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## Human Development and Food (In)Security in Brazil: Prioritisation of Regions for Policies Targeting Rice and Bean Production

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### Abstract

Rice and beans represent staple crops in Brazil. They are grown mainly for domestic consumption. Small farmers, in Brazil commonly considered as ‘family farmers’, do a significant part of the production of both staples. In Brazil, rural poverty often relates to regions where small farming is the main form of agricultural production. Thus, the objective of this study was to identify the main poverty areas in Brazil and check if they are important in growing rice and beans in order to be considered as priority areas for agricultural research and extension services. As poverty, we consider a monthly per capita income of less than US\$ 100 and very low (0-0.499) and low (0.5–0.599) Human Development Index (HDI) according to the Human Development Report 2014. Poverty data are based on national household survey data. Rice and bean production data is based on national statistics from several official sources. Cluster analysis and spatial correlation is done to identify priority target regions for implementation of technology transfer and extension services focusing on improving food security. In the majority of municipalities with the lowest HDI, rice and bean production is weak and of low technological level, mainly done by family labour. In the states of Maranhão and Piauí, who are part of the “MATOPIBA” region (last agricultural frontier region of Brazil, as part of the states of Maranhão, Tocantins, Piauí and Bahia), the lowest HDI’s are found. Education dimension represent the weakest part of HDI in those states. The municipalities with the lowest HDI’s are located in those states. They represent poverty zones where families have less income than the daily limit of US\$ 1.25 recommended by the United Nations. Low HDI in those municipalities require targeted policies including training and extension services in order to improve rice and bean production and, thus, improving food security of poor population.

**Keywords:** Education, health, per capita income, production costs, profitability