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“Development on the margin”

Transfer of GMOs Technology in African Least Developed Countries: Relevant Socioeconomic Factors to Consider for a Sustainable Application

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Abstract

The aim of this paper is to achieve an efficient and sustainable application of genetically modified organisms (GMOs) in African Least Developed Countries (LCDs) by strengthening the capability of research and political institutions, permitting the local development of the technology and its adaptation in relation to the specific characteristic of the key stakeholders. The diffusion of GMOs might not become the norm as theoretically foreseen *e.g.* by the neoclassical model, because of high uncertainty concerning its potential risks on the side of farmers and the environment, lack of participatory approaches to development, and low presence of local research institutions and human capital. This paper makes a contribution to approach the problem of food insecurity from a social and economic perspective: the evaluation has been carried out considering firstly the analysis of social constructivism and especially how technologies transform social systems. This analysis aims at finding out which aspects play a crucial role in evaluating the need and assessing the potentials of GMOs in African LDCs. From the economic perspective, the dynamics behind this technology transfer have been analysed through a Multiple Equilibria Approach in which *ex ante*, the undervaluation of socioeconomic aspects may be the cause of failure in the application of such technology, making *ex post* the rural economies move towards unfavourable equilibria. It considers the specificity of GMOs technology in order to make their application fully beneficial, sustainable, and economically desirable. The discussion emphasises that the theory of linear models may be reductive in describing the economic dynamics behind any technology potentially valuable to reduce the burden of food insecurity, hence suggesting a need for a situation-specific approach. This paper will propose optional paths that transfer of GMOs technology may take. This theory implies that, in the case of GMOs, case-by-case analyses are needed in order to shape the technology to local needs, social norms, interests and expectations. This ultimately implies to settle locally agreements about the goals, potentials, impact, and security of this technology in order to increase the likelihood of a sustainable application.

Keywords: African Least Developed Countries, food security, genetically modified organisms, GMO, multiple equilibria approach, rural development.