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Technical efficiency for Colombian small crop and livestock farmers: A stochastic metafrontier approach for different production systems

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This paper assesses the efficiency of crop and livestock production in Colombia by using a sample of 1,565 households. The study considers households located in different production systems which differ in geography, climate and soil types. These conditions affect technical efficiency and thus render analysis under the same production frontier as inadequate. For this reason, stochastic metafrontier techniques are preferred, allowing the estimation of technical efficiency within each production system and between production systems in relation to the sector as a whole. Results suggest that households in some production systems could be benefiting from better production conditions due to advantages in the availability of natural resources and climate as well as to more favorable socio-economic conditions. Additionally, we found that, in all systems, households with higher production have higher measures of technical efficiency. Thus, significant gains could be achieved in the sector through measures that contribute to improve the efficiency of households within their production systems and by policies that help reduce the technology gap in relation to the meta-frontier. These policies would bring positive impacts on the quality of life of small farmers and on the productivity of the sector.

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