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SPACE-BASED REMOTE SENSING TO HELP MEASURING EFFECTIVENESS OF FARM POLICIES ON AGRICULTURAL PRODUCTIVITY AND INCOME DISTRIBUTION: THE CASE OF MEXICO AND PROCAMPO

Abstract

Our ongoing research focuses on measurement of the effectiveness of farm policies on agricultural productivity and income distribution in Mexico. Specifically, we focus on analyzing the effect of the most important agricultural subsidy program in Mexico - Program of Direct Supports to the Farmland (PROCAMPO) - on the productivity of farmers, on crop diversity, on land-use and on the income distribution among farmers. We achieve this by evaluating the impact of both the introduction of the program in 1994 and the different policy changes that it experienced until its more recent 2014 version: PROAGRO Productivo. This research relies on the valuable precision of data derived from spacebased measurements and remote sensing, as well as from any other available information such as those available at INEGI5 and SAGARPA6. The methods and conclusions of this research are applicable to explore the effectiveness of other farm policies either in Mexico, Latin America or other similar developing countries or regions. This paper builds on current research, which examines the incidence of PROCAMPO on farmland rental rates with the purpose of exploring how much of this subsidy passes to the landlords, across the income distribution, through the rents they charge, and of indirectly evaluating to what extent does the program's payments are actually benefitting the poor farmers. This study uses data from a survey collected by the Food and Agriculture Organization of the United Nations (FAO) in collaboration with Mexico's Ministry of Agriculture (SAGARPA) for the agricultural year 2008/2009. The results to date show that for the 75th quantile of farms, sorted by average rent per hectare, 25 cents of the marginal peso of PROCAMPO per hectare subsidy is reflected into increased rental rates. The incidence is 70 cents for the 90th quantile. This estimated incidence is similar to the one found by Kirwan (2009) and does not agree with the prediction from neoclassical models. As a result, we show that PROCAMPO is significantly absorbed by the richest quantiles on the income distribution and it is partially capitalized into higher rental rates, a result that raises some questions as to why are these richest quantiles getting this subsidy. Space-based remote sensing data will help address the possibility of other benefits or impacts in the lower quintiles, including improved crop yield and or diversification of crops, and changes in the amount or types of under cultivation.