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Synopsis: Agricultural prices during drought in Ethiopia

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We analyze the evolution of crop and livestock producer prices and wages of unskilled laborers in Ethiopia over the January 2014 to January 2016 period, during which time the country was massively impacted by El Niño triggered droughts. The analyses reveal no evidence of widespread adverse price effects of the drought in the labor and cereal markets. Real prices of the major cereals were lower at the beginning of 2016 compared to two years earlier, especially for maize, sorghum, and wheat, the crops that make up the major source of calories in the areas that were most hit by the drought. Conversely, prices of root crops and pulses increased. Given the large importance attached to cereal consumption, the overall real food consumption basket price declined compared to two years earlier, the decline being lower in drought-affected areas. Considering crop and livestock prices jointly reveals that livestock-cereal terms of trade declined in the worst affected areas, contrasting considerably with improvements seem in areas less affected by the drought. This contrast is mainly due to livestock prices declining faster than cereal prices in such areas. The fluctuating behavior of cereal prices since January 2015 strikingly contrasts with the situation during the major drought of 1997/98. During that period, cereal production declined by 25 percent compared to the year before, with significant simultaneous real price increases of between 15 and 45 percent.

INTRODUCTION

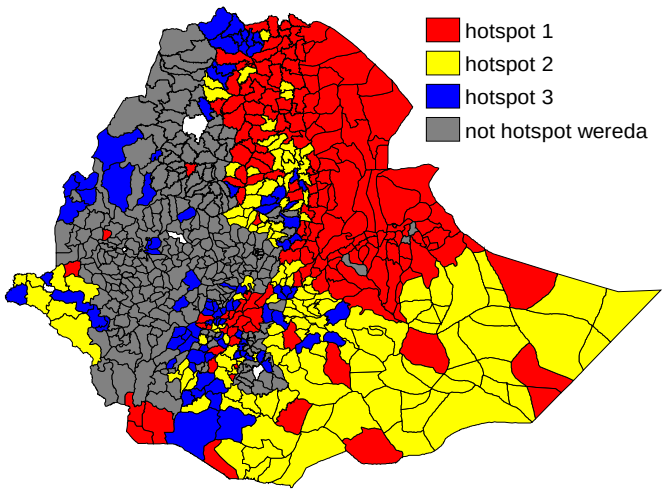
Ethiopia has been enormously affected by El Niño triggered droughts since 2015. The *Belg* rains of 2015 failed in large parts of Ethiopia, and there was further inadequate rainfall in the main *Meher* season of 2015, mostly in the northern and eastern parts of the country. This rainfall failure has led to reduced agricultural output and to a loss of livestock in parts of the country. FAO (2015) estimates that national cereal production in 2015 was 14.1 percent lower than in 2014. This has led to hardships for a significant share of the rural population living in these drought-affected areas. The drought is therefore seen as the worst in decades.

To help monitor the drought's effect on Ethiopia's food and agricultural economy, we seek to understand the evolution of some key prices in the last two years (January 2014 to January 2016). This monitoring is important given that prices are among key factors that influence livelihoods and the welfare of rural populations in areas affected by drought. As a result of lower production, drought-affected households are likely to spend more on food than they earn from the sales of agricultural products. In particular, we look at the evolution of three broad categories of prices: crops, livestock, and wages.

DATA

We rely on two sources of data. First, the Ethiopian government and its partners have classified the drought-affected woredas (districts) into hotspot categories 1 to 3, where woredas severely affected by the drought are categorized as hotspot 1 and those with decreasing severity of drought as categories 2 and 3 (Figure 1). The hotspot classification is derived from a set of multi-sector indicators – food availability; water, sanitation, and hygiene; access to markets; nutrition; and other contributing factors – at zonal, regional, and federal levels. Operationally, this classification triggers a prioritized response, most notably in supplementary feeding. Figure 1 shows that the northeastern parts of the country especially have been hit hard by the drought. The number of priority 1 woredas increased from 186 in December 2015 to 219 in March 2016, indicative of a deteriorating humanitarian situation.

Figure 1: Hotspot woredas across the regions of Ethiopia



Source: Authors' computation
Note: Woredas in Hotspot 1 are the most severely affected by the drought.

Second, we rely on price data from the Central Statistical Agency (CSA) of Ethiopia. CSA collects monthly data on producer prices of different goods from over 400 woredas. CSA also collects data on wages of casual laborers. Data on wages are collected along with retail prices of a large number of items from about 120 woredas in all regions of the country.

AGRICULTURAL PRICES

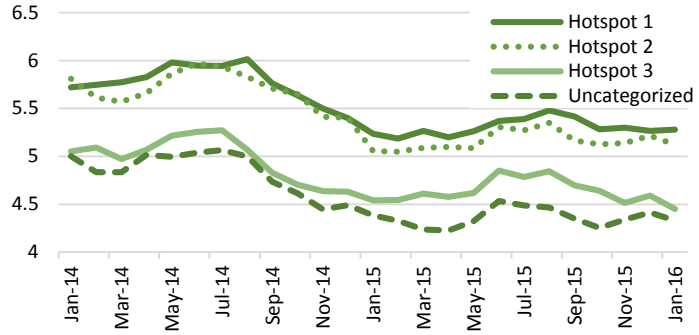
To examine the impacts of drought on agricultural prices, we look at the evolution of crop and livestock producer prices, compare trends in cereal prices and other crops, and study the patterns of change that emerge in relative prices using terms of trade between livestock and cereal.

Cereal Prices

Compared with January 2014, the average price for cereals in January 2016 were 8.4 percent lower in hotspot 1 areas and about 11 percent lower for all woredas combined. Prices of the four main cereals are largely higher for woredas in hotspots 1 and 2 through-

out the last two years, indicating that the majority of woredas in these hotspot areas are usually food deficit areas. Prices in other areas show a similar trend over this period, which suggests improvements in market integration of cereal products seen over the last decade in Ethiopia (Figure 2).

Figure 2: Trends in price of cereal by woreda hotspot category, birr/kg



Source: Authors' computation. Prices are in Dec. 2011 Birr.

Cereal prices, by comparing the two periods of study, have generally been stable during the recent drought, in contrast to the 1997-98 drought during which prices of all four main cereals at national level increased relatively fast.

Livestock Prices

In contrast with cereals and pulses, where we see stable prices and rising prices respectively, we note that livestock prices have declined since early 2014, particularly in the most drought-affected areas - hotspots 1 and 2, representing 42 percent of all woredas. By contrast, livestock prices have been rather stable in the non-drought affected areas. National livestock prices overall seem unaffected by the drought. However, the decline in prices in drought-affected areas indicates widespread hardship in those areas, and likely reflects the poor quality of livestock supplied to markets.

Terms of Trade

Our terms of trade assessment considers the changing ratio of real livestock prices and the per capita consumption price of 100 kg of cereals. This analysis for 2014 shows similar patterns in areas both severely affected and less affected by drought. However, livestock: cereal terms of trade are deteriorating in hotspot 1 woredas.

CONSUMPTION

To better understand the extent to which price changes affect the consumption basket, we looked at the quantity consumed of different crops and products.

Maize is the most important crop for calorie intake. It accounts for nearly 20 percent of the average calories consumed per capita. Sorghum accounts for 12 percent, while teff and wheat make up 11 percent and 10 percent of calories consumed, respectively. We use these consumption data to place a value on the change in costs of the consumption basket, and use this in conjunction with CSA's producer prices to assess the impact on per capita consumption of price changes between January 2014 and January 2016. We find that the price of the consumption basket declined overall, but less in the most drought-affected areas (Table 1).

Table 1: Price changes from January 2014 to January 2016

Item	Overall	Hotspot 1	Hotspot 2	Hotspot 3	Uncategorized
All Cereals	-11.3	-7.7	-11.9	-11.9	-13.4
Teff	0.0	1.1	-1.0	-0.9	-0.7
Maize	-22.0	-18.4	-22.6	-19.0	-26.0
Wheat	-8.1	-8.8	-10.7	-5.2	-8.1
Sorghum	-19.8	-14.6	-20.5	-21.3	-23.6
Livestock Prices (price change in %)					
Cows	-4.0	-11.1	-7.7	-6.3	2.8
Oxen	-7.3	-15.9	-12.8	-6.3	-0.1
Sheep	-0.5	-8.7	-5.2	7.1	4.3
Goat	-2.1	-3.4	-4.7	-1.1	-1.1
Terms of trade (price change in %)					
Cattle vs cereals	8.4	-4.5	2.7	8.5	19.0
Sheep & goats vs cereals	13.6	4.3	8.4	17.5	19.5
Per capita cereal consumption (cost change in %)					
Cereals	-11.2	-8.0	-11.4	-12.4	-13.9

Source: Authors' computation

WAGES

Over the study period, the wages for casual unskilled workers for hotspot 1 and 2 were found to be relatively higher than for other areas. Changes in wages can be an indicator of the effect of drought on welfare, in particular the impact droughts have on farmers' livelihoods, forcing them to work in the wage labor market. The overall results suggests that, while there are reports of rapid declines in wages in some areas, this is not (yet) widespread.

CONCLUSIONS

An analysis of CSA producer price data over the January 2014 to January 2016 period demonstrates:

1. **Cereal prices** have been declining – possibly because of large imports, largely wheat, and anticipated imports in 2016.
2. **Livestock prices** exhibit a downward trend for most drought-affected areas – likely caused by a lack of pasture regeneration and therefore degenerating body conditions of livestock – and a decline in terms of trade with cereals.
3. **Wages** of unskilled laborers do not show large downward trends. However there are some localized effects on wages in some drought-affected areas.

4. Overall, these prices appear to follow a **different pattern** to the drought-stricken period of **1997/98**. The current drought has led to less severe impacts on food and agricultural prices.

Overall, the analysis of the CSA prices suggest that there is no indication of major large-scale effects of the drought in the wage and cereal markets, but there are troubling indications in the drop in livestock prices. While the costs of the consumption baskets of Ethiopian households might not have increased over the period considered at national level, there is, however, a clear need to further assist those households that have directly been affected by the drought.

REFERENCES

See ESSP Working Paper 88 for full list of references used.

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