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Published in:

Proceedings of the POLICOFA international conference on contract farming in Africa

Publication date:

2014

Document version

Publisher's PDF, also known as Version of record

Citation for published version (APA):

Mpeta, D. F., Henningsen, A., Adem, A. S., Kuzilwa, J., & Czekaj, T. G. (2014). Does contract farming enhance efficiency and productivity? The case of small-scale sunflower farmers in Tanzania. In *Proceedings of the POLICOFA international conference on contract farming in Africa: 2-3 October, 2014* (pp. 39-40)

Does Contract Farming Enhance Efficiency and Productivity? The Case of Small-scale Sunflower Farmers in Tanzania

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Abstract

It has been recognized for many years that agriculture plays an important role in economic development of developing countries (e.g. Hayami, Ruttan et al., 1971). It is also well known that agriculture production in developing countries generally has a very low productivity compared to non-agricultural production in the same country or to agricultural production in developed countries. The low agricultural productivity often has many diverse reasons, e.g. limited knowledge about productivity-enhancing production methods and highly productive technologies, limited availability of or access to highly productive varieties and productivity-enhancing inputs, limited availability of liquidity and limited access to credit, and/or reluctance to invest in productivity-enhancing measures due to production risk, output price variability, and unreliable market access combined with (rational) risk aversion of poor farmers. Contract farming is seen as a tool to increase agricultural productivity in developing countries, as it could solve some of the abovementioned problems, e.g. by improving access to knowledge, better technologies (e.g. highly productive varieties), productivity-enhancing inputs, and credit and by providing more predictable output prices and guaranteed market access. In fact, contract farming in developing countries usually implies that contractors enter into a contract with farmers—either directly with the farmers or through farmers’ associations—for just one year at the time, where the farmer produces a specific crop by following some guidelines and the contractor supplies production information and productivity-enhancing inputs on credit and guarantees to purchase the output at a premium price (e.g. Porter and Phillips-Howard, 1997). There exist some studies in the literature (e.g. Bravo-Ureta and Pinheiro, 1997; Begum et al., 2012) that compare the productivity and efficiency of contract farmers and noncontract farmers in developing countries but most of these studies do not take into account that the farmers self-select into the group of contract farmers or the group of non-contract farmers, while there are only very few studies that analyze the causal effects of contract farming.

This paper presents an investigation of the causal effect of participation in contract farming on the productivity and efficiency of small-scale sunflower farmers. We use a cross-sectional data set of 400 small-scale sunflower farmers—205 contract farmers and 195 non-contract farmers—in the Kongwa district in the central agricultural zone of Tanzania that includes detailed information on the farms’ sunflower production in the growing season 2011/2012. We use the stochastic frontier framework (Aigner, Lovell and Schmidt, 1977; Meeusen and van den Broeck, 1977) to obtain technical efficiency scores of the sunflower farmers. In order to account for the self-selection of farmers into the group of contract farmers or the group of non-contract farmers, we follow the approach

suggested by Bravo-Ureta, Greene and Solís (2012), which allows to handle the endogeneity both due to observable and unobservable factors. First we apply propensity score matching (PSM) (Caliendo and Kopeinig, 2008) to overcome the potential selection bias between contract farmers and non-contract farmers due to observable farmers characteristics. Then, following Bravo-Ureta, Greene and Solís (2012), we apply selectivity correction model for stochastic frontiers introduced by Greene (2010) to address the endogeneity induced by unobservable farmers characteristics. This approach allows us to analyze the causal effect of the participation in the contract farming on the farmers' technical efficiency. Furthermore, we investigate the causal effect of contract farming on input use, land productivity, labor productivity, and total factor productivity. Our preliminary results show that participation in contract farming has a significantly positive effect on technical efficiency land productivity. Finally, we found that participation in contract farming has a significantly positive effect on the use of high-quality seeds, which can explain a part of the higher efficiency and land productivity of contract farmers compared to non-contract farmers.

Keywords: contract farming, technical efficiency, propensity score matching, stochastic frontier analysis

The post-privatization role of out-growers' associations in the development of contract farming of sugarcane in Tanzania

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Abstract

Proponents of contract farming emphasize the need for strong local partners such as farmer associations and cooperatives that can shoulder the risks transferred to them. Local farmers, it is argued, may hesitate to enter into contractual arrangements with TNCs because of their limited bargaining power vis-à-vis those firms but by forming producer organizations the farmers 'strengthen their negotiating capacities' and 'gain a forum for making TNCs more environmentally and socially responsible' in addition to improving their access to 'affordable inputs such as technologies and credit' (UNCTAD, World Investment Report, 2009:176). Producer organizations will moreover help to reduce transaction costs and overcome information and communication deficiencies. Recent empirical research has focused on the impact of contract farming on household income but not on the role and importance of farmers' organizations. A similar lack of interest for the role of farmers' organizations applies to the contributions within the (older) tradition of research on contract farming's wider socio-economic impacts: Farmers' organizations are by and large considered to be inefficient and corrupt without any significant role and power.

This paper examines the role of farmers' organizations in two sugarcane out-grower schemes Kilombero and Mtibwa, located in two rural areas in central Tanzania. The two