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Synopsis: Coffee value chains on the move: Evidence from smallholder coffee farmers in Ethiopia

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Important changes to Ethiopia's coffee sector have occurred in the last decade. The adoption of improved production, harvest, and post-harvest practices has been increasing with positive impacts on coffee productivity and incomes. Upstream marketing has improved, along with large investments in processing capacity, shown by the extended coverage of wet mills. These changes seem to have been driven by greater availability of extension agents, market reform, and high international prices. However, despite these changes, yield growth has been small. Weather shocks, the prevalence of coffee diseases, lack of improved seedlings, and saving constraints has impeded uptake of improved practices, with consequent repercussions on farmers' productivity and income.

Introduction

Important changes are happening in global agricultural value chains. However, it is often not clear what the impacts of these changes are on smallholder producers and other upstream stakeholders in the developing countries that supply these goods. In this study, we examine the coffee sector in Ethiopia, specifically analyzing the changes and their drivers upstream in the value chain. Ethiopia is the biggest exporter of coffee in Africa, the product generating significant revenues. Moreover, as coffee production is mostly done by smallholders in Ethiopia, any changes in global value chains might have important effects on the livelihood and welfare of these often poor farmers.

We focus on three main research questions. First, we study changes in coffee production practices over the last decade and then analyze how these production practices affect coffee productivity. Second, we document changes in harvest, post-harvest, marketing, and processing activities, and analyze their links with improved quality, prices, and incomes of producers. Third, we look at drivers of and constraints to change and transformation at the level of the coffee producer.

Data and methodology

In February 2014, a survey of 1,600 coffee producers was fielded in the major coffee producing zones of Ethiopia. To select the producers for the survey, the 12 largest coffee producing zones in terms of area and production were stratified based on the coffee variety produced, using the classification for export markets – Sidama, Jimma, Nekemte, Harar, and Yirgachefe. In total, 320 producers were interviewed in each stratum, for a total sample size of 1,600 producers across the five strata.

Changes in production practices

There is a presumption that by adopting new technologies, farmers will improve their productivity. Indeed, overall, we find that there have been improvements in the last decade in the adoption by coffee farmers in Ethiopia of improved coffee production practices, such as composting and weeding. The lowest rate of adoption was shown for compost use, while the highest was for weeding. These improved practices have been adopted especially on less remote plots, by farmers who have been exposed to the knowledge of extension agents, or who are from richer households. The adoption of these improved practices is found to be associated with higher coffee productivity.

To further understand how the adoption of improved technologies contributes to higher coffee productivity, this study also looked at characteristics of coffee trees and the density of trees per hectare. The more trees per hectare, the higher the productivity. Improved varieties are also shown to have a large impact on productivity. Increasing the share of improved trees from 0 to 100 percent was estimated to result in a doubling of coffee yields.

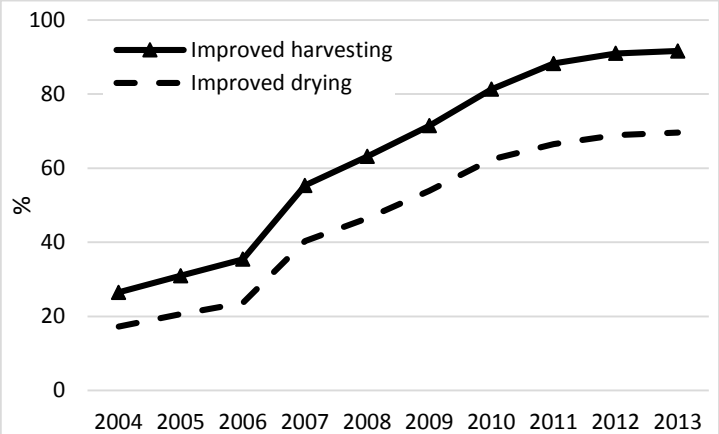
In addition, disease shocks can lead to significant negative impacts on coffee productivity. While other production shocks, such as poor rainfall patterns, hail, or frost, are mostly associated with negative effects on productivity, their impact is not significant at conventional statistical levels.

Changes in harvest, post-harvest and off-farm practices

Relying on assessments by farmers and coffee processors, we find that there have been significant expansion in the adoption of improved harvest and post-harvest practices by coffee producers in the last decade. These changes have led to better quality coffee. Ten years before the survey, 35 percent of farmers reported using stripping methods for harvesting. This practice had declined to 5 percent at the time of the survey. Post-harvesting practices improved significantly as well. While almost 60 percent of farmers would dry their cherries on the bare ground ten years before the survey, currently 77 percent and 17 percent of the farmers dry cherries on traditional beds or on a mat or plastic sheet on the ground, respectively (Figure 1). The improved drying methods are associated with an increase in quality of exported natural coffee.

Upstream marketing performance, as measured along a number of dimensions, has also improved. Farmers expressed significantly more trust in traders with respect to weighing at the time of the survey than ten years earlier (53 versus 42 percent of farmers). More farmers reported that they received a premium for producing better quality coffee at the time of the survey than before, although the share of farmers stating that no premium is available at all for coffee is still surprisingly high at 90 percent.

Figure 1 - Increase in adoption of improved coffee harvest and post-harvest technologies, 2004 - 2013

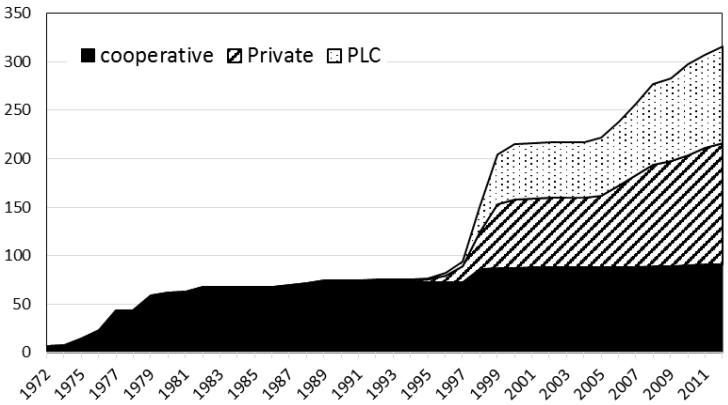


Source: Authors' calculations based on ESSP's coffee survey 2014

Furthermore, farmers have more choice as to whom they sell their coffee and also walk a shorter distance to conduct their sales. While only 27 percent of farmers stated that they had considerable choice between coffee buyers ten years before the survey, the share of farmers stating this increased to 66 percent at the time of survey. More output sales channels are emerging, particularly through increased access by farmers to selling their coffee through agricultural cooperatives.

As well as trader options, we asked farmers about their options to sell red cherries, which are the cherries processed at the wet mills. This provided some insight into the impact at farm level of growth in the availability of wet mills (Figure 2). We observe a significant increase over time in the option to sell red cherries. Ten years before the survey, 28 percent of farmers stated that they had the option to sell red cherries. At the time of the survey, this had increased to 43 percent.

Figure 2 – Number of wet mills in the Sidama area



Source: Authors' calculations
Note: PLCs are shareholding companies.

These improvements in harvest, post-harvest, marketing, and processing practices have led to higher prices for farmers that adopted these practices.

Constraints and drivers for change

In this study, three main drivers for change are identified.

1) Access to extension through the government's improvement in the provision of extension services;
2) Local policy reform through the set-up of primary marketing center; and
3) Price incentives for investments in coffee production and quality standards.

However, there also have been a number of constraints that have limited the impact of adjustments in the performance of local coffee value chains on productivity and income increases. They include, most importantly, a lack of access to improved seedlings, the perceived profitability of the improved practices being promoted, such as washing; and disease (Coffee Berry Disease and Coffee Wilt Disease) and weather shocks.

Conclusions and challenges

While there have been a number of positive developments upstream in Ethiopia's coffee sector in the last decade, there are still significant margins for improvement. First, coffee yields are low overall and the adoption of improved coffee varieties is not widespread. It seems that stimulating further adoption of improved tree varieties is important for two reasons: it would contribute towards helping to raise yields, and further improvements would help to mitigate widespread diseases issues, which are likely to increase with global climate change.

Second, markets in Ethiopia seemingly have been governed by too many controls and requirements. A conducive liberalized environment where producers can choose market outlets, depending on the performance and services offered by the outlets, might lead to lower costs in the marketing system that might benefit both individual producers and the country as a whole.

Third, the lack of well-functioning economic institutions in Ethiopia might impede profitable options for farmers. For example, the lack of reliable savings institutions seem to steer farmers to use coffee as a savings instrument to ensure that their income can be spread out over the year. More widespread establishment and better access to savings institutions might lead to higher adoption rates of washed coffee practices, and subsequently lead to higher export earnings for the country.

Fourth, coffee is the most important export crop of the country, and accounts for a large share of income for many Ethiopian smallholders. However, despite its importance, no significant efforts have been made in the country to understand the issues constraining production at the producer level using large-scale representative surveys. The lack of updated representative information is a constraint for evaluations of coffee-focused projects, programs, and policies. This hampers the design of appropriate policies and investments that could lead towards a better performing coffee sector. The regular fielding of large-scale surveys, such as that completed for this study, would be worthwhile.

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