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Food-Feed-Biofuel Trilemma: Biotechnological Innovation Policy for Sustainable Development[1]

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Abstract

With climate change endangering environmental sustainability, and food-biofuel competition still looming large, the pursuit of Sustainable Development Goals (SDG) requires balancing this trade-off. By highlighting the role of current-vintage agro-fuel technology in combating twin crisis, we calibrate a 23 regions-24 sectors Computable General Equilibrium (CGE) model to enumerate the impacts of: [i] 10% biotechnological invention in maize grains, rice and wheat; [ii] productivity growth in new agro-chemical inputs; [iii] impact of next generation biofuel technology (5% productivity shock). The results confirm that investing in factors for adoption of *third-generation* biofuels could be significant policy response for mitigating the adverse impacts.

Keywords: Sustainable Development Goals (SDG), Biotechnology Policy, Biofuels, Food Prices, Spillover, CGE.

JEL Classification: C68, D58, F13, O3, Q17, Q18.