

HOW DO BRAZIL'S MANDATED BLENDING REQUIREMENT AND WORLD CRUDE OIL PRICE AFFECT
INTERNATIONAL ETHANOL MARKETS?

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ABSTRACT

In recent years, more and more countries and areas have become increasingly concerned with environmental problems, and energy independence goals as a result of the high crude oil price. In this context, biofuels are widely recognized as an important means of lowering the carbon emissions of transport, and utilizing alternative energy sources, which are beneficial to increasing energy security. Consequently, a great number of national governments across the world have made legislation to require biofuels to form a proportion of transport fuel use. Brazil is one of such countries. It is the second largest country in terms of biofuel production. Also, its biofuels exports and imports have remarkable impacts on international markets. This study examines, in particular, the impacts of Brazil's mandate blending ratio of biofuel in pure gasoline, and a rise in world crude oil price on international ethanol markets. A structure model of Brazil's sugar and ethanol markets is developed and estimated based on regressions and modeler's judgments. This study uses two ways to close the model. The first one is to use single equations for demand from the rest of world. The other way is to link Brazil's markets to FAPRI's models of U.S., EU, and world markets. A baseline projection for the period marketing year 2011/2012 to 2020/2021 is determined. Then, two shocks of the mandated blending ratio

and world crude oil are applied. The first scenario indicates blending requirement boosts anhydrous ethanol price, gasoline C price and international hydrous ethanol price. Also, there is a rise in Brazil's consumption of anhydrous ethanol and gasoline C. For the second model, the direction of change for all the endogenous variables are consistent with those in model one, but the magnitude differs. An increase in world crude oil price gives rise to a large switch from petroleum products to biofuels.