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# Agricultural Economics Research

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# Agricultural Economics Research

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# In This Issue

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Increases in agricultural productivity contribute to national economic development and income growth by releasing labor resources for nonagricultural sectors and by increasing the economic surplus that can be transferred out of agriculture. The transferred surplus provides a basis for economic growth in nonagricultural sectors and also provides foreign exchange if these agricultural commodities are exported

To illustrate the truth of this nearly self-evident statement, consider what it would mean to this Nation's standard of living if we still needed 30 percent of our workforce on farms, as we did in 1900, instead of the 2-3 percent we do now. We would have to forego many nonessential services we now take for granted. Because productivity growth is so important an underlying economic factor in the potential rise in the standard of living, it is no surprise that economists have attempted to measure and monitor productivity changes.

Measuring productivity has proven difficult, both conceptually and empirically. These issues have been debated at numerous professional conferences. Pages of professional journals, books, conference proceedings, task force reports, and the like have been covered with recommendations, debates, and discussions. Yet, not only do we not have a consensus on how to measure agricultural productivity but, as Anne Carter points out, it's not clear that efficiency of individual processes leads to efficiency of an economy. Given this state of the art, identifying and measuring productivity will probably continue to keep economists employed but frustrated.

In the lead article in this issue, Clark Edwards illustrates that, even if you take as objective an indicator of productivity as crop yield per acre, you cannot easily use aggregate data to unequivocally explain higher productivity (yields) because of the interactions among technology, farm structure, and regional crop distributions.

Not only does Edwards illustrate well the pitfalls of using aggregate data to measure and monitor agri-

cultural productivity, but he also provides a measure of how little we have progressed since Christensen and Yee wrote in the July 1964 issue of *Agricultural Economics Research*.

Given the general view that a true productivity change involves a shift in the production function, consider this passage from their article, and mentally tabulate the number of supply and demand forces other than changes in the production function that are included in the present productivity measure you deem most reliable.

"Perhaps the most effective way to analyze the factors affecting agricultural output and productivity is to consider them in the traditional supply and demand framework. On the supply side the following need to be considered:

- (1) Traditions and attitude affecting farming methods and practices. Can people be induced by economic incentive to change customs and practices?
- (2) Available technology. Do farmers have access to combinations of improved practices or production techniques which are adapted for soil and climatic conditions?
- (3) Diffusion of knowledge about improved technology. Farmers obviously need to know about improved production practices if they are to adopt them.
- (4) Supplies of additional inputs, including land, labor, and capital. Most improved production methods, even better seeds, require additional capital inputs. Are they available, and if so, at what price?
- (5) Tenure, credit, taxation, and marketing systems, with reference to how they influence production and marketing costs.

"On the demand side, the following merit attention:

- (1) Population and income growth in nonagricultural sectors that cause demand for farm products to increase and to change in composition.
- (2) Export markets for agricultural products. These may expand less than domestic markets, depending upon the product.
- (3) Increases in subsistence demand resulting from farm population growth.
- (4) Tenure, credit, taxation, and marketing systems with regard to how they affect prices received by farmers and the quantities of products that can be sold at these prices.

- (5) Transportation, storage, and processing facilities that influence demand and prices of farm products at the farm level" (p. 70).

In another article, LeBlanc and Hrubovcak model the effect of interest rates on agricultural machinery investment and find that the level of investment is only slightly sensitive to interest rates, the rate of adjustment is sensitive to interest rates, but not so sensitive as to the ratio of machinery price to output price.

Huang presents a mixed structure-time series model of fresh meat prices that provides both a structural explanation of meat prices and an improved forecasting capability.

**Gerald Schluter**

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