

The Ethanol Mandate and Corn Price Volatility

Peter Maniloff, Colorado School of Mines

Sul-Ki Lee, Colorado School of Mines

BEGINNING in 2006, the Renewable Fuel Standard (RFS) and subsequent “RFS 2” mandated the increased use of ethanol in the United States. Currently, the level of U.S. ethanol consumption has risen to 15 billion gallons per year, which is more than ten percent of U.S. gasoline consumption. In the U.S., ethanol is overwhelmingly made from corn and now accounts for over forty percent of U.S. corn production. While a number of previous studies have shown that U.S. ethanol policies increased average corn price levels, to date no research has been conducted to analyze the effect of on grain price volatility.

The supply of agricultural goods is slow to respond to changes in price because farmers must plant crops months in advance due to long growing cycles. Similarly, demand for agricultural goods may not change much when prices change because consumers must eat. The inability of produc-

ers to change production quickly is referred to as “inelastic supply, and the inability of consumers to change their consumption patterns is called “inelastic demand. When both supply and demand are inelastic, markets tend to have high price volatility with dramatic increases or decreases in price over a short time period. Volatile prices for food can have broad impacts on a countrys economy, especially in low-income regions of the world where populations are at risk for malnutrition or starvation.

The authors develop a statistical model to estimate the impact of U.S. ethanol policies on the price volatility of corn and a number of commodities, including coffee, cotton, rice, sugar, and others. The model suggests that under the RFS and RFS 2, corn price volatility has increased by more than other agricultural goods price volatilities. The authors estimate that for ev-

ery one billion gallons of mandated ethanol, the price volatility of corn has increased by 2.88%.

The Renewable Fuels Standard and RFS 2 were designed to promote U.S. energy security by increasing the use of a domestic energy resource. Additionally, increased use of ethanol may help to reduce greenhouse gases emissions from the transportation sector. Those benefits, however, should be balanced against potential environmental costs and impacts that may affect other markets. Not only is there an impact on the level of food prices, U.S. ethanol mandates have increased the volatility of crop prices, which can have a broad impact on a countrys economy. Those most at risk for malnutrition and starvation, like populations in low-income countries, may be disproportionately harmed by food price volatility.