Farming Production in Brazil: Innovation and Land-Sparing Effect

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Abstract : Innovation and technology can be determinant factors to ensure agricultural and sustainable growth, as well as productivity gains. Technical change has contributed considerably to supply agricultural expansion in Brazil. This agricultural growth could be achieved by incorporating more land or capital. If capital is the main source of agricultural growth, it is possible to increase production per unit of land. The objective of this paper is to estimate: 1) total factor productivity (TFP), which is measured in terms of the rate of output per unit of input; and 2) the land-saving effect (LSE) that is the amount of land required in the case that yield rate is constant over time. According to this study, from 1990 to 2019, it appears that 87 percent of Brazilian agriculture product growth comes from the gains of productivity; the rest of 13 percent comes from input growth. In the same period, the total LSE was roughly 400 Mha, which corresponds to 47 percent of the national territory. These effects reflect the greater efficiency of using productive factors, whose technical change has allowed an increase in agricultural productivity gains.

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