Impacts of Improved Chickpea Adoption on Smallholder Production and Commercialisation in Ethiopia

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Abstract

Enhancing agricultural productivity through the adoption of proven technologies presents a credible pathway to economic development and poverty reduction. The adoption of improved chickpea varieties have the potential to contribute not only to food security but also to economic growth and development as well as poverty reduction among the poor, since the adoption of such improved varieties are both pro-poor and environmentally friendly. Chickpea serves as a source of proteins and nutrients for poor households with the improved varieties having a very high value with potential for export. We therefore analyzed the impacts of improved chickpea adoption on smallholder production and commercialisation employing a triple hurdle (TH) model on a panel data of three rounds (2008, 2010, 2014), drawn from 614 households in potential chickpea producing areas in the Shewa region of Ethiopia. The TH model is specified to tackle the research objectives wherein the first hurdle models the binary decision to produce chickpea or not with a probit model, the second hurdle tackles the decision to participate in markets or commercialise using a probit maximum likelihood estimator while the third hurdle specifies the intensity of market participation or commercialization using a truncated normal regression model. The decision to adopt an improved variety is potentially endogenous on the second and third hurdles (market participation and market integration) as well as other observed and unobserved characteristics bringing out the aspect of selection bias. This problem of selection bias is addressed by estimating a correlated random effect (CRE) model for production and commercialization combined with the control function (CF) for instrumentation in non-linear panel data models. Expectedly, the study found both a positive and a significant relationship between the adoption of improved chickpea varieties and the decision to produce and sell chickpea in markets. Other determinants which significantly impacted production of chickpea were age, gender, farmer experience, education, access to extension services, distance to nearest market, ownership of appropriate farm machines, available land and labour for cultivation and the presence of shocks like rainfall. Apart from adoption, transaction cost reflected in the ownership of information sources like a radio was found to drive both commercialization decision and the degree of commercialization. Also the available land for cultivation, price and the total quantity of chickpea produced were found to significantly drive commercialization of chickpea in Ethiopia. This study therefore affirms the importance of improved chickpea varieties for commercialization and thus provides support for policies targeting poverty alleviation in rural areas.

Keywords: Adoption, commercialisation, Ethiopia, improved chickpea

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