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# Aggregate Economic Effects of Expanded Biofuel Production: Myth & Reality

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Expanded biofuel production has complex aggregate economic and environmental effects, some positive and some negative. To avoid undesirable economic and environmental trade-offs, wise policy formulation will take into consideration the trade-offs from increased bioenergy production. Historically, food and energy policy development has been disjointed, ignoring both synergies and interactions between the two industries. Given the critical nature of both food and energy to the economy, carefully thought-out integrated food and energy policy is needed to avoid unintended and undesirable consequences.

Sound policy is based on credible estimates of the likely aggregate economic effects of expanded biofuel production, and not on economic myth. This purpose of this Brief is to address two economic myths that we have often heard during policy rhetoric and debate for the past few years.

One myth is that expanded first generation biofuel, primarily ethanol from corn, will not impact food prices. If high quality cropland were limitless or the quantity of ethanol rather low, expanded production of biofuel might not have a measureable impact on food prices. Neither of these conditions are true because the goal of biofuels is large and high quality land is limited Therefore, expansion of corn and other crop acreage attributable to increased demand for conversion to ethanol will tend to occur on less productive land. Less productive land means higher unit production costs, which means that the price of corn and many other major crops will increase. Increased farm level prices translate into higher food prices, although the retail price effect may be modest. A companion brief presents estimates of the farm-level economic impacts of expanded first generation biofuels.[1]

A second myth is that dedicated bioenergy crops, such as cellulosic ethanol from switchgrass, will not affect conventional foods crops. Statements of this myth abound. For example, the Jan. 2009 Worldwatch and Sierra report states, *"In practice, however, it makes sense to grow switchgrass and other perennial biofuel crops on more marginal lands than in the test plots, and in drier and colder climates, to avoid competition for good farmland."*[2] In the same vein, the American Meat Institute, states, *"Investing in second generation biofuels is one way Congress can help ensure that we are not pitting our energy policies against the need for affordable food."*[3] Tonya Vinas of Lean and Green News claims, *"Researchers view cellulosic ethanol as more economically and environmentally sustainable than other alternative fuels because it is not tied to price-sensitive food crops such as corn and soybeans, and it requires less energy and farmland to produce its core feedstocks."* [4]

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[1] https://sites.auburn.edu/academic/ag/group/bioenergy/Aggregate%20Economic%20Impacts%20of%20Expanded%20BioFuel%20Pro/Forms/AllItems.aspx

[2] Smart Choices for Biofuels, WorldWatch Institute and Sierra Club, Jan. 2009, p.7. Downloadable at: www.worldwatch.org/files/pdf/biofuels.pdf

[3] See the letter to Congress from the meat, poultry and processed foods: http://www.meatami.com/ht/d/ArticleDetails/i/45331http://www.meatami.com/ht/display/ArticleDetails/i/45331

[4] Sustainable Ethanol Industry Rapidly Forming in U.S., Tonya Vinas, April 6, 2009, available at http://www.industryweek.com/articles/sustainable_ethanol_industry_rapidly_forming_in_u-s-_18847.aspx?ShowAll=1&SectionID=4

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Part of this myth is the assumption that dedicated bioenergy crops will only be grown on marginal land. This is not the way producers typically behave in the agricultural economy. If production of dedicated bioenergy crops is profitable on marginal land, then they will likely be *more* profitable on high quality land now in production of major field and food crops. To the extent that a dedicated bioenergy crop is more profitable on good land than conventional crops, then it will indeed displace food crops, thereby impacting food prices.

Furthermore, dedicated bioenergy crops, even if grown on marginal lands not now in cultivation of food crops, *will* compete for production inputs such as fertilizers, water, and equipment. In competing for production inputs, prices will tend to be driven up, affecting both conventional food crops as well as dedicated bioenergy crops.

It is also a myth that use of conventional crop residues, such as corn stover, will not affect food prices. Plant nutrients removed from the field in the crop residue must eventually be replaced to avoid soil deterioration, crop yield decreases and higher fertilizer prices. In the aggregate, then, use of crop residues as a feedstock for biofuel would translate into higher crop prices that translate into higher food prices.

Biofuels from dedicated energy crops *may* have a smaller impact on food price and availability than first generation biofuels from traditional crops, but food and energy policy should not be based on the myth that they would have no impact.

In economics, the "fallacy of composition" shows that just because something is true for an individual unit, it does not mean that it is true for the aggregate. More often this fallacy involves applying micro reasoning on the macro or aggregate scale. Policy based on micro reasoning will generally not have the desired aggregate economic or aggregate environmental or aggregate energy impact.

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