Economic Impacts of US Ethanol Mandates and Their Implications for Missourians

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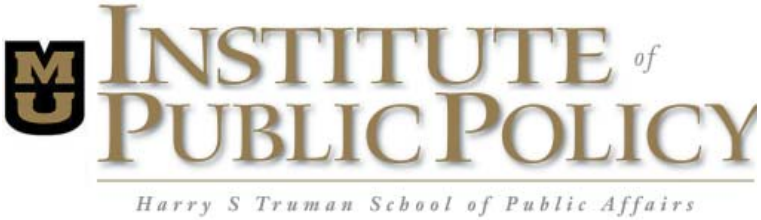


Economic Impacts of US Ethanol Mandates and Their Implications for Missourians

Damon A. Ferlazzo

Background

On January 1, 2008, the Missouri Renewable Fuel Standard Act (MO RFSA) became effective; mandating that all gasoline sold in the state contain 10% ethanol.[1] The fuel with 90% conventional gasoline and 10% ethanol is commonly referred to as "E10." Proponents of the law believe that "Missouri's [RFSA] benefits consumers, our economy, the environment, and Missouri farmers."[2] Others celebrate the new standard for reducing Missouri's dependence on foreign oil, developing a new in state production industry, and providing greater demand for locally grown crops.

The law offers ethanol producers who use Missouri agricultural products a five-year incentive of $0.20per gallon for the first 12.5 million gallons produced and $0.05 for an additional 12.5 million gallons of ethanol per year.[3] Additionally, federal production incentives assist ethanol producers with a $0.051 cent tax credit for each gallon of E10 or $0.51 for each gallon of pure ethanol produced. Missouri has four ethanol plants with an annual capacity of 160 million gallons of ethanol. These facilities are located in Audrain, Buchanan, Holt, and Saline counties.

However, using fuel derived from a major world food source can have unintended negative consequences. Missouri livestock producers and state legislators complain that the state's E10 mandate and federal renewable fuel legislation is contributing to a "livestock industry meltdown as the effects of increases in corn prices ripple though livestock production industries that are dependent upon corn."[4] Similarly, a study conducted by researchers at the Cato Institute concluded that compared to conventional gasoline, ethanol is "neither reliable nor renewable," and that there are ethical implications of raising world corn prices.[5] Regardless of one's viewpoint, it is important to evaluate state and national ethanol mandates impact on Missouri's consumers and economy as well as the effects on long term world agricultural markets.

State Economic Impact

Missouri's law and other ethanol mandates benefit Missouri corn farmers as greater demand for Missouri ethanol will mean higher corn prices. In 2007 Missouri ranked eighth in US field corn production, producing 462 million bushels worth $1.82 billion. Therefore, its RFSA will have a significant impact on the state's economy, even if there is no increase in corn production.[6] But there has been an increase in production due to the demand for ethanol. Missouri farmers sold an additional 56 million bushels of corn and Missouri's corn value increased $45 million in 2007.[7]

A study of Iowa's ethanol production indicated that the price of corn near ethanol plants increases at an even greater rate than corn grown elsewhere.[8] This is because the transportation costs are lower than areas further away. Thus, Missouri field corn in the counties with ethanol plants (Audrain, Buchanan, Holt, and Saline) should experience similar price increases. (See Map 1 for ethanol production levels.) Another study estimates that renewable fuel standards will restore the price of corn to its mid-1990s levels.[9]

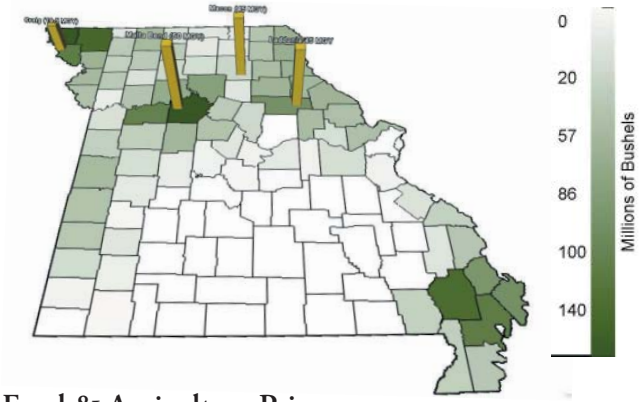
In 2005, Missouri passenger car drivers consumed over 1.74 billion gallons of gasoline.[10] Had the RFSA been in effect, Missourians would have consumed 174 million fewer gallons of gasoline and instead relied on

ethanol. Similarly, had the entire US adopted an E10 mandate, American car drivers would have consumed 7.4 billion fewer gallons of gasoline.

In addition, under the federal American Jobs Creation Act of 2004, ethanol blenders and retailers are eligible to receive a $0.051 per gallon tax credit for E10 sold until 2010.[11] In total, Missouri ethanol producers will receive $8.87 million in federal ethanol production tax credits over the next two years. The state's fiscal year 2009 budget includes $1.2 million in ethanol production incentives.[13]

Missouri is a major ethanol producer. Researchers from the University of Missouri's Commercial Agriculture Program estimate that last year, Missouri's four ethanol plants produced 160 million gallons of ethanol.[14] These plants provide the state with several direct economic benefits: 161 full-time jobs, labor income of $20.3 million, increases the output of the state by $285 million, and generate $20.7 million in additional tax revenue.

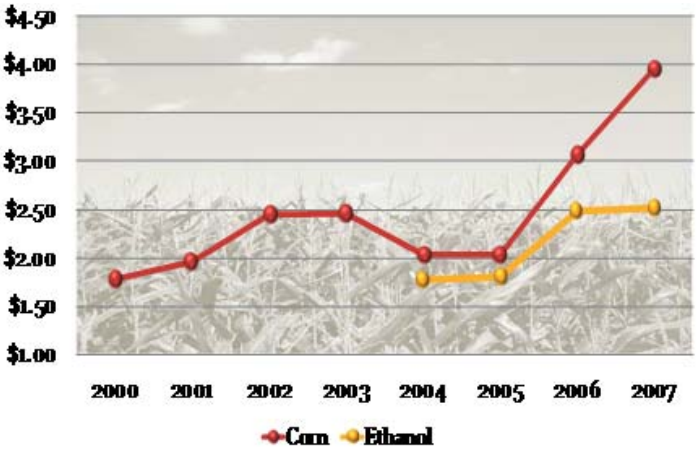
Map 1. Missouri Corn Harvests (in thousands of acres) & Ethanol Production (in Millions of Gallons)



Food & Agriculture Prices

According to the USDA's Economic Research Service (ERS). The Consumer Price Index for food increased 4% in 2007, which is the largest increase since 1990.[16] The USDA expects an increase of 5 to 6 percent in 2008. Many economists attribute part of this to increases in corn prices due to increased demand for ethanol.[17] Between 2005 and 2008, Missouri corn prices almost doubled to $3.95 per bushel (see figure 1).

Figure 1.
Missouri Field Corn ($/bushel) & US Ethanol Wholesale Prices ($/gallon)[18]

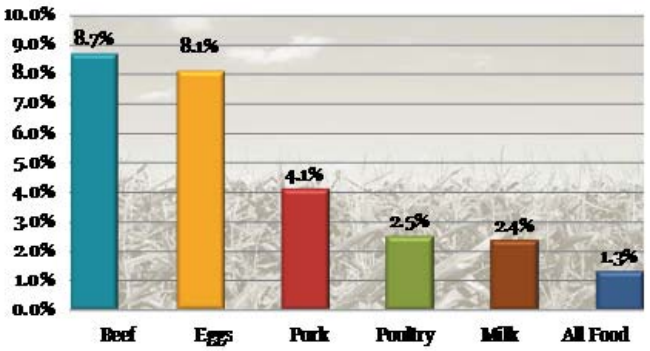


The USDA's ERS estimates that in 2006 ethanol production accounted for 14% of field corn crop usage and will account for 30% by 2010.[19] As ethanol demand increases, corn and ethanol prices follow. Farmers respond to the demand and higher prices by increasing corn production (supply). As farmers have only a fixed amount of land, they may sacrifice production of other crops such as soybeans and wheat. As the supply of soybeans and wheat fall, their prices increase. As corn and wheat increase in price, so too does the price of feed to produce beef, pork poultry, and dairy products. Ultimately this translates into higher prices at the grocery store checkout line.

The ERS estimates that due to increases in corn prices related to increase in demand for ethanol, retail prices for chicken increased by 2.5%, beef by 8.7%, and pork by 4.1%.[20] Similarly, an Iowa State University study estimates egg prices increased 8.1%, milk by 2.4%, and average food prices increase by 1.3%.[21] In 2005, the average Midwest household spent $6,033 on food. Increasing this spending by 1.3% results in an extra $80.85 per household per year spent at the supermarket.[22] In total, the increase in ethanol demand will cost Missouri's 2.19 million households an estimated $177.43 million in 2008.[23] It should be noted, however, that these prices only account for higher prices paid by consumers and not those of beef, dairy, poultry, and pork producers and these prices may

– or may not – be passed on to consumers.

Figure 2.
Estimated Food Price Increases Due to Corn Price Increases



Long-Term Agricultural Economic Effects

Another 2006 Iowa State study estimated the effects of increases in ethanol demands on other commodity and food prices created by state and national ethanol mandates. The study estimates the effects of corn prices at $4.05 per bushel.[24] As of March 31, 2008, corn was trading at $5.67 per bushel.[25] As the demand for ethanol's source, corn, increases, other crops will be displaced by farmers to accommodate this demand. The primary targeted crop will be soybeans, decreasing their prices by 5%, and production area by 14%. The second most affected crop would be wheat, increasing wheat prices by 20% and decreasing area by 4% and exports by 16%.[26]

In 2007, US ethanol production levels increased 34% to 4.86 billion gallons.[27] Unless new cellulosic ethanol is developed from switch grass and crop waste, the US will continue to rely on corn as its primary feed source for ethanol. One study predicts that once ethanol production from corn reaches 22 billion gallons, or more than four times the 2007 production level, the US would no longer export corn but would instead begin importing corn and ethanol.[28] While renewable fuel standards may help decrease dependence on foreign oil, unless new technologies are developed, they would eventually begin to increase dependence on foreign agricultural commodities. As the US is one of the world's largest suppliers of corn, other countries would then rely on non-American corn exports. Researchers also predict the impact on pork and poultry. "If the U.S. becomes a corn importer [...] then the U.S. pork and poultry sectors will lose their international competitiveness, and exports of these products will fall rapidly, […]".[29] This would also impact world corn prices, dramatically driving up food costs across the globe.

Conclusion

Missouri's Renewable Fuel Standard Act has increased demand for ethanol well beyond the state's current production capability of 160 million gallons to 174 million gallons. Missouri ethanol's industry currently provides Missourians with 161 full-time jobs, labor income of $20.3 million, $285 million in state output, and $20.7 million in tax revenue. In addition to profits, Missouri ethanol producers and retailers received $8.87 million in federal tax credits.

However, due to increases in demand for ethanol in the US, this year, Missouri households will pay an extra $177.43 million at the supermarket. While renewable fuel standards aim to decrease American dependence on foreign oil, in the near future they may eventually increase American dependence on foreign agricultural commodities. Unless new cellulosic ethanol is developed from non-food sources, ethanol mandates could adversely affect US and world food prices.

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Author Biography

Damon Ferlazzo graduated from the Harry S Truman School of Public Affairs in 2008 with a master's in Public Administration. He earned a bachelor's degree in Political Science from the University of Missouri in 2005. He is currently the Programs Coordinator at the Truman State University Student Union in Kirksville, MO.

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