

ANALYSIS OF CORN, COMMODITY, AND CONSUMER FOOD PRICES

Prepared for:

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I. EXECUTIVE SUMMARY

Public debate has intensified over the extent to which the expansion of the ethanol industry has resulted in higher agricultural commodity prices and, more importantly, whether and to what extent there has been an impact on consumer food prices. This debate has largely been fueled by anecdotal information. Given that this issue has bearing on major policy decisions with respect to agriculture and renewable energy, it is imperative that an objective, fact-based assessment be available to public policymakers. The Renewable Fuels Foundation (“RFF”) commissioned Informa Economics, Inc. (“Informa”) to update a previously conducted study, and the results are contained in this report.

Key Findings

- Statistical evidence does not support a conclusion that the growth in the ethanol industry is driving consumer food prices higher. It can be concluded that no single factor is the driver of consumer food prices over time, but rather, there is a complex and interrelated set of factors that contribute to food prices.
- Ethanol has not been the only factor influencing corn prices; other supply and demand factors have also been at play.
- Corn prices have a relatively weak correlation with food prices, as the farm share is a relatively small portion of the overall retail food dollar and for many products corn is only a portion of the farm value. The prices of other components in the marketing bill have also been increasing and general inflationary pressures have also impacted food prices. Increases in these other marketing bill components are contributing to food price increases, as reflected in the growing farm-to-retail price spread for many food categories. Additionally, to put this all in perspective, the share of disposable income spent on food has been decreasing.
- An analysis was performed to quantify the historical price relationships between corn prices and livestock, poultry, egg, and milk prices, and the results showed relatively weak correlations. With these low correlations, it is statistically unsupported to suggest that high and/or rising corn prices are the only or even the main reason behind high and rising retail meat, egg and milk product prices. Moreover, the upward trend in cattle, hog and poultry prices began in the late 1990s, well before the corn price began to increase significantly. For many of these commodities, notably dairy and eggs, strong export demand has played a key role in strengthening prices.
- More generally, there has historically been very little relationship between annual changes in corn prices and consumer food prices. The corn price would be considered a statistically insignificant variable in determining what drives the food CPI.

- Given the weak correlation between corn prices and consumer food prices, it can be hypothesized that a considerable proportion of the impact of corn price changes is absorbed by participants in the value chains for meats, poultry and other corn-based food products. This does not necessarily mean that margins within the value chain are low or negative, but rather that they are lower than they would be in the absence of higher corn prices. Additionally, the price spread between the farm value and the retail dollar is widening, implying that rising costs within the marketing bill are contributing to the food price increases.
- Consumer food prices have been increasing at a relatively steady pace over the last two decades. While food prices have increased, a portion of this increase can be attributed to general inflationary pressures. Over the 1985-2010 time period, the average annual inflation rate of the core CPI (all items less food and energy) has been 2.88%, which is very close to the 2.98% average food CPI growth rate. Food CPI inflation was notably higher in 2007 and 2008, reaching a peak historical (1986-2010) differential of 3.22% in 2008, but this differential between the core CPI inflation and food CPI inflation has since come back in line.
- To provide context to an analysis of consumer food prices, it is useful to consider the role of food expenditures in the average American's budget. The proportion of the average American's disposable income that is spent on food has declined steadily over the last half-century, from 21% of disposable income in 1950 to below 10% by 2000; in 2009 this share was estimated at 9.5%.
- The "farm value" of commodity raw materials used in foods accounts for 16% (2008¹) of total U.S. food costs, a proportion that has declined significantly from 37% in 1973. For food products where corn is only one of several farm-produced inputs, the proportion of the total product cost attributable to the cost of corn is even less than 16%. The remaining portion of total retail food costs is known as the marketing bill. The marketing bill includes the costs of labor, packaging, transportation, energy, profits, advertising, depreciation, rent, interest, repairs, business taxes and other costs not attributable to basic agricultural commodities. The marketing bill has a higher correlation with the consumer price index (CPI) for food than does corn, although there is a notable long-term upward trend to both the marketing bill and the food CPI. Within the overall marketing bill, the costs of energy and transportation have increased considerably over the last several years, with crude oil prices surging from just under \$60 per barrel in fall 2006, reaching above \$100 per barrel in the first half of 2008, falling back down during the economic recession and again breaking \$100 per barrel in 2011, roughly the same periods during which corn prices have increased.
- Corn prices have been influenced by a combination of factors – not just ethanol demand. The following briefly explains some of the key corn price drivers over the past five years.

¹ Last date reported

- A combination of a reduction in supply and an increase in demand from both the ethanol industry and the export market led to corn prices moving higher, starting in fall 2006.
- In 2007/08, corn prices were not able to fall as would have been expected given the size of the crop due to strong corn demand. In 2007/08, corn usage in feed and ethanol production increased and exports increased further. One of the factors behind the strong export demand growth had to do with drought conditions in other key grain production countries, particularly the key wheat producing country of Australia. Additionally, the decline in the U.S. dollar has also helped strengthen world grain demand.
- In 2008/09 and 2009/10 corn prices receded despite continued growth in the ethanol industry, as the corn usage for feed and corn exports were 88% and 79% of 2007/08 level.
- The corn futures price rose again in the 2010/11 crop year. However, unlike the price increase in 2006/07 and 2007/08, 2010/11 did not coincide with a significant increase in ethanol production. In fact ethanol production increases have been flattening out as capacity approaches the 15 billion gallon per year mandate level for 2015. The price increase in 2010/11 is largely a combination of strong export demand, unfavorable August weather, and a run-up in petroleum prices that increase production costs and soybean prices, for which corn competes with for acreage.

VII. CONCLUSIONS

While there have been a number of stories in the media over the last few years indicating consumer food prices are being driven higher by an ethanol-induced increase in corn prices, there is little evidence of such a simplistic cause-and-effect linkage. In reality, a complex set of factors drives the food CPI. In fact, the marketing bill, defined as the portion of the food dollar that is not related to the farm value of raw materials, has a stronger relationship with the food CPI than does the cost of corn.

Statistical evidence does not support a conclusion that the growth in the ethanol industry is the driving force behind higher consumer food prices. Ethanol has not been the only factor influencing corn prices, other supply and demand factors have also been at play. Furthermore, corn prices have a relatively weak correlation with food prices, as the farm share is a relatively small portion of the overall retail food dollar and for many products corn is only a portion of the farm value.

While an increase in corn prices will affect certain industries – for example, causing livestock and poultry feeding margins to be lower than they otherwise would have been – the statistical evidence does not support a conclusion that there is a strict “food-versus-fuel” tradeoff that is automatically driving consumer food prices higher.