Paving a Path toward Sustainable Energy Security: Examining a Global Transition toward Ethanol Production.

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Brazil has made strong efforts in terms of public policies for stimulating the ethanol production based on sugarcane and has achieved considerable results on this matter. Sugarcane-based technology for producing first generation ethanol is in the mature stage of development in the country, which is the world largest supplier of ethanol production from sugarcane. In Brazil, ethanol is supplied at competitive prices and, from a perspective of carbon footprints, provides benefits compared to gasoline. In this vein, other sugarcane-producing countries might join the ethanol bandwagon. Indeed, prime candidates are Australia, China, Colombia, India, Indonesia, Mexico, Pakistan, Philippines, Thailand and the United States of America. This study evaluates the potential economic consequences of growing this nascent industry using an input-output approach. We examine its potential by configuring a new biofuel industry by borrowing information from the existing large-scale alcohol industry in Brazil and adjusting for possible productivity differentials. Brazilâ€™s data are based on an IO-LCA (input-output life cycle assessment) approach. We augment the industryâ€™s sales following a hypothetical hydrous and anhydrous ethanol consumption scenario. We thereafter reconcile the national accounts. We conclude the analysis by quantifying and comparying the different net effects of this new industry for each of the assessed countries: in the terms of GDP, labor compensation, and employment, as well as its net effects on each nationâ€™s oil imports avoided and worldwide CO2 produced.