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## Cereal price instability in Ethiopia: An examination of sources and policy options

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### Abstract

Managing food price instability is a long standing policy challenge, which, with mixed experiences of agricultural price policy reforms, has re-emerged as a contemporary policy issue. This is particularly true for Ethiopia, where managing food price stability continues to be a formidable policy challenge. The objective of this paper is to examine the underlying causes of cereal price instabilities and to assess the policy options to manage them. It undertakes three tasks: (a) analyzes the sources and degree of cereal price instability, (b) discusses the viability of various policy options, and (c) critically reviews the country's past, ongoing, and emerging policies for food price stabilization. The results show that the determinants of price stability—infrastructure, information, and institutions—are at low levels of development; both production and price variability are high, and despite this continued high variability in prices, price risks mitigation has lost its importance in the country's policy agenda. By analyzing market-based and non market-based policy options, as well as recent trends in the cereal markets, the paper argues and concludes that reliance on any single option may not produce the expected results. A combination of the two will be desirable, especially in the short run.

Keywords: Cereal, Ethiopia, Policy, Price instability

### Introduction

Agricultural households in developing countries face a variety of risks. The most visible manifestation of these risks is high food price instability, which, because of its inherent economic and political implications, has attracted the attention of almost all actors in food policy making over the past few decades. Politicians want food price stability irrespective of their ideology, public administrators have struggled in making food price policies work, and researchers have debated over the ways and means of ensuring food price stability. However, all actors agree on one point—i.e., the dire consequences of price instability on consumers, producers, as well as on overall economic growth. For poor consumers, consequences of price instability are severe. Since a large share of their income is spent on food, an unusual price increase forces them to cut down food intake, take their children out of school, or, in extreme cases, simply to starve. Even when such price shocks are temporary, they can have long term economic impacts in terms of nutritional well-being, labor productivity, and survival chances (Hoddinott 2006 and Myers 2005). At the macro level, country studies have argued that price instability may result in macroeconomic instability, social unrest, and overall reduction in economic growth (Timmer 1988 and 1997).

Until the onset of the structural adjustment programs (SAP), the policy response was direct government intervention through food marketing boards/parastatals, involving price control and restrictions on both internal and external trade. Beginning in the 1980s, donors and other international agencies began promoting the reform of food marketing boards and price policies as part of the SAP. The momentum for reforms was provided by the dominant view at the time that direct marketing interventions were too expensive in terms of both budgetary and implicit social costs. However, such experiences have been mixed, and whether the reforms provided a positive price incentive is a subject of considerable debate (Barrett 1997; Jayne et al., 2002; Dorward et al. 2004).

Thus, there is a growing recognition that food price instability and risks are important problems in developing countries and finding appropriate policies to deal with these predicaments has re-emerged as a contemporary policy issue (World Bank 2005). There are two additional reasons for the re-emergence of food price stabilization in developing countries: (a) global climate changes, and (b) unusually low levels of world food stock. There is growing concern that global climate change is likely to expose poor countries to draughts, floods, and other extreme climatic events that can increase the risk of food price shocks. The

historically low level of world food stock is also a serious concern, as even a small production shock in large countries, such as China and India, can send major shock waves through world grain markets. This has severe implications for developing countries, especially ones that face a food deficit and have limited import capacity due to low foreign currency reserves. For example, a sudden increase in food import may lead to worsening of a poor country's balance of trade, causing a devaluation of the currency, and making import more expensive in local currency (Hazell et al. 2005).

Ethiopia is such a country. It is constrained by a limited import capacity; food price variability in its domestic market is very high, the country's integration with the world market is low, and the country has experienced both price spikes and collapses in recent years. Furthermore, despite the government's almost complete withdrawal from the market, price variability has actually worsened rather than improving in recent years. Using available data on two internationally traded cereals, maize and wheat, this paper: (i) analyzes the sources of price instability, (ii) reviews the viability of various policy options to address price instability, and (iii) discusses how the country's price policies fare in terms of viability and policy justifications.

### **Sources of price instability**

The price of any given commodity is the final *outcome* of an exchange process we call *market*, and the outcome is only as good as the process is able to deliver. Thus, the price of a commodity can be *right* only if the process of exchange is right. Three critical determinants of an efficient process of exchange (i.e. market) are infrastructure, institutions, and information. The following example can help illustrate the point. The experiences of the "*getting prices right*" campaign of the 1980s, which involved dismantling *parastatals*, suggest that the results of the campaign varied widely across countries. While liberalization led to higher price variability and reversing of policies in some African countries, it was remarkably successful in China and Vietnam—arguably because these countries had well-developed infrastructure and institutions. Therefore, the starting point for understanding the sources of price variability in any given country should begin through an analysis

of the factors that influence the "process of exchange." The terms "infrastructure and institutions" encompass a wide range of factors that contribute towards improving market efficiency. For the sake of clarity, we consider four broad sources of price instability, which are elaborated below.

### ***Agro-climatic factors***

The hostility of *Mother Nature* has historically been one of the main sources of vulnerability of peasant households. Drought, floods, and endemic infestation have always played roles behind food insecurity and resultant human tragedies.

The production from weather dependent agriculture, as is the case in most African countries, can be as unpredictable as the weather itself. This is reflected by the variability in production within and across years. It has been amply demonstrated that *yield variability* translates into price variability; and the more a country's agriculture depends on weather the more is the variability in yields and hence the prices (Anderson and Hazell 1989).

Simple analysis of time series data shows that this is indeed the case in Ethiopia. The results of yield variability, measured with the Cuddy La Valle Index (CLVI) for wheat and maize, suggest that yield rates are highly volatile across regions and over time (Table 1). Maize yields appear to be more volatile than wheat with estimated index ranging from as high as 46 for the Somale region and as low as 6 for the Benishangul region. While the estimates for wheat are lower than those for maize, they are still substantially higher compared to other wheat producing countries in the developing world. For example, CLVI for wheat in India and Pakistan, two major wheat growing countries in South Asia, are 5.4 and 5.5, respectively. These are significantly lower than any given wheat growing region in Ethiopia. What explains such a high variability? Clearly, weather dependence is large part of explanation. In India, about 35 percent of cropped land is irrigated at the national level, as opposed to around 2 percent in Ethiopia.

### ***Infrastructure and information***

The physical infrastructure and efficient flow of information are perhaps the most important sources of price variability and food security crisis.

**Table 1:** Regional Variability in Maize and Wheat Yields

Regions	Wheat		Maize	
	CV	CLVI*	CV	CLVI
Tigray	22.95	14.97	26.18	23.88
Afar	--	--	44.99	36.41
Amhara	15.73	15.66	15.09	14.89
Oromia	11.16	9.71	9.42	9.00
Somale	38.02	29.93	46.74	46.15
Benishangule	--	--	6.87	6.82
SNNPR	18.34	17.36	7.98	7.76
Gambella	--	--	26.10	24.83
Harari	10.93	10.53	18.88	16.95
Addis Ababa	18.92	18.74	--	--
Dire Dawa	--	--	28.33	23.16

Source: Authors' computations using data from the Central Statistical Authority of Ethiopia. \*  $CLVI = CV \sqrt{1 - R^2}$ , where CV is the coefficient of variation and  $R^2$  is the coefficient of determination for log-linear time trend regression

Indeed, famines and acute food insecurity have historically been localized phenomena and many of them are named after a specific region of a country, such as the *Wello* famine in Ethiopia, and the Bengal and Madras famines in India. The classic example is the Bengal Famine of 1943, which tragically demonstrated how a small decline in food production can trigger massive food insecurity in the absence of infrastructure, information, and risk mitigating institutions. Food price stabilization policies have their roots in such tragic experiences.

Where does Ethiopia stand in terms of these infrastructure and information flows? We have examined data from the World Development Indicator (WDI) database on the road network, telephone lines, and ownership of radio and television. Analysis of this data shows that in 2000, the country had about 31,000 kilometers of road network (equivalent to 0.03 km per square km of land area), only about four out of a thousand people owned a phone, and only six out of a thousand people owned a television. These numbers are very low, even compared to other developing countries in Africa and Asia. More importantly, time series analysis suggests that the road network changed from 28 thousand kilometers in 1990 to only 31 in 2000. The total road network, normalized by the land area of the country, indicates that there has hardly

been any change in road infrastructure in the country since 1990. Similarly, while ownership of televisions has increased dramatically over the past three decades in other countries, it has remained relatively flat in Ethiopia (Rashid and Assefa 2006).

#### *Incomplete markets: Credit and Insurance*

Living always involves risks, but over time the human race has learned how to manage or cope with them. The credit and insurance markets are the outcomes of such human learning in the process of evolution. However, in developing countries, these institutions are largely incomplete or non-functional, and thus inadequate to address the credit and insurance needs of a vast majority of households. This indirectly contributes to agricultural risks and price instability. For instance, if credit market is well-functioning, households can borrow to maintain a certain level of consumption, or to avoid distress sales in the face of negative income shocks. It is often the case in many developing countries where farmers have to sell a portion of their crops immediately after the harvest to pay off loans, pay wages, school fees, or to meet other social obligations.

The same argument can be applied to insurance markets. Farmers in developing countries have great difficulty in dealing with weather-related income shocks due to missing insurance markets. Crop failure due to drought, for example, can force households

otherwise above the poverty line into poverty as they have to sell their productive assets to meet consumption requirements and production costs. As we shall see in the next section, the development of credit and insurance markets is also critical to ensure food price stability through market-based institutions.

#### ***Other factors***

There are three other factors that can generate food price instability in a country: (i) high world price variability, (ii) large social safety net (SSN) programs, and (iii) large aid flow for emergency assistance programs. The world staple food market has historically been thin, highly volatile, and heavily influenced by agricultural policies in developed countries (Timmer 1996). Many studies have documented that high variability in world prices can transmit to domestic markets and worsen price instability. In fact, this was one of the central justifications that countries in Asia used to protect their cereal markets when they embarked on the green revolution (Rashid et al. 2007). For Ethiopia, this is less significant, as most of the cereals in the country are non-tradable. However, it is interesting to note that domestic price variability in Ethiopia, particularly for maize, is higher than in the world market (Rashid and Assefa 2006).

For Ethiopia, the two other factors are particularly important. The country has large safety net programs that combine both food and cash transfer (add figures). It is true that these are essential social intervention programs, justifiable irrespective of the level of development of a country. However, if they are not managed properly their operations can have destabilizing effects on the markets, especially if the programs are large relative to the country's food economy. Although the direction of the price change may be different, both food transfers and cash transfers under SSN can affect the price. For instance, if the beneficiaries receive food under SSN, it will lower their effective demand from the market, which in turn will lead to a decline in prices.

The last factor that can contribute to price instability is large inflow of food aid. While the benefits of food aid supply during emergency situations cannot be denied, excessive flows can depress market prices to the detriment of local producers, lowering levels of production and farmer incomes. Ethiopia is one of the largest recipients of food aid, where total food aid accounted for 13 percent of cereal utilization in the

country during 1999-2003 (Rashid et al. 2006). This is a conservative estimate. In terms of total human consumption, the food aid's share is at least twice as high because, in addition to human consumption, cereal utilization includes feed, seed, post harvest losses etc. (FAO 2004). Clearly, it is a large share and, depending on the mode of distribution, can produce disincentive effects on both producers and traders.

#### **Available policy options**

The current stock of price stabilization policies includes both "market based and non-market based options" with the former generally practiced in developed countries and the latter in developing countries. The non-market based options—such as dual pricing, variable tariffs, and subsidizing storage—are justified on the arguments of "market failure". In fact, three commonly cited rationales for public intervention in agricultural markets—i.e., (i) inadequate infrastructure and information flows, (ii) incomplete risk mitigating institutions (e.g., credit and insurance markets), and (iii) lack of safeguards against external shocks—can all be supported as cases of market failures. Market-based options—such as commodity exchanges, warehouse receipts, and crop insurance—are viable only if the market fundamentals are in place and there is an enabling regulatory and legal environment. Both building market fundamentals (e.g., infrastructure and information) and creating an enabling environment take time and, like many other developing countries, Ethiopia lacks these critical elements of well functioning markets. This implies that some forms of non-market intervention may be justified in the short to medium terms. In the next section, we provide a brief discussion on this issue in the context of past, ongoing, and emerging policy discussions.

#### ***A review of ethiopia's policy responses***

Over the past three decades, Ethiopia has experimented with a whole spectrum of agricultural price policies that ranges from parastatals-centric control through production quota and trade control during the central planning regimes, to some sort of dual pricing approach during 1992-99, to total liberalization (except security reserve and safety nets) with *ad hoc* interventions in recent years. A summary of the government proclamation and rationales for reform are presented in Table 2. Two points are very clear from the table. First, despite very high variability in prices and production, price risk mitigation has

progressively lost its importance in policy agenda. The country's food marketing parastatal, the Ethiopian Grain Trading Enterprise (EGTE), continues to exist, but its major mandate is export promotion, not price stabilization. Second, the policy focus has shifted more towards emergency and disaster management, which are important in their own rights. However, ensuring price stability is critical for farmers to make decisions about investment, crop portfolio choices, and moving towards more sustainable forms of commercialization and diversification.

Following up a high level report, released in November 2005, the country has embarked on setting up an agricultural commodity exchange. The government has committed to simultaneously addressing many of the viability conditions to make it work. These include setting up grades and standards, introducing warehouse receipts, and setting up strategically located electronic hubs for price transmission. The exchange is expected to go into operation in late 2007. The hopes are high; the government and its development partners have gone through a rigorous consultation process to identify constraints and take necessary measures to address them. However, recent experiences with such initiatives in Africa as well as political sensitivity to cereal prices increase the call for caution. Of the many initiatives to set up commodity exchanges, only South

Africa's SAFEX turned out to be successful, perhaps because the country is at much higher level of development. Although they appeared successful in the initial years, both Zimbabwe and Zambia suspended commodity exchanges following sharp rises in cereal prices. Recent experiences suggest that Ethiopia is likely to face similar problems. The country's cereal markets have been behaving differently from their historical patterns for more than a year and half. Despite consecutive years of good harvests, prices of major cereals have been rising sharply since late 2005. The food component of the national consumer price index has increased from about 8 percent in 2003 to 19 percent in 2006, with an average annual increase of about 13 percent. This is indeed puzzling and has been a major concern for the Government of Ethiopia. As policy responses to this situation, government banned cereal exports in early

2006, introduced urban food rationing in April 2007, and had to issue an announcement warning traders and business entities not to hoard essential food commodities. These experiences suggest that market-based options, such as commodity exchanges, alone are not likely to solve the problems of cereal price instability—some non-market based policies may be necessary at least in the short run. The challenge will be to make such interventions transparent, consistent, and credible to minimize distortions to both production and trade incentives.

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**Table 2.** Declining Emphasis on Managing Food Price Instability

Proclamations/ Regulation Numbers	Agency responsible	Specifics tasks on price stabilization
Regulation No. 104/1992	Ethiopian Grain Trade Enterprise (EGTE)	EGTE is clearly mandated to stabilize cereal prices.
Proclamation No. 58/1999	EGTE	Stabilization is a mandate, but emphasis is placed on export promotion.
Proc. No. 380/2004	(EGTE	No explicit mention of price stabilization, but performing the task on an <i>ad hoc</i> (as and when required) basis.
Reg. No. 67/2000	Emergency Food Security Reserve Administration	Maintain strategic reserves to manage fast and slow-onset of emergencies
Proc. No. 212/2000	National Disaster Prevention and Preparedness Fund Establishment	Objective is to help implement Employment generation under food security programs.

Source: Compiled from various public documents