

Evaluating the Impact of Market Information System on Coffee Producers' Revenues and Profits in Ethiopia

市場情報システムがエチオピアのコーヒー生産者の収入および利益に
及ぼす効果分析

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Market information is important in determining production and marketing behavior for farmers, particularly for commodities whose price fluctuation is extreme. However, the majority of smallholder coffee farmers in developing countries have difficulty in accessing market information at the central wholesale markets.

Theoretically, having little market information may affect producers negatively at least by two ways. Firstly, the coffee farmers may suffer from information asymmetry, i.e., farmers, who are uninformed of market coffee prices, may be offered lower prices than fair prices by traders. Secondly, without accurate market information, farmers may overinvest or underinvest in coffee farming, leading to a loss.

To solve this situation, Ethiopia introduced the market information systems (henceforth, MIS) and provided all market actors and market intermediaries with market prices. While the MIS may improve smallholder farmers' welfare in theory, whether a large number of smallholder farmers, especially those who are illiterate, are able to benefit from using the new technologies is not clear.

Therefore, this paper tries to examine the effect of MIS on the smallholder coffee farmers' profits and productivities empirically using the primary data collected from 546 smallholder coffee farmers in Ethiopia.

To examine the characteristics of respondents that relate to the use of MIS, I evaluate marginal probability effects (MPE) of explanatory variables in probit model and odds ratios in logit model with MIS usage as a dependent variable. To estimate the impact of MIS on coffee producers' revenues and profits, I employ the ordinary

least squares (OLS) estimator, random effects (RE) panel models, the two stage least squares (2SLS) estimation, and a kernel-based matching estimator to estimate the average treatment effect on the treated (ATT).

Through these estimations, I find that MIS users indeed obtain higher revenues and profits than non-MIS users, in magnitude, a 37 percent increase for profits and a 25 percent increase for revenues. The results were robust to the different estimation methods employed, including models which consider endogeneity of the use of MIS.

In addition, I find that this increase could be more attributed to an increase in harvest volumes and in sales volumes by MIS users rather than an increase in their selling prices. Although farm size is not statistically different between MIS and non-MIS users, MIS users harvest higher amounts of coffee relative to non-MIS users. Another finding is that this positive effect of MIS on the farmers' performance is magnified further with more years of education, indicating that more educated benefit more from using MIS. This suggests that how you use the information matters in improving the performance, not just the fact of having the information.

My findings suggest that the price information obtained by MIS users can be used to improve both their investment and farm management decisions and increase their productivity levels. Furthermore, although admittedly a crude estimate, I also found that MIS may also benefit traders as MIS users also exhibit higher sales volumes.