

Local Ownership in Biofuels Production: A Strategy for Rural Development?

Brent Hueth and William D. Walker

Despite impressive declines in rural poverty in the 1990s and a lower cost of living, rural areas of the United States continue to lag behind urban areas in income, educational attainment, skilled jobs, investment, and productivity. Opportunities for rural economic development are welcome and federal, state, and local policies have rural development as an explicit goal.

A bright spot in rural economic development has been the expansion of biofuel production. The past decade has witnessed explosive growth in corn-based ethanol production with refining capacity increasing from 1.7 to 7.2 billion gallons per year between 1999 and 2008 (Renewable Fuels Association, 2008).

Growth in ethanol production has been driven in part by subsidies. Federal ethanol policy supports ethanol production in three main ways: a \$0.51 per gallon blenders excise tax credit, a \$0.54 per gallon import tariff, and clean air rules requiring use of oxygenates in gasoline.

Ethanol production increases the economic activity of the rural Midwestern communities where refineries are located. Two recent studies suggest that a million gallons of corn-ethanol refining capacity creates between 1.53 and 2.66 jobs, and between \$2.31 and \$2.67 million in local economic activity (Low and Isserman, 2007; Swenson and Eathington, 2006). Averaging the results of these two studies, growth in capacity between 1999 and 2008 resulted in an estimated 13,102 new jobs and \$13.7 billion in new economic activity.

Although ethanol production clearly increases economic activity in rural areas, it is not clear to what extent that activity translates into solid and lasting rural economic development. Rural economic development is, in any case, not the primary goal of federal biofuels policy, which is aimed at energy production goals rather than development goals.

State governments and rural advocates have stepped into the void left by federal policy and have proposed ways to add rural economic development goals to biofuels policies. Missouri, for example, has a biofuel tax incentive that is restricted to farmer-owned facilities. Minnesota similarly offers grants and incentives that are targeted to relatively small-scale facilities (For a more detailed discussion of federal and state biofuels policy that promotes local ownership see Borst 2006.). Some rural economy advocates have called on the federal government to adopt similar policies.

As indicated in the examples just given, policy makers and advocates see increasing local ownership of biofuels production facilities as one way to enhance rural economic development through biofuels policy. Some policies are aimed at local ownership directly, such as the Missouri tax incentive, which is available only to (local) farmer-owned facilities. Other policies use a proxy for local ownership such as facility size, as in the Minnesota example.

The question is whether local ownership is the correct way to achieve rural development from biofuels policy support. We argue that the current justifications for local ownership are problematic and in fact mask significant dangers with local ownership. However, there are other justifications for local ownership focusing on the importance of productive investment and the institutional impact of ownership structures. We urge economic development officials to remember the importance of risk and to focus on productive assets.

Local Ownership and Risk

Advocates of local ownership offer three mechanisms by which it might increase rural economic development: (1) offsetting price risk, (2) siphoning of profits, and (3) keeping money local. (See e.g., Morris, 2007) We critique each in turn.

Offsetting Price Risk

The idea is that when farmers own an ethanol plant, the risks inherent in corn production and ethanol production will offset one another. When the price of corn is low, weak corn revenues will be offset by high margins in ethanol production. When corn prices are high, low ethanol margins will be offset by high corn revenues.

However, corn production and ethanol production, though linked physically by corn, are priced in largely unrelated markets. For example, Paulson, Babcock, Hart, and Hayes (2004) report a correlation between the prices of ethanol and gasoline of .64. With such a strong correlation, it is entirely possible for the net revenues of corn production and ethanol production to both be low at the same time.

Profit Siphoning

Here the idea is that owners--by definition--have rights to a greater share of profits than nonowners do. Thus, while farmers who do not own an ethanol plant may profit from ethanol through increased corn revenue, farmers who also own the plant will have access to a second and larger revenue stream.

The profits--siphoning mechanism also ignores the problem of risk. While owners of an asset certainly receive greater profits than nonowners, they are also exposed to greater risk. What an ethanol plant owner really owns is not profit, but a claim on profit if it arises. For this right, the owner has put capital in jeopardy. Nonowners have no right to profits, but they have no exposure to risk either.

Keeping Money Local

The third argument given in favor of local ownership is that locally owned ethanol plants keep more money in the local economy than do nonlocally owned plants. This idea is popular among advocates for bioenergy, retail development, tourism, and other development fields.

However, the keeping money local argument also ignores the problem of risk. The effects on economic activity from local ownership may be positive or negative, depending on the profitability of the plant. Just as a locally--owned plant yields more local economic activity than a nonlocally owned plant when profitable, it yields more local economic "unactivity" when not profitable. To the extent that an ethanol plant relies more heavily on local inputs, those input suppliers also rely more heavily on the ethanol plant.

Local Ownership and Reinvestment

Both the profit--siphoning and keeping--money--local mechanisms rely on the idea that there are profits to be made in the biofuels industry. In the profit--siphoning mechanism, the fact that local owners receive those profits is said to be enough to conclude that economic development has occurred. In the keeping--money--local mechanism, it is the fact that profits are spent, and respent, in the local economy that allegedly matters. However, both arguments gloss over the question of how locally--earned profits are actually used and how that use affects economic development.

There is no doubt that substantial locally--earned profits are available from biofuels production. In particular, a significant portion of federal biofuels subsidies end up in the bottom lines of producers, but they also create distortions that cause aggregate losses to society. Both the subsidy gains to producers and the aggregate societal losses are estimated by Gardner (2007) under various scenarios.

From a federal perspective, the aggregate societal loss is of concern. From the perspective of local advocates and state and local policy makers--who take subsidy gains as given--the issue is how those rents are used.

The essence of economic development is the reorganization of physical and human resources to produce

needed goods and services more efficiently -- in other words, producing greater output or higher quality output for a given amount of physical and human input. This reorganization itself requires resources to build productive assets or to educate people.

Thus, a local economy will likely benefit more if biofuels profits are spent on manufacturing facilities, roads, technical and primary education, and other productivity--enhancing activities than on mere consumption. There is evidence that such investment is a significant contributor to economic growth, particularly investment in public infrastructure. (Herranz--Lonca'n 2007; Holtz--Eakin 1994).

Of course, expenditures on consumption can themselves induce productive investment. However, there are two arguments for directing biofuels profits directly to productive investment. First, productive investment induced through consumption is likely to be built outside the local economy. Second, much productive investment has a public--goods character, as do roads and primary education.

It is unlikely that the additional profits obtained by local owners and the additional economic activity associated with local ownership will, by themselves, yield economic development. Rather, public policies should seek to direct the use of those profits to generate additional productive capacity, including productive public goods. For example, local governments might use their planning and zoning power, in the form of fees, to require biofuels plants to upgrade local roads or restore wetlands (an investment in environmental productivity). Local governments might also collaborate with a biofuels plant to increase investment in the local technical college. In any case, what matters is not the ownership of the plant as such, but the degree to which plant profits yield productive reinvestment in the community.

Conclusion

From the perspective of state and local policy makers, federal policy support for biofuels is a given. The policy question is how federal support can be leveraged into greater rural economic development. Biofuels subsidies provide a potentially rich source of resources for development through the policy rents they create.

Federal biofuels policy does not directly address rural development goals. State and local policy makers, and rural development advocates suggest that promoting *local ownership* is the correct policy tool for obtaining rural economic development from federal biofuels subsidies. This suggestion has several significant problems, but does lead to promising alternative ideas.

The first problem is that local ownership advocacy ignores the important issue of risk. The three mechanisms by which local ownership is said to boost rural economic development are invalid when risk is correctly included in the analysis. The offsetting-price-risk mechanism simply misunderstands the nature of ethanol and corn markets and is an illusion. The profit-siphoning and keeping-money-local mechanisms neglect the fact that prices, profits, and markets can decline as easily as they can rise.

To reiterate, local ownership carries risks for communities and individuals. Public policy advocating local ownership should acknowledge these risks.

Second, advocating local ownership neglects the important issue of how increases in local profits and economic activity are, or are not, translated into local productive investments. There is no empirical evidence that local ownership boosts productive local reinvestment. In any case, the correct focus of development policy

should be on investment as such, by whatever means are most effective at obtaining it. This approach suggests promising—but empirically open—directions for policy and research, including:

- The size and distribution of subsidy rents,
- The effect of ownership structure on productive reinvestment,
- Alternatives or supplements to ownership policies, and
- Effects of policies on productivity and incentives.

Finally, local ownership advocates hint at other effects of ownership including effects on power, incentive effects, and missing markets. However, a full institutional impact analysis of biofuels production has not yet been made. Such an analysis will go well beyond mere local ownership to consider issues of agency, transaction costs, scale, and so on.

Until such an analysis is completed, we urge policy makers and development officials to focus on the core principles of development: acknowledge and respond to investment risk, support productive reinvestment by private firms, and facilitate investment in critical public assets including infrastructure and education.

For More Information

Borst, A. (2006). Bring It on Home: Local Ownership of Renewable Energy Helps 'Keep It on the Farm'. *Rural Cooperatives*, 73(5). <http://www.rurdev.usda.gov/rbs/pub/sep06/bring.htm>.

Gardner, B. (2007). Fuel Ethanol Subsidies and Farm Price Support. *Journal of Agricultural and Food Industrial Organization* 5(2).

Herranz-Lonca'n, A. (2007). Infrastructure Investment and Spanish Economic Growth, 1850–1935. *Explorations in Economic History* 44:452–468.

Holtz–Eakin, D. (1994). Public Sector Capital and the Productivity Puzzle. *Review of Economics and Statistics* 76:12–21.

Low, S. A. and A.M. Isserman. (2007). *Ethanol and the Local Economy*. http://www.farmdoc.uiuc.edu/policy/research_reports/ethanol_report/index.html.

Morris, D. (2007). Energizing Rural America: Local Ownership of Renewable Energy Production Is the Key. Center for American Progress, Technical report. http://www.americanprogress.org/issues/2007/01/rural_energy.html.

Paulson, N., B. Babcock, C. Hart, and D. Hayes. (2004). Insuring Uncertainty in Value-Added Agriculture: Ethanol Production. Center for Agriculture and Rural Development, Technical report.

Renewable Fuels Association. (2008). *Industry Overview*. <http://www.ethanolrfa.org/industry/statistics>

Swenson, D. and L. Eathington. (2006). Determining the Regional Economic Values of Ethanol Production in Iowa Considering Different Levels of Local Investment. Iowa State University College of Agriculture, Department of Economics, Technical report.

Brent Hueth (hueth@wisc.edu) is associate professor in the Department of Agricultural and Applied Economics, University of Wisconsin–Madison. William D. Walker (WilliamD.Walker@wiscconsin.gov) is Senior Public Policy Advisor, Wisconsin Department of Agriculture, Trade and Consumer Protection.