

The Impact of Removing the Renewable Fuel Standard on Michigan's Economy

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Summary

The Renewable Fuel Standard (RFS), part of the 2007 Energy Independence and Security Act, requires that more renewable fuel be blended into transportation fuels. The RFS sets the amount of renewable fuels that must be used, including ethanol made from corn. The traditional ethanol requirement for 2013 is 13.8 billion gallons, up from 13.2 billion in 2012. By 2015 onward the RFS for traditional ethanol is capped at 15 billion gallons.

This brief analysis outlines the direct and indirect economic impacts for Michigan if the Renewable Fuel Standard was eliminated. It can be estimated that if the RFS were eliminated, Michigan would lose:

- **\$260.5 million in economic activity from lower corn prices**
- **\$172.8 million in economic activity from reduced ethanol production**
- **288 jobs in the ethanol industry and general economy**

These numbers are based on analysis conducted by the Center for Agriculture and Rural Development at Iowa State University. The number of jobs lost is a very conservative estimate based only on the closing of ethanol plants. Estimating the number of jobs lost in the farming sector is more difficult.

Impact on Prices and Corn Farm Revenue

Researchers at Iowa State University ran 500 simulations of the corn and ethanol market comparing three scenarios: a full requirement (no use of Renewable Identification Number), the current system and no requirement. They found that some ethanol would still be produced in the absence of the RFS. On average, the price of corn with no requirement was 58 cents a bushel lower than with the current RFS, (Babcock, p.7,8). Reducing the value of Michigan's 2011 corn crop by 58 cents a bushel leads to a \$194.3-million reduction in the value of corn production compared to the current policy.

Long run impacts are likely to be somewhat smaller than those outlined above. Over time, marginal land currently devoted to corn production may be converted to other uses such as Conservation Reserve Program land or used to produce hay, pasture or other crops. This will put some upward pressure on corn prices.

This analysis also shows that while ethanol has had a minor impact on the price of corn, it is not the primary driver in the increase in the price of corn. The primary reason for the increase in corn prices in the late 2000s was an increase in global demand coupled with crop shortfalls both in the United States and other parts of the world. The primary reason for the large increase in corn prices in 2012 was drought in the Midwest.

This analysis does not consider the impact of the "blend wall"; the fact that at current consumption levels the demand for ethanol at a 10-percent blend level will be less than that required by the federal

government. Nor does this analysis consider the long run impact of higher fuel economy standards or potential breakthroughs in light vehicle powertrain technologies.

Economic Impacts of Removing the RFS in Michigan

If the RFS were repealed, it is likely that some ethanol would continue to be produced. The following are estimates used to determine the economic impact of removing the RFS on the corn and ethanol sectors using 2011 data.

This analysis is based on a corn production level at 335 million bushels. At that level, if the RFS were eliminated, corn used for ethanol would be reduced from about 100 million bushels to about 40 million bushels and at least three of the state’s five ethanol plants would close. The amount of corn used for livestock feed in Michigan would be 75 million bushels, and other uses at 5 million bushels. Corn exports out of the state would rise from 155 million bushels to 215 million bushels. This includes corn moving from Michigan to other states and foreign markets.

Using the 58-cents-a-bushel figure discussed earlier, the net impact on the entire farm sector (including livestock) in Michigan would be a decline of \$150.8 million. The net decline of the ethanol sector would be \$117 million.

To determine the total economic impact of the decline of ethanol production in Michigan, IMPLAN, a standard economic impact software package, was used to derive the impacts on related industries and the Michigan economy as a whole. The total impacts are shown in Table 1.

Table 1:

Economic Impact of Removing the RFS (\$ millions)		
	Direct	Total
Corn	\$150.8	\$260.5
Ethanol	\$117.0	\$172.8
Total	\$267.8	\$433.3

Given the assumptions listed above, the total direct impact of the elimination of the RFS is estimated to be \$267.78 million in lower corn and ethanol sales with total economic impact of \$433.3 million in reduced economic activity. Of this amount, \$260.5 million is due to reduced corn revenue and \$172.8 million is due to reduced output in the ethanol sector.

The impact on employment from the reduction in the farm price of corn will be relatively minor. While some acres may go out of production, the vast majority of acreage devoted to corn production will remain in corn production or be transferred to other crops. Nonetheless, a less profitable corn sector will mean less investment and less spending in the general economy, which will result in job losses.

It is somewhat easier to estimate the effects of eliminating three ethanol plants on employment. Again using IMPLAN, it is estimated that 90 jobs will be lost in the ethanol sector as a result of closing the facilities. The total number of jobs lost in related industries and the general economy is estimated to be

198, for a total of 288 jobs lost. This includes jobs in related industries, such as rail, trucking, supplies and maintenance.

Other Factors to Consider

Perhaps the single most important factor is the price of gasoline relative to the price of ethanol. If the price of gasoline increases relative to the price of ethanol, more ethanol will be used with or without a government requirement. For example, one estimate is that if the ratio of the wholesale price of ethanol compared to gasoline is 0.9, then 12.4 billion gallons of ethanol will be used. If the ratio is 1 to 1, the demand for ethanol declines to 11 billion gallons (Babcock, p.6).

Another important consideration is the buying and selling of excess blending credits (RINs), which gives blenders some level of flexibility with respect to using ethanol. For example, while the RFS requirement for 2012 was 13.2 billion gallons because of the use of excess credits, the amount of ethanol produced was estimated to be 11.2 billion gallons (Babcock, p.3). In the past, RINs traded for less than one cent per gallon. This indicates that in the past, producing ethanol was competitive relative to the price of gasoline. Current RINs trade at \$1 per gallon (Lafferty and McCullough), indicating that tight corn supplies have reduced the profitability of producing ethanol.

The role of ethanol as an oxygenate and substitute for gasoline should also be considered. The elimination of methyl tertiary butyl ether (MTBE) as an oxygenate for gasoline creates a demand for ethanol as a gasoline additive. This demand would exist with or without the RFS requirement. Refineries also use ethanol to boost octane levels in gasoline. Currently, refineries can produce 84 octane gasoline and blend it with 10-percent ethanol to achieve an octane rating of 87 (Babcock, Barr and Carriquiry, p. 5), the standard for regular gasoline. Depending on the relative costs of gasoline and ethanol, using ethanol can improve the profitability of refineries. It should be noted that refineries do have the ability to increase the octane content of gasoline and could elect to do so in the absence of a requirement.

References

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