Estimating the Value of Local Food Markets in the State of Wisconsin

Topic: Crosshauling in regional models
Author: David Duane Kay
Co-Authors: Alfonso Morales, Greg Alward, Philip Watson, Stephen Cooke

In the United States sales of locally produced food represents a small but growing segment of total agricultural sales. A national count of farmers markets has been on the rise in recent years and government agencies have shown renewed interest in rural development strategies that support local food markets. Because of these trends, there has been increased interest among federal and state policy makers in understanding the value of local foods markets. The purpose of this paper is to describe a new methodology to estimate the value of local food markets and then to apply this model to the State of Wisconsin.

Our methods for estimating the value of Wisconsin-based food markets are as follows. First, we define local food markets as the set of local intermediate demand and local institutional demand for all agriculture and food processing sectors within the State of Wisconsin. Second, we measure the contribution of these sectors to the stateâ€™s economy by deriving gross and base output through the interaction of a state-wide Leontief inverse model with a diagonal matrix of final demand. Third, we assume that local food markets cease to exist in Wisconsin and remove associated local intermediate demand and local institutional demand from the underlying social accounts. This procedure hollows out the local economy and forces a corresponding increase in both imports and exports to maintain the regional trade balance. Fourth, we use the modified social accounting matrix to derive a new Leontief inverse. Because intermediate demand for locally produced food has been removed this new model represents an economy that has experienced a decrease in inter-industry connectedness. Fifth, we use the modified Leontief inverse to derive gross output associated with the original and increased levels of final demand. This produces a minimum and maximum scenario for the potential value of Wisconsin local food markets, each with its own interpretation and set of assumptions.

The minimum scenario assumes that local producers can transfer endogenous sales to exogenous markets with no increase in cost. Although local multipliers have decreased, exports have increased by a corresponding amount to maintain the regional trade balance. The net effect is the same level of output as observed in the original model. In this case the value of local food markets is negligible because, given a shock to local demand, producers always have the option to switch to exogenous markets. On the other hand, the maximum scenario assumes that, given a shock to local demand, producers cannot transfer endogenous sales to exogenous markets. In this case a decreased set of multipliers is applied to the original level of final demand resulting in a net decrease in regional output. Preliminary results from this latter scenario suggest that the value of Wisconsin-based food markets could amount to approximately 3-4% of Gross State Product.