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Chapter Author: Spiro E. Stefanou

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Comment Spiro E. Stefanou

Ahearn, Korb, and Yee (AKY) embark on an interesting and challenging task in the first attempt to assemble and characterize a panel of farms using the U.S. Census of Agriculture. The authors undertake the goal of starting to organize the data to obtain a farm-level picture of the evolution of the farm size and structure. The measure of the agricultural activity is presented in terms of number of farms, average farm size, and value of farm activity over the panel. The period of focus, 1978 to 1997, is arguably the most interesting and relevant for measuring farming activity. The decline in the number of farms from over 5.65 million in 1950 had leveled off to just over 2 million by the beginning of the panel where it still hovers. The policy focus in the last quarter of the twentieth century has been on the restructuring and organization of agricultural production.

Ahearn, Korb, and Yee (AKY) note the challenges with matching up the farm as a manufacturer with the manufacturing plants found in the Census of Manufacturing. The starkest contrast is with the arbitrary and static definition of a farm as an entity tied to a parcel of land that from which at least \$1,000 of agricultural products were produced and sold (could have been sold) during the census year. The case can be made that the differences between agricultural commodity production (farm firms) and manufacturing production units (nonfarm firms) involve both broad and subtle differences. An analysis of producer dynamics in agriculture needs to reflect on these differences.

Spiro E. Stefanou is a professor of agricultural economics at Pennsylvania State University.

As we review AKY's findings, I suggest there are five major forces distinguishing the nature of the farm from the nonfarm firm.

Role of Nature: With production stages in farming tending to be short and not often automated, Allen and Lueck (1998) argue that the benefits of specialization are restricted. Only when farmers can manage the effects of nature by abating the effects of seasonality and random shocks to output does farm organization start to resemble a factory processes. For example, changes in livestock and greenhouse technologies have largely eliminated nature, allowing factory production to dominate. The panel that AKY have assembled can investigate a hypothesis that such firms are similar to nonfarm firms.

Role of Land: Ahearn, Korb, and Yee (AKY) focus on how the census data are anchored to an asset, namely, land, which is a driving force in determining the potential production activities. While manufacturing plants do locate with a view toward input sourcing (e.g., in the case of fresh vegetable processing) or distribution networks, agricultural production facilities are often confined to locations for reasons due to family legacy. In addition to the production aspect of the land, the social ties can lend even less mobility in a farm firm locating to another site. Even still, the census denotes the land parcel as the equivalent to the manufacturing plant in the Census of Manufacturing protocol. On a broader scale, geography plays a role here similar to the case of manufacturing plants, with the reception that suburbanization pressures impact farms more acutely since they often must be more land extensive. Some manufacturing facilities are benign as far as the community is concerned (e.g., a furniture manufacturing facility or an apple orchard); still others are less welcomed (e.g., paper processing facility or a larger scale swine production facility) for reasons of effluent and odor management.

Role of Technologies: The nature of the farm firm is tied to production activity that is necessarily constrained by assets. Ahearn, Korb, and Yee (AKY) note that these technologies are often characterized by L-shaped average costs over significant ranges leading to the viability of a wide range of farm sizes. In addition, many agricultural production activities involve sunk investment and unrecoverable transactions costs leaving farmers less likely to either enter or exit the industry or respond to increases in output price levels with more capital investment (Chavas 1994). Taken together, one expects to see a wide range of farm sizes surviving and exits taking longer to be realized, *ceteris paribus*.

Role of Government: There has been an active presence of U.S. policy in the farm sector since the 1930s to date, ranging from public R&D support-specific commodity production activities to subsidies available to individual farming units. This policy has been historically scale neutral. The importance of the direct government payments to farmers is quite vari-

able, averaging about 22 percent of direct farm income with a coefficient of variation of 65 percent (USDA 2008). The ownership of land is central with direct government payments being assigned to the landowner, who may or may not participate in rural life. However, the effects of sunk costs in farm sectors with high price volatility can be alleviated, *ceteris paribus*, when price support programs focused on reducing output price uncertainty are introduced.

Role of Lifestyle Choice: Agricultural production is arguably the last case of family production in the United States. From the perspective of the Census of Agriculture and even farm policy, the farm household is not so distinct from the nonfarm household. Farms that manage nature well enough to become factory-like enterprises are guided by the economics of decisions in calculating when to expand, when to extend operations, and so forth. But for the entry decisions, AKY note that these entrants are smaller farms, where noneconomic variables tend to drive these decisions, with Foltz (2004) offering some micro data evidence. However, exits can be driven by the economic variables related to land and output price volatility. Having already mentioned the family ties to land as a reason for immobility, the identification for farming as a way of life is no small consequence in this complex and features largely in the entry decisions.

The confluence of mitigating seasonal forces, price risk, sunk costs, and government programs for decision makers managing a way of life can almost surely lead to inconclusive theoretical predictions. The government policy tends to deemphasize programs to support farms that have managed to control nature as they evolve to a factory process and thus act as nonfarm firms. Hence, further analysis of a panel as AKY have assembled is an important first step and resource to address how structure, productivity, and government policy connect. Hypotheses explaining the differences need to focus on the impact of the differences between farm and nonfarm firms.

As is the case with most census data studies, the skewness is substantial, with 1.6 percent of the farms accounting for half of the agricultural production in 2003. At the same time, 38.8 percent of all farms are drawing some form of direct government support (USDA 2008). One of the directions for the future is that analysts cannot be encumbered by the politically expedient, but economically trivial, hurdle that a farm is defined by \$1,000 production value sold (or potentially sold). At some point, decisions must be made to streamline the meaningful set of units to be studied. For a start, farms being typified as rural residences comprise 66.2 percent of all farms in 2003 and can be eliminated from the set (USDA 2008).

While farm input prices are rising over time, farm output prices remain flat. As a result, farms must grow and become more productive to maintain

profitability. With food demand in the United States growing with population, growth beyond this rate must come at the expense of competitors of which one route is consolidation. The trend toward a bimodal distribution of farm size may be reflecting the consolidation of serious farming operations and the persistence of rural residences. The extent to which the gap between small and larger farms exists and persists will almost surely be tempered by introducing an alternative definition of a farm. When the picture of agriculture involves decision making units as households, productivity studies involving the entire farm sector should address the contributions to the family production unit, pecuniary and nonpecuniary.

Given all these reasons why one may expect to see a much different picture for farm and nonfarm firms, AYK find that agriculture presents an amazingly similar set of patterns to the manufacturing trends. The challenge is to look into the differences between farm and nonfarm firms' entry/exit rates, turnover, and resource mobility pattern, and the emerging pattern of surviving farms tending to get larger over time, while nonfarm industries that exhibit the average growth rate of surviving farms decline with firm size.

In summary, this chapter offers an intriguing and useful work addressing the differences and similarities of the farm as a firm when compared to the manufacturing firm. Ahearn, Korb, and Yee (AKY) reveal the first glimpses of the micro data farm dynamics and set the stage for future discussion. I suspect that this effort will push future research to make choices in defining farms for more focused debates connecting farm structure, productivity, and policy.

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