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The impact of agricultural credit on the cattle inventory in Colombia: a spatial analysis

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Abstract

The relationship between access to credit, agricultural production/productivity, and deforestation represents clear challenges for sustainable development (i.e., the elimination of poverty, reduction of inequalities, increase of food security and stimulation of economic growth) and has been widely documented. The precise impacts access to credit has on cattle production levels and deforestation, however, have not yet been fully documented. The objective of this study is to analyse the impact of agricultural and livestock credit, among other variables, on cattle production (herd size) and annual deforestation rates in Colombia through spatial panel data models. For this purpose, we consolidated a departmental data panel for the period 2011 to 2020, based on information provided by several public entities. Our results suggest that, in Colombia, the relationship between access to credit and cattle production is significant and, depending on whether the total quantity of credits disbursed, or their amount are considered, can be either negative or positive. In addition, there exists evidence of spatial dependence, meaning that cattle production in a specific department is being affected by cattle production in a neighbouring department or by all the departments that make up the national territory. Regarding deforestation, we found that, although the number of cattle present in a department does affect its annual deforestation rate due to a poor coverage of intensive cattle ranching, there is no relationship between deforestation and the access to credit nor any spatial correlations. Based on the results, we provide recommendations for stakeholders that can help in the design of instruments for expanding the access to credit, improving cattle production and productivity, and fomenting sustainable production practices.

Keywords: Cattle, credit, deforestation, sustainability, sustainable intensification

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