

What Is Agriculture?

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Abstract: In developed countries, the definition of agriculture must be flexible to accommodate the range of questions that society has about farms, rural people, and the environment. Adoption of the farm household, rather than the farm business, as the basic unit of observation in agricultural surveys and censuses supports this flexible definition of agriculture by capturing data on social and economic characteristics.

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1. Agriculture in Developed Countries

How do developed countries define their agricultural sectors? The answer is that it depends on what is at issue. Is it food security? If so, then the definition has mostly to do with the relatively small number of commercial farms on which the bulk of food is produced. Is it land use? If so, the definition would have to include many landholdings on which little is produced for commercial sale but which account for a good portion of the rural land base. Is it rural poverty? Then an accounting of land holding or land use may be of less concern than an assessment of the wellbeing of people living on the land. In such circumstances, the definition of agriculture takes on a plasticity that can be troubling to those in the analytical community.

Twenty years ago in the United States, agricultural economists and statisticians expended much effort trying to define agriculture in a precise way. A now-familiar argument arose about deleting from the ranks of officially counted farms those that essentially produced nothing. A United States Census Bureau official wrote, “The present concept includes a large number of units that make little contribution to total agricultural production and have little relevance to agricultural programs. To the extent that the individuals and families involved with these small units present problems affecting the public welfare, these are not problems within the framework of agriculture....” (Taeuber, 1972). The rationale was that these farms made no material contribution to commercial food production, and so, from the standpoint of national income accounting, nothing was lost by their exclusion. Analysts decried the use of sector averages, such as per farm output, that masked significant differences across farms. Some misuses of farm definition were identified as “odious,” to wit, the eternally popular “statistic” that purports to show how many people each single farmer “feeds” (American Agricultural Economics Association Committee on Economic Statistics, 1972). All this imprecision was just too much for the analytical community to bear.

It should be sobering to realize that none of this hand wringing had any effect on the willingness of American politicians, farmers, or citizens in general to adopt a more precise view of agriculture. Against all professional advice, the press and candidates for political office continued to appeal to the stereotypical view of farming, of a diversified operation of a certain size, worked by a farm family, feeding themselves and their fellow citizens with the fruits of their hard labor. Beyond fulfilling a romantic notion of farming in American society, sticking to an outdated view of farming had some economic advantages. A number of Federal programs used the farm counts to dole out funding, so any change in the definition of a farm would in turn require change in the distribution of funds. So the definition of a farm had a practical application that provided a powerful incentive to remain with the status quo. Sentiment and practicality, then, together ensured that the definition of a farm would remain essentially unchanged. For the United States, a farm is any place that has or normally would have \$1,000 of agricultural product sales in a year, and, by latest agricultural census count, there are about 2.1 million of them.

2. The Social Reality of Agriculture

How do analysts who are dedicated to accuracy cope with such a muddle? Clearly, arguing that agriculture is not what most lay people believe it to be is an uphill battle. Still, there are those who fight it every day. But there is an alternative that satisfies both the desire (and obligation) of analysts and statisticians for precision and also the requirements of societal discourse. That solution is, of course, to allow for multiple answers to the question, "What is agriculture?" without insisting any one reign supreme. Each individual answer, then, can be tailored for accuracy suited to its purpose.

Now this is good news insofar as it is not necessary to reach consensus on a unique definition of agriculture. The experience of the past twenty years teaches that it is probably an impossible task anyway. But it could be bad news for public agencies charged with the measurement, characterization, and analysis of agriculture in all its dimensions. It could be bad news if the agencies insisted on the purity of a single definition in defiance of society's clear preference for multiple identification. But it could also be bad news if these agencies fail to listen to the full range of questions to which society demands answers and that require the information contained in statistical measurement and analysis of agriculture. After all, the point of a statistical information system must be to provide government and citizens with information that is relevant to the decisions they must make. Of necessity, this flexible approach requires modification to data collection schemes as interests and circumstances of agriculture change. There can be no static framework for measuring and assessing the condition and contributions of agriculture and the people involved in it.

To provide a socially relevant and responsive statistical system for agriculture, it is well to recognize there are two main branches of public interest in agriculture. One is primarily social, it is concern with the wellbeing of people who live on the land, whether they are commercial scale producers or not. This social concern extends to important non-market outcomes, most notably environmental quality, which is determined by the ways that people manage the land. The maintenance of environmental quality on farms and more

importantly off-farms dictates this interest. Demographic data and data on environmental quality, then, become part of the profile of agriculture. The other branch is a more traditional one that is concerned with the economic organization of the farm and food sector and its contribution to and inter-relationship with the rest of the national economy. Here, there are familiar questions to do with vertical integration and other forms of business organization that seem to be alternatives to the traditional setup of farms seen as atomistic business units run by independent sole proprietors.

The public role in gathering market intelligence is often justified as necessary to level the playing field on which numerous small farmers face larger firms as both buyers and sellers. Collection of market data on prices and quantities in exchange is a key component of servicing this facet of information needs for agriculture. Here again, there was recognition twenty years ago that price data might not truly reflect the value in exchange because of the use of contracting and other inter-firm agreements. At that point, there was a strong feeling that firms ought to be made to turn over the relevant proprietary information to allow agencies to get an accurate depiction of market activity. That issue has never been fully resolved. Mandatory price reporting for livestock in the United States is at present stymied by the confidentiality restrictions that compel aggregation of reporting by a few large meatpackers. It is hard to think of an example of such a direct confrontation over public commodity market information occurring at any time over the past two decades. These circumstances may call the political question: will legislators compel full disclosure of price information even at the expense of revealing the identity of individual packing firms? It remains to be seen, but whichever way the question is decided, it will have significance as a precedent in other agricultural market settings, where consolidation and vertical integration continue.

3. A Flexible View of Agriculture

Happily, it turns out that servicing a complex view of agriculture is entirely feasible. But doing so does require revision of traditional views of the uses and scope of agricultural and farm statistics. The focus here is on the demographic and economic characteristics of what in the United States are defined as farms, rather than on the description of market structure and transactions. How can statistical and analytical response adapt to multiple definitions of agriculture?

The most significant change in outlook required by flexibility is the adoption of the farm household as the relevant unit of observation. Traditionally, the farm business has been the focus of attention by public statistical and economic agencies. However, many of the questions society has about agriculture can only be answered by understanding the behavior of the farm household, of which the farm business may be an important part or it may not. Twenty years ago, a special committee of the American Agricultural Economics Association wrote that, “in any data system the common building block for all other data the system is capable of producing is the basic unit of observation. Farming has become a heterogeneous and functionally dissimilar set of activities and processes. It is no longer possible to use the farm as the basic unit of observation” (American Agricultural

Economics Association Committee on Economic Statistics). As suggested earlier, the views of these learned individuals were at odds with the social construct of agriculture. The farm continued as the basic unit of observation in national farm surveys and censuses. Now, what is compelling about adopting the farm household as the basic unit is that it does not require that the underlying farm business concept be abandoned or that some farm units be excluded because of size. Instead, the information on the farm business, however modest its size, is simply incorporated as one activity within the unit of observation, the farm household.

The insight about the value of using the household as the basic unit of observation is quite obvious in the literature on economic development, which has always used the household framework to understand the behavior of those engaged in agriculture. For example, decisions about natural resource management may well be related to household goals that are not directly reflected in farm business accounts. It may be that the expectation that children will take over the farm affects decisions about resource management. Moreover, because many farm families have significant off-farm income (and negative farm income), it is not possible to understand their management of the farm business without knowledge of other sources of income and assets. Viewing the household as the relevant unit dictates expansion of collection of data beyond the farm business. Public data collection agencies may be reticent about this expansion, as it can be viewed as intrusive by those interviewed (and also by the interviewers, who may be reluctant to press for this information). But, if these data are not collected, then public agencies will fail in their role in answering society's questions.

With the farm household as the unit of observation, the next adjustment to traditional treatment of survey data is to use it in cross section, not simply in aggregates or sector averages. Here, the challenge is to characterize the heterogeneity that exists across farm households in a way that is useful for policy discussion. Viewing survey or census data in cross section allows identification of key sub-groups of the farm population. If the issue is food security, particular attention can be directed to those households with commercial scale farming operations. If the concern is rural poverty, those households with farm and off-farm income below a threshold level can be identified. Stratifying the households geographically can be useful, especially when sensitive environmental areas need to be singled out. What is key about viewing the data in cross section is the recognition that the political process is less concerned with efficiency than it is with equity. Identifying those who gain and those who lose from different policies or programs is a key use of the public database on agriculture because of the influence on political decision making. The traditional lens for looking at the impacts across farms of agricultural policies is commodity specialization. When the effects of traditional commodity programs are at issue, this breakdown of farming operations may suffice, but for other questions it will not. For example, concern about the wellbeing of farmers nearing or in retirement requires assessment of the age distribution of farmers along with information on financial status, including, importantly, farm and non-farm resources. The perennial question about policy effects on "large" versus "small" farms in the United States reflects this political interest in the distribution of benefits. Survey or census data viewed in cross section may show the extent to which farm size is the issue versus some other characteristic, such as financial efficiency.

4. An Illustration from the United States

The assertion that it is indeed feasible to cope with a flexible view of agriculture is based in the experience of the Economic Research Service (ERS) at the United States Department of Agriculture. In partnership with the National Agricultural Statistics Service (NASS), the agency that conducts surveys as well as the census of agriculture, ERS analysts have developed a typology categorizing farms into more homogeneous groupings than classifications based on the traditional division by volume commodity sales alone. The typology is based on annual farm survey data collected in the Agricultural Resource Management Study by NASS and ERS. As such, the data provide a statistically reliable picture of American farming. The ERS typology is thus an effective tool for understanding farm sector behavior and well being and developing appropriate policy and an improvement over most policy models that rely on non-survey constructions of "representative farms."

Since the 1930's, American farming has been transformed by technological and economic opportunity. Advance in mechanical equipment not only allowed crop specialization to take advantage of scale economies, it also saved labor, releasing farmers and farm workers to higher-paying jobs in industry. Urbanization, the growth of suburbs, and the development of rural economies allowed farm families the opportunity to live on the farm but also work in non-farm jobs. As average farm size increased, farm numbers fell steadily over the decades following World War II. Today, farm numbers appear to have stabilized at just over 2 million. But what the country does not have is simply a shrunken 1930's-style farm sector. Most farms today are small and account for only a modest share of agricultural production, even if they control three-fourths of the country's farmland. The largest farms operating on the other quarter of farmland grow more than 60 percent of food that enters commercial channels. Almost two thirds of all farm operators do not regard farming as their main occupation, but rather live on farms as a retirement or residential lifestyle choice.

The ERS farm typology that describes the transformed sector is based on the occupation of operators and the sales class of farms combined. It identifies five groups of small family farms (sales less than \$250,000).

- **Limited resource** Any small farm with gross sales less than \$100,000, total farm assets less than \$150,000, and total operator household income less than \$20,000. Limited-resource farmers may report farming, a non-farm occupation, or retirement as their major occupation.
- **Retirement** Small farms whose operators report they are retired (excludes limited-resource farms operating by retired farmers).
- **Residential/lifestyle** Small farms whose operators report a major occupation other than farming (excludes limited resource farms with operators reporting a non-farm major occupation).
- **Farming occupation/lower-sales** Small farms with sales less than \$100,000, whose operators report farming as their major occupation (excludes limited-resource farms whose operators report farming as their major occupation).

- **Farming occupation/higher-sales** Small farms with sales between \$100,000 and \$249,000 whose operators report farming as their major occupation.

In addition, there are three categories of other farms, considered large in that their sales exceed \$250,000. This threshold is admittedly arbitrary, ERS choose \$250,000 at the suggestion of the National Commission on Small Farms.

- **Large family farms** Farms with sales between \$250,000 and \$499,999.
- **Very large family farms** Farms with sales of \$500,000 or more.
- **Nonfamily farms** Farms organized as nonfamily corporations or cooperatives, as well as farms operated by hired managers.

This typology now forms the basis for disaggregating ERS reporting on farm household and business performance and will be used to evaluate the impacts of proposals for change to agricultural legislation.

The typology permits any number of interesting comparisons of key farm characteristics across groups. But the perhaps most relevant for farm policy discussions is farm household income. Looking only at the 1999 national average farm household income of \$64,347, the survey shows that 90 percent of it comes from off-farm sources. However, disaggregating using the typology shows very clearly how dependence on farm income varies by farm type. Only for households operating very large farms does income from the farm business contribute more than 80 percent of total income. For large farms, farm income accounts for 60 percent and for higher-sales small farms half comes from farming. The remaining small farm households derive virtually all income from off-farm sources. Off-farm income, therefore, is as important or more important than farm income to the wellbeing of most of America's farm families. There is a political argument that farm families ought to be able to earn their living entirely from farming, not a very realistic proposition. So, it is important to recognize that the ability of any farm policy instrument to affect farm household wellbeing is limited for a large portion of the small farm population. The importance of a vibrant off-farm economy cannot therefore be overstated.

The data on household income also show distinct differences in levels compared to U.S. average household income. As noted, the average farm household income in 1999 was \$64,347, about a third higher than the average for all U.S. households. But, again, this average masks significant variation. On the one hand, the average household income for limited-resource farms of \$9,534 lies below the poverty level but that for the very large family farms (\$201,206) is more than three times the national average. On smaller farms whose operators main occupation is farming, the higher-sales group's total income is just above the national average but the lower-sales group lies just below, as it does for retirement farms. Residential/lifestyle farms have negligible or negative income from farm but household incomes above the national average.

These comparisons of farm household income across typology groups demonstrate one use of survey data that emphasizes a cross-sectional view and the value of using the household as the basic unit of observation. For more information on the typology and the ways it can be used in analysis, see the most recent ERS report on the family farm (Hoppe, 2001).

5. Challenges ahead

The introduction and use of the ERS farm typology in reporting and analysis of agricultural issues has helped orient policymakers and the public to the implications of the diversity of farming in the United States. The typology categories, although arbitrary, appear to have intuitive appeal to users of ERS analysis and do not compel them to abandon the many small units they believe are truly farms. By not forcing farms into a one-size-fits-all definition, the typology facilitates discussion about social and economic dimensions of agriculture. Ideally, all developed country agricultural survey and census systems would adopt the farm household as the unit of observation, and accounting record keeping systems would likewise be expanded. If such data were available, it would provide a much-needed empirical basis for international dialogue about the maintenance of the wellbeing of the farm sectors across developed countries.

References

- American Agricultural Economics Committee on Economic Statistics (1972) Our obsolete data systems, *American Journal Agricultural Economics* , 54, 867-875.
- Hoppe R.A. (2001) *Structural and Financial Characteristics of U.S. Farms: 2001 Family Farm Report*, U.S Department of Agriculture, Economic Research Service, www.ers.usda.gov.
- Taeuber C. (1972) Future structure of census data relating to agricultural and rural people, *American Journal of Agricultural Economics*, 56, 909.