



Commentary

Seth Meyer

There has undeniably been a reversal of fortunes in the ethanol industry since 2006. With petroleum prices well off their peak of mid-2008, the current economic recession, and an uncertain policy environment, Jason Henderson's examination of the role that ethanol plays in rural economic development is well timed and raises important questions concerning the industry's contribution to stimulating the rural economy.

He lays out the potential direct impacts on the rural economy from biofuel-induced changes in employment and commodity prices, as well as the indirect and induced effects, noting the limited direct employment effect found in several studies. Further, he notes that secondary effects hinge on the assumed multiplier effect, which depends on production response, which itself depends on the induced commodity price change. To this end, he does an admirable job of attempting to determine the contribution of biofuels to the runup in commodity prices in mid-2008—no small task. He concludes that biofuels contributed a noticeable amount to the increase in commodity prices but that direct and indirect employment effects may be limited, and given the role policy plays in the industry, it could be dealt a blow with the stroke of a pen. While this author makes no conclusions about the broader benefits of biofuel production, I hope to complement the discussion about effects on commodity prices and the role that federal policy plays in the market for biofuels.

COMMODITY PRICES IN 2007-08: TRANSIENT OR PERSISTENT FACTORS?

A number of factors came together during the 2007-08 crop year, creating the perfect storm. Short- and long-run issues of commodity supply and demand, as well as policies around the world, combined for a significant spike in commodity prices in a setting of strong and volatile petroleum prices. In examining the factors that led to record commodity prices in the summer of 2008, Dr. Henderson draws on research by Fortenbery and Park (2008) to arrive at a \$0.63 per bushel contribution to the corn price from the growth in ethanol production over the 2005-08 period. Although this is significant, the increase in prices during the same period was well in excess of that amount.

It is clear that biofuels have had an effect on commodity prices, but estimates have varied considerably from a negligible impact to attributing most of the rise in prices to increased biofuel production. The varying estimates expose the difficulty in arriving at a precise estimate. In addition, the question remains: Are the other contributing factors transient in nature or persistent and likely to resurface as world economies recover from the current economic crisis?

Poor wheat yields in Canada, Eastern Europe, and Australia helped fuel grain prices over the summer of 2008, but these crop shortages could clearly be considered a transient factor that would disappear with a return to normal yields. However,

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Table 1
Change in World Grain Productivity (percent)

Growth measure	1960-70	1970-80	1980-90	1990-2007
Yield	2.8	1.9	2.4	1.3
Area	0.5	0.9	-0.5	-0.2
Production	3.3	2.8	1.6	1.0

SOURCE: USDA Production, Supply and Distribution database (accessed November 1, 2008).

an analysis of grain area and yield around the world shows a potentially concerning slowdown in growth over the past few decades (Table 1), thereby limiting supply growth at the same time consumers in the developing world became more affluent, demanding more meat and therefore increased use of feed. In addition, world grain stocks levels have been low, by historical standards, for the past several years. Policy changes in the United States in the 1980s reduced domestic grain stock holdings just as Chinese grain stocks began to rise. In 2000-01 the Chinese began to liquidate those stocks, thus limiting the ability to draw on them to moderate short-run price increases (Figure 1). With supplies constrained and demand showing little response, prices continued to rise. Several countries, worried about the effect of rising prices on their domestic consumers, instituted trade restrictions on grains, rice in particular. This drove prices yet higher. Add to this the much discussed effect of demand for grain and vegetable oils to produce biofuels both at home and abroad, and it becomes obvious that a precise estimate of the effects of biofuel production on commodity prices is both difficult to quantify and highly context dependent (Westhoff, Thompson, and Meyer, 2008). Had one or several of these factors not been present, one may have arrived at a different conclusion about the price impact of biofuels.

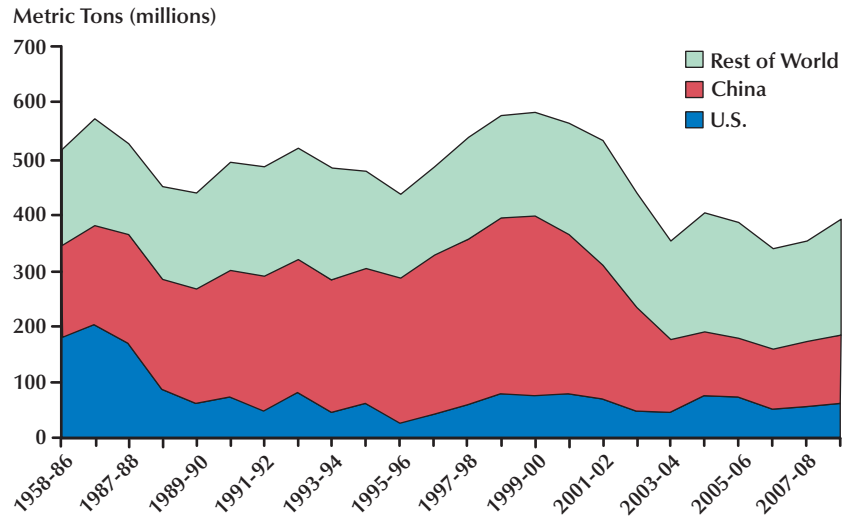
THE IMPORTANCE OF POLICY

The role of current biofuel policy in commodity and biofuel markets is equally context dependent and, as Dr. Henderson clearly outlines, is subject to change with policy priorities. Current policies

fall roughly into two categories: (i) tax credits and (ii) quantity mandates established in the Energy Independence and Security Act (EISA) of 2007 (Energy Information Agency, 2008). The credits go to blenders who mix biofuels with traditional petroleum-based motor fuels and are payable at any ethanol price. Mandates require the blenders to blend a specific quantity of biofuel each year subject to a schedule in the EISA legislation. If petroleum prices are at levels similar to those seen in mid-2008, the mandates may be irrelevant as blenders choose to blend quantities in excess of their required amounts, while the blenders' credit will induce further production. In this instance, the blenders' credits influence biofuel production and therefore commodity prices, while mandates have little to no effect. Alternatively, if petroleum prices are at the lower levels seen at year-end 2008, the mandates may be binding, determining demand, and thus removal of blenders' credits may have little to no effect on the quantity of biofuel produced and therefore the demand for grains.

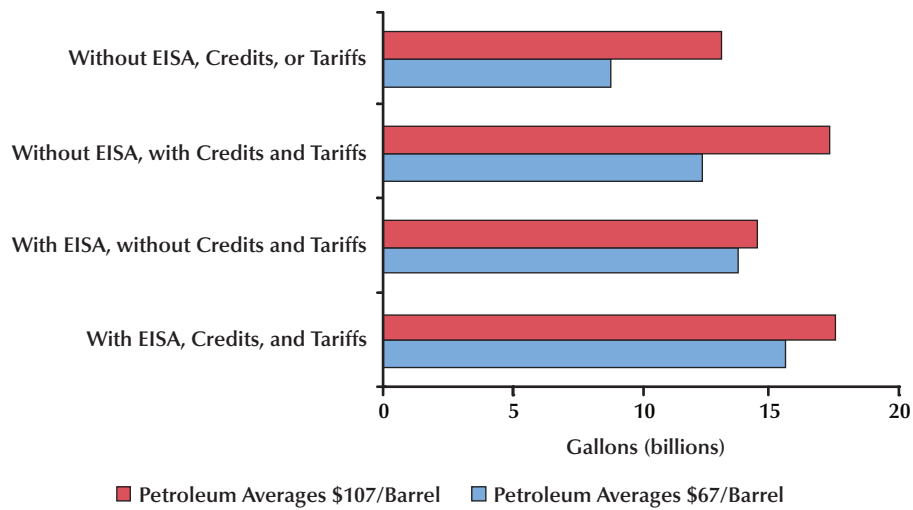
Which policy is the most influential is dependent on the oil price, but the combination of policies boosts biofuel production at all oil prices. A shift in policy, that is, elimination of these policies, would have sizable consequences for the industry (Figure 2). With regard to the construction of new facilities—approximately 13 billion gallons of corn-based ethanol capacity completed or under construction today—this is enough capacity to fulfill corn ethanol's targeted mandate for the next several years. Additional plant construction and the associated jobs will be limited unless petroleum prices return to mid-2008 levels and current policies remain in place. The uncertainty surrounding the

Figure 1
World Grain Stocks



SOURCE: USDA Production, Supply and Distribution database (accessed November 1, 2008).

Figure 2
Petroleum Price Impact on Ethanol Production (2011-17 Average) Under Various Policy Regimes



SOURCE: Westhoff et al. (2008).

continuation of those policies makes for an uninviting investment atmosphere. Other classes of mandates such as cellulosic ethanol hold potential for both increased crop production and profitability and their associated economic activity. The path of these second-generation technologies is unclear and perhaps even more dependent on the continuation of favorable policies.

The current economic crisis and the corresponding decline in petroleum prices have brought new scrutiny to the biofuel industry. High petroleum prices in the spring and summer of 2008 were followed by increased grain production. Although weakness in world income growth has cut demand for feed grains and commodity prices, the decline in petroleum prices has cut biofuel demand, leaving production to be increasingly determined by policy and idling excess capacity. Ethanol producers who locked in grain inputs at higher prices, in fear of yet higher grain prices, have experienced mounting losses, and stock prices for public companies in the industry have fallen precipitously over the past 24 months. When the world economy begins recovery and world grain and petroleum demand strengthens, much in the biofuel sector will depend on how petroleum prices respond. Should the recovery lead to rapidly increasing petroleum prices, we could return to strong commodity prices once again, likely with a response by the biofuel industry that incorporates lessons learned during the past 24 months.

Whereas ethanol advocates cite numerous reasons for supporting domestic production of biofuels, Dr. Henderson raises all the relevant concerns in evaluating the industry as a rural development tool. Biofuel production clearly has some impact on commodity prices and his estimates appear plausible, but the size and persistence of such increases

remain uncertain, as do the net effect of those prices given the offsetting livestock producer impacts, increase in land prices, and concerns about consumers in developing countries. The direct effects on employment appear limited with secondary effects largely dependent on the assumed multiplier effect, and a portion of the industry production is also reliant on public policy for continued viability. Dr. Henderson's arguments concerning biofuel production as a limited tool for rural development are convincing, but the broader discussion about the objectives of supporting domestic biofuel production is likely to continue for the foreseeable future.

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