41	42	210	103	88	248	623	716
Total	**20,256**	**21,757**	**25,567**	**21,727**	**22,190**	**27,771**	**23,898**	**33,367**	**40,297**
% Share of Amhara & Oromia	**87**	**87**	**87**	**86**	**87**	**88**	**82**	**83**	**81**

4 Staple food price patterns

4.1 Real versus nominal prices of major cereals

The nominal prices of teff and wheat rose gradually over the period 2005-2007 before more than doubling between mid-2007 and mid-2008. In contrast, maize prices were relatively stable over 2005-2007, but jumped about four-fold between mid-2007 and mid-2008. Since mid-2008, maize prices have fallen by almost half and wheat prices by almost a quarter, but teff prices have hardly declined at all (see Figures 2-4).

Real food prices (that is, after adjusting for inflation) increased as well, but later and less dramatically. As shown in Figures 2-4, real staple food prices did not begin to rise above their historical range until March-April 2008. Real maize prices rose about 80%, real teff prices about 40%, and real wheat prices less than 20%. The real prices of the three staple food crops have declined to varying degrees since then. Compared to mid-2007, the real price of teff in mid-2009 was around 30% higher, while the corresponding increases from maize and wheat were 20% and 7%. Thus, real staple food prices increased significantly in the 2007-2008 period; they have since declined, but have not returned to their 2007 levels. However, most of the nominal increases in staple food prices were the result of general inflation. With strict monetary policy control (such as a significant increase in reserve requirements for banks), the government has brought inflation under control.

Figure 2. Nominal and real price of teff (2005-09)

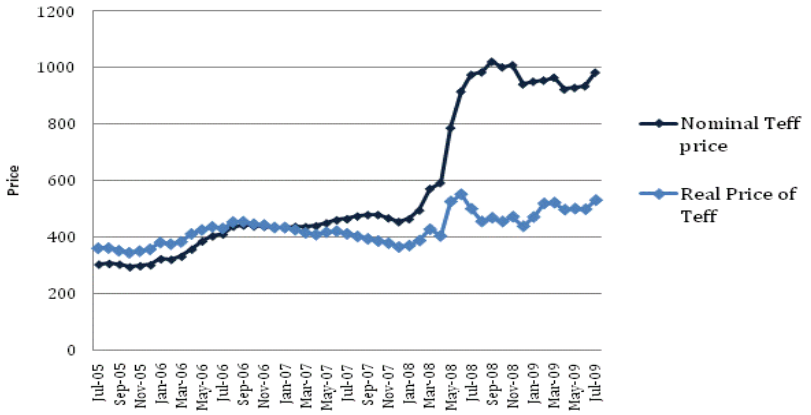


Figure 3. Nominal and real price of maize (2005-09)

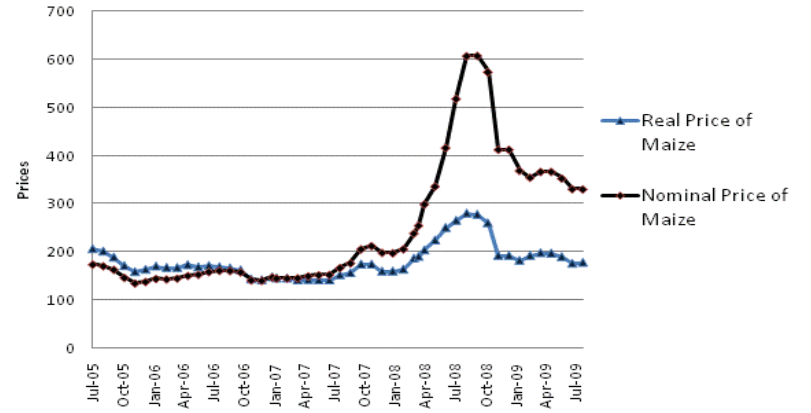
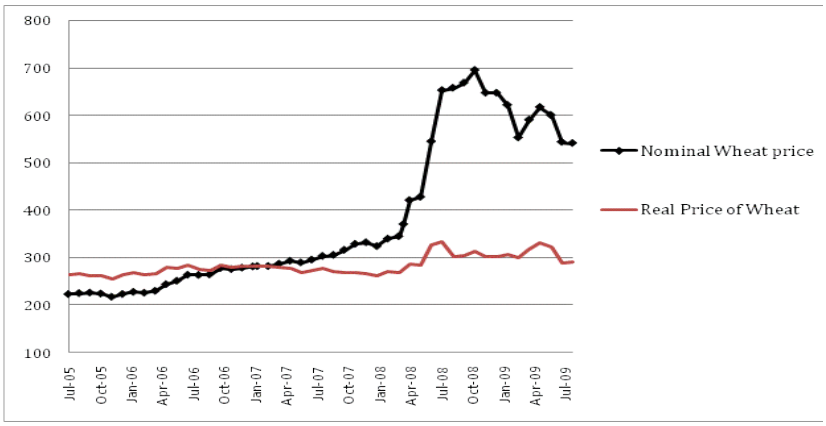


Figure 4. Nominal and real price of wheat (2005-09)

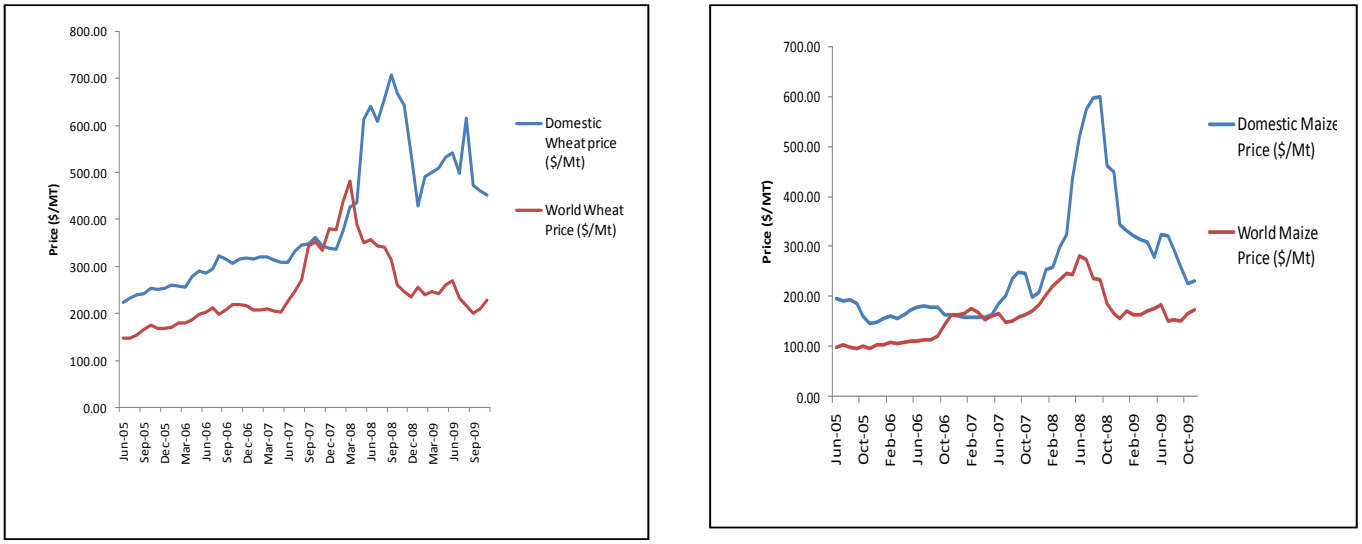


4.2 Domestic versus world prices

Domestic and world prices of wheat and maize (both in US$) are presented in Figure 3, which tells the same story as the other figures: while world prices exhibits a sharp descent, domestic prices have not followed a similar decline. Two points have to be clarified in interpreting this figure. Until about June 2009, Ethiopian currency was overvalued by roughly by 40 percent. During July-August, the government devaluated the currency by

about 25 percent. Therefore, until the summer of 2008, the gap between world and domestic prices was artificially high. In other words, if the exchange rate had been in equilibrium, the domestic price of maize and wheat would have been smaller. However, this does not mean that domestic prices would have come below import parity because the balance of payment crisis continues in the country and the private sector cannot obtain foreign exchange to import.

Figure 5. Domestic and world prices (US$ /MT) of maize and wheat, 2005-09



Source: Authors' calculation using EGTE data and & exchange rate from the NBE

4.3 The facts behind the price puzzle

There three key factors behind unusual food prices in Ethiopia. The first factor was that the growth in money supply far exceeded the overall economic growth in the country. This clearly implies strong inflationary pressure. Indeed, a 2007 World Bank study argued that, during 2004-2006, money supply increased by 108 percent, and real GDP increased by 48 percent. That is, growth of money supply was 40 percent faster than GDP growth. This helps explain the growth in nominal food prices over this period. The real price of most cereals, except teff, actually declined during that time period (World Bank, 2007).

The second most important factor behind this puzzling price trend appears to an over-estimation of cereal production. The price trend in 2007-2008 was indeed puzzling because prices were going up despite reported growth of about 15 percent in cereal production. Compare this with 2002-03, when a reported bumper harvest of 9 million tons of grain resulted in market collapse—so much so that some farmers did not find it worthwhile harvesting their maize crops. The International Food Policy Research Institute and the Joint Research Centre of the European Union conducted a comprehensive study in order to better understand the this puzzling trends. The study involved a representative household survey, a market survey, a cross border trade survey, as well analyses of large amount of time series data. One of the key findings of the study was that production estimates of cereal from the IFPRI survey was roughly 30 percent lower than the official estimates (Minot, 2008).

The final factor that caused domestic prices to rise was the balance of payment crisis. Historically, Ethiopia has subsidized gasoline prices in order to promote market

development. During the dramatic rise in oil prices in 2007-2008, Ethiopia did not adjust local prices until it was realized that the subsidy bill had ballooned to US$700 million, which knocked balance of payment totally out of equilibrium. The foreign currency reserve fell below the critical requirement of 12 weeks worth of imports. In order to avoid currency depreciation, government instituted foreign exchange rationing. Around the same time the country was also facing severe power shortages, which resulted in cutting down the hours of operations of many factories. This resulted reduced demand for factory raw materials and hence reduced demand for foreign exchange. However, it was not enough to allow unrationed access to foreign currency at the prevailing exchange rate. This problem continues.

5 Food price policy

Cereal market policies in Ethiopia have undergone dramatic changes over the past several decades. To a large extent, these changes mirror the underlying ideological positions of successive governments, from the feudalistic system during the 1950s and 1960s, to the pervasive state interventions under the Derg regime, followed by considerable market liberalization, accompanied by an extended period of major investments in road and telecommunications infrastructure under the Meles government. The following is a brief summary of food policy under each political regime.

5.1 The Imperial Regime (1960-74)

Ethiopia's cereal markets under the feudalistic regime of Emperor Hailie Selassie in the 1960s were characterized by limited government intervention, a high volume of marketing relative to production, and very high transport costs due to limited infrastructure. During this period, agricultural land in the country was almost equally distributed among the state, church, and the social aristocrats. Thus, small farmers had to lease lands from local landlords and political or religious authorities. Because rents to landlords and tributes to the state or church were paid in kind, marketed "surplus" of cereals is estimated to have been fairly high (25-30 percent of production), even though production of most farmers was near subsistence levels.[7] One key policy instrument that led to expanded intervention in cereal markets during the later years was the formation of the Ethiopian Grain Board (EGB), established in 1952. The mandate of the EGB included export licensing, quality control, overseeing marketing intelligence, and the regulation of domestic and export purchases and sales (Lirenso, 1987).

5.2 State-Controlled Markets (1975-1990)

Consistent with its ideology, the socialist government of Ethiopia instituted a wide range of controls over cereal production and marketing. These included determination of annual quotas, restrictions on private grain trade and interregional grain movement, determination of days on which the local markets had to be held, and rationing of grain to urban consumers.[8] Wholesale prices of cereals were administratively set for many provincial markets and changed little between 1976 and the late 1980s (Webb and von Braun, 1994, p. 48).

[7] See Webb and von Braun (1994) and Ghose (1985)

[8] For details, see Franzel et al., 1989; Lirenso, 1994; and Lemma, 1996).

Land reforms under the Derg regime had assigned ownership of land to the state, but operational control to small holders, who were no longer obligated to pay large rents in kind. When this system failed to generate sufficient marketed surplus to supply urban consumption needs, in 1976 the government reorganized the EGB as the Agricultural Marketing Corporation to procure grain for public distribution and price stabilization. The agency was made responsible for handling almost all aspects of agricultural input and output markets. It was involved in export and imports of agricultural products, buying and selling inputs, and processing and marketing of finished products. In addition, AMC was engaged in the construction of storage facilities, such as silos, and other structures and machinery. In short, the government and AMC took over the grain markets.

5.3 Liberalization and Rapid Growth (1991-2009)

Following the overthrow of the Derg regime in May 1991, various economic reform programs were launched, including major reforms in cereal markets. As part of the reorganization and re-structuring of government parastatals that began in 1992, the Agricultural Marketing Corporation (AMC) was reorganized as a public enterprise and allowed to operate in the open market in competition with the private sector.[9] The name of the agency was also changed to the Ethiopian Grain Trade Enterprise (EGTE) and it was given a mandate to: (a) stabilize prices with an objective to encourage production and protect consumers from price shocks, (b) earn foreign exchange through exporting grains to the world market, and (c) maintain a strategic food reserves for disaster response and emergency food security operations.

However, the EGTE encountered at least three major problems in the subsequent years. First, there was a constant tension between fulfilling its mandate of price stabilization and that of competitiveness and profitability (Bekele, 2002). Second, EGTE was not effective in stabilizing grain prices due to its limited grain purchases and sales network and shortage of working capital. The closure of branch offices and purchase and/or sales centers in regions with less potential for grain production, and in remote areas reduced procurement and led to under utilization of EGTE's resources (Lirenso, 1994). Finally, the EGTE was often not able to guarantee purchases at pre-announced prices due to logistic and capital constraints, which had led to shaken farmers' confidence and loss of policy credibility (Rashid and Assefa, 2006).

EGTE's mandate was substantially revised through a series of proclamations and regulations during 1999-2000. These proclamations required EGTE to gradually move away from price stabilization and focus on export promotion and facilitation of the administration of Strategic Food Security Reserves and national disaster prevention and preparedness program. The EGTE was also merged with the Ethiopian Oil Seeds and Pulses Export Corporation (EOPEC) in 1999 in order to increase its logistic ability.[10] But there were incidences of serious policy challenges after the 1999 and 2002 policy reforms. One such challenges is highlighted in the Box 1.

The most recent and important attempt towards market development in Ethiopia has been the establishment of the Ethiopian commodity exchange. While the original thrust of the exchange was on cereals, the exchange did not succeed in attracting large volume of grain.

[9] Council of Ministers' Regulation No. 104/1992

[10] Council of Ministers Regulations No. 58/1999.

During its launching in February 2009, the exchanges traded only 200 tons. In November 2008, the focus of the exchange shifted to coffee. The government issued a proclamation that dismanted the traditional coffee auction floor and required private wholesalers and exporters to sell only though the exchange. The government is again trying to increase trade of cereals through the exchange, but it is not yet clear what new instruments or incentive mechanisms will be used to make that possible.

6 Responses to food crisis

If price transmission requires actual commodity flows, there has not been any transmission of prices from global markets to Ethiopian markets.[11] Simply put, if price transmission had occurred in true sense, domestic prices would not have possibly stayed above import parity for such a long period of time. Thus, it should be pointed out that the policy responses in Ethiopia was more of an outcome of domestic price rise than the global price rise.[12] However, as earlier sections have demonstrated, the price increase in Ethiopia was quite dramatic and continues to remain a serious policy challenge. There were four direct responses to food price increase: (i) imposition of export ban, (ii) re-introduction of urban food rationing, (iii) informal suspension of local procurement by WFP and others, and (iv) direct government imports for open market sales and price stabilization.

The ban on cereal export was imposed in February 2008. This was based on the assumption that the production estimates were correct and that prices had increased because of exports. However data do not support this contention. The IFPRI-JRC study concluded that the cross border trade of cereal was too small to influence the domestic market prices (Alemu, et al., 2009). The rationing program however was large and has had an impact in terms of reducing urban prices. The program was implemented by re-activating the kebele (local admin units) shop. Under urban program, all residents in possession of kebel identification cards were eligible to collect a ration of 50 kg wheat (initially 25 kg) at ETB 1.8 per kg. The market price at that time was in the range of ETB 4 to 6 per kg. As a result, a parallel market evolved very quickly. Government also tried open market sales to traders at less than 50 percent of market prices but the program was abandoned quickly. The other channel of price stabilization was selling through flour millers at subsidized prices.

The introduction of rationing and open market sales resulted in alarming decline in strategic food reserve of the country; it dropped from the target stock of 403 thousand tons to about 17 thousand tons. At one point, the the country didn't have enough food stock to carry out emergency operations. In response, the government, the WFP, and NGOs all became engaged in importing food. According to available data, during 2008 EGTE and WFP imported 520 and 515 thousand tons of wheat and maize, respectively. While the WFP food import went to emergency operations and safety net program, the EGTE imports were used mainly for price stabilization.

[11] Although there are econometric studies to argue that price transmission did occur (Loenning et al. 2009)
[12] See, Rashid and Hill (2009) for details

Table 6. Food aid and local purchase of cereals in Ethiopia, 2000-2008

Year	Total Food Aid Deliveries (MT)	WFP Local Purchases (MT)			WFP Total Local Purchases (MT)
		Maize	Wheat	Total	
2000	1,231,405	--	--	--	--
2001	980,434	15,030	20,324	35,354	65,904
2002	265,903	10,000	53,337	63,337	72,116
2003	1,886,829	22,025	11,729	33,754	76,565
2004	731,562	71,008	28,809	99,817	117,240
2005	1,003,938	55,652	31,527	87,179	149,192
2006	551,757	146,475	4,804	151,279	154,661
2007	284,513	56,168	--	56,168	31,299
2008	626,092	29,339	--	29,339	40,852
Mean	840,270	50,712	25,088	69,528	88,479
SD	509,215	44,476	17,122	41,734	46,829
CV	61	88	68	60	53

Table 6 presents data on food aid inflow and local purchases by the WFP. Notice that food aid inflow declined to only 284 thousand tons in 2006, which is significantly lower than the average of 840 thousand tons since 2000. At this point, government's policy focus was on reducing food aid dependence. However, it proved very difficult when price stated rising sharply; so, the food aid is back to 6-8 hundred thousand tons again. Also, notice that WFP local procurement under LRP reach as high as 151 thousand tons of maize and wheat (more than quarter of a million tons if sorghum, beans, and pulses are added), but dropped to zero since 2007 in the case of wheat and small quantities in the case of maize.

7 Summary and conclusions

Cereals production and marketing are significant part of Ethiopian economy—in terms of rural livelihood, food and nutrition security, as well as national income. Therefore, policies under all political regimes that ruled Ethiopia over the past five decades have placed heavy emphasis on cereal subsector. This paper has provided evidence on the importance of cereals; presented a overview of the subsector in terms of production, marketing, and trade; presented synthesized review of policy changes since monarchic regime; and discussed the government's policy actions following food price hikes during 2006-2008.

The evidence on the significance of cereals in Ethiopian economy is overwhelming: cereals account for roughly 60 percent of rural employment, 80 percent of total cultivated land, more than 40 percent of a typical household's food expenditure, and more than 60 percent of the calorie consumption. In terms of contribution to national income, our calculation suggest that cereal sub-sector accounts for roughly 30 percent of the national income. This explains why both economic growth and poverty alleviation strategies of the government have placed so much emphasis on cereals.

Continued policy emphasis on cereal has brought about significant changes in the structure and performance of the subsector. Production of wheat and maize has grown significantly since 2000—so much so that crop mix in the country has changed. With an annual production of about one million tons, wheat ranked last among the four major cereals in the 1990s. In 2007, wheat production jumped to 2.7 million and its status elevated to second, exceeding both teff and sorghum. The production of other crops has increased significantly

as well. Between 1990s and 2007, maize production has increased from 2.3 million tons to 3.9 million tons, sorghum from 1.2 million tons to 1.8 tons, and teff from 1.6 million to 2.56 million tons.

Despite these impressive growth, all cereals except wheat (very occasionally) remain non-tradable. That is, given the infrastructure and other market fundamentals, it is not profitable either to export or to import cereals in Ethiopia. Nonetheless, domestic marketing remain very important in the country due to concentration of production in two regions—Amhara and Oromia—which account for 87 percent of the nation's teff and wheat production and 82 percent of maize production. Therefore, inter-regional trade of cereal remain critically important, and public policies focusing on improving arbitrage efficiency can have a high pay off.

Cereal markets in Ethiopia have gone through dramatic shifts over the past three decades, with each shift bringing about significant changes in agricultural price polices. The major thrust of the current government's policy has been on (a) enhanced investments in market infrastructure, (b) gradual withdrawal of government controls, and (c) enhancing the scope and coverage of social safety net programs. This is line with government's strategy to make transition from relief to development. The largest safety net program in Ethiopia is now conditional transfer programs, which not only feed the poor but also contribute towards growth through infrastructural and human capital development (nutrition supplement and school feeding).

However, policy makers do not seem to be convinced that staple foods can yet be left to the market forces yet. The EGTE has continued *ad hoc* market interventions in recent years. The interventions, however, have been designed largely to address emergencies. For example, although it officially withdrew from market, government instructed EGET to make local purchases in 2003 when maize prices collapsed. Similarly, in the wake of very high domestic prices, EGTE imported more than half a million tons of wheat in 2008, which were distributed through the urban food rationing program, open market sales, and sales to flour mills. The objective was to stabilize prices.

Food price increase in Ethiopia has been different from in many other developing countries. Unlike other countries, domestic price rise in Ethiopia was not related to world price rise. It began with rapid growth in the money supply relative to overall economic growth. This was later aggravated by a balance of payment crisis that resulted in government rationing offoreign exchange. Due to foreign exchange rationing, the private sector could not import to stabilize domestic prices. As a result, prices kept going up long after food prices in the world market nosedived. Another important factor in domestic price rise appear to be over-estimation of cereal production by the related agencies. According to an IFPRI-EDRI study official estimates of cereal production was around 30 percent higher.

Taking all the factors together, it appears that that rising food prices in Ethiopia has been the outcome of monetary policy misalignment, the balance of payment problems resulting from sharp increases in fuel prices, as well as overestimated cereal production. However, although the sources of price rise have been different from the other countries, the policy reactions have been similar—increased intervention in cereal markets.

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