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Geographical Determinants of the Fertiliser Black Market in North Ethiopia

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Abstract

As a response to low agricultural productivity, inorganic fertiliser sales have exponentially grown in Ethiopia, and evidence exists of a supply that is beyond the demand in the drier northern parts of the country. Hence, we have investigated the geographical determinants of the fertiliser black market in north Ethiopia. Quantitative data on fertiliser provision and prices on the black market in 2016 were obtained from official statistics and from key informants in each of the 35 studied districts and in all municipalities of the Raya area. Environmental variables were collected from spatial databases. To promote inorganic fertiliser, agricultural experts use incentives, and also barter the purchase of fertiliser by a farmer against food aid or other advantages from the authorities. The high application rate that is aimed at (200 kg ha^{-1}) contrasts with the dominance of less-responsive soils in the study area, for which inorganic fertiliser application does not result in higher crop yields, or even leads to root burn. The quantitative analysis shows that 40.7 103 Mg of fertiliser were officially sold in the study area in 2016, which corresponds to 52 kg ha^{-1}. This is notably different from the application rate, as reselling widely occurs, at 50 % of the official price for diammonium phosphate (DAP) and 54 % for urea, mostly to users outside the community. By accepting the opportunity offered by agricultural companies and traders, smallholders save themselves from greater losses. The black market rate is strongly and positively correlated to monthly rainfall at sowing time (July 2016) ($R^2 = 0.44$; n = 31; $p < 0.01$). In four districts with spate irrigation, black market prices for inorganic fertiliser are extremely low (35 % of the official rate) and small quantities are sold officially (32 kg ha^{-1}). This corresponds to the farmers' saying that there "nobody needs inorganic fertiliser since the spate irrigation adds organic and inorganic nutrients yearly". We found similarities to the 'Green Revolution' of the 1970s in Mexico: the forced delivery of high-cost fertiliser, and the reselling at half price in the black market. Inorganic fertilisers are one of the elements that have allowed boosting agricultural production in Ethiopia; our findings indicate however that in the study area, the fertiliser policy needs to be much fine-tuned so that it is led by agronomic needs, rather than by statistics of inorganic fertiliser consumption, that hide complex environmental variability and socio-political relations.

Keywords: Black market, chemical fertiliser, integrated soil fertility management, spate irrigation

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