

## **Challenges in Measuring the Economic Impact of Cooperatives**

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**Abstract:** The 2006 request by the USDA-RBCS to measure the national economic impact of cooperatives is an indication of the perceived importance of this sector to the national economy. Measuring the national economic impact of cooperatives is a complex process. After reviewing some of the previous work done to generate region-specific measures of economic impacts, this paper identifies a set of research issues which must be addressed in the course of conducting this research. Resolving these research issues will make the national measure more useful for members of the cooperative community and policy makers.

**Key Words:** cooperatives, economic impact, IMPLAN, survey, measurement issues

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## **1. Introduction**

Cooperative businesses are indisputably an important part of the U.S. economy. Currently there is no authoritative information on the number of cooperatives, their business volume or economic impact. This information would be useful for a wide variety of stakeholders. Governmental agencies, for example, are interested in gauging the performance of cooperatives as a rural development tool. To accomplish this objective, the United States Department of Agriculture is sponsoring research to develop a methodology for collecting and assembling basic impact data on a periodic basis; apply the methodology to collect data and estimate economic impact of cooperatives; estimate cooperative specific community impact multipliers; and conduct other appropriate studies to examine the socio-economic impact of cooperatives on their local communities (USDA, 2006).

A measure of the economic impact of the cooperative business sector would be useful to many groups as they justify their investment in cooperative development. Cooperative trade associations are interested in estimates of the business volume and economic impacts of the broad cooperative sector. These associations can use information to underscore the importance of their membership and to justify political support. Leaders of rural communities are often involved with attracting or developing value-added cooperative businesses. These individuals are interested in forecasting economic impact to justify incentive packages. Finally, economists and other scholars are interested in determining whether cooperatives generate a different level of economic impact relative to alternative forms of business organizations.

The size and economic impact of the cooperative business sector is not fully appreciated because no complete information currently exists about the number of cooperatives, their economic impact, or a readily identifiable procedure for gathering this information. Prominent sectors include agriculture, with over 3,000 cooperatives; credit unions, with over 9,000 businesses; farm credit, with over 100 institutions; electric utilities, with over 930 generation and distribution facilities; and housing, with over 7,000 cooperatives (NCBA 2005). Other sectors are much more limited in scope of operations, including worker cooperatives, internet and telecommunications cooperatives, craft manufacturing and marketing cooperatives, health care-providing cooperatives, and public service cooperatives. Hence, cooperatives play an often unrecognized, but significant role in many sectors of our economy.

Measuring the economic impact of the cooperative business sector would be an important contribution for several reasons. First, such a measure will provide valuable insight for policy makers and the cooperative community about the magnitude of the sector's impact. By cataloging the population of cooperatives, estimating their economic impact, and comparing it with alternative business models a clear statement of their importance and unique role in the local, state, regional, and national economy can be made. For example, cooperatives tend to be locally owned and transfer the benefits of that ownership to the local community. This potentially generates a greater economic impact than businesses that are not locally owned and which distribute the benefits of ownership outside the community where business is conducted. Policy makers, therefore, are interested to know if there is a difference in the economic impact of user-owned and investor-owned businesses and how great that difference might be.

Second, given the dedication of multiple resources to the rural sector of the United States, such as the Farm Credit agency, Rural Cooperative Development and other programs, research is needed to measure the national implications of such programs, specifically through the economic impact of agricultural cooperatives, on the rural economy. Dedicated efforts to measure the economic impact of cooperatives reinforces the fact that they contribute to the rural economy. Third, quantifying the importance of cooperatives in many different sectors, not just agricultural cooperatives, will provide specific results that can be used to educate the public and policymakers less familiar with cooperatives about their impact throughout the nation. Fourth, the measures of economic impact by cooperatives and other types of business models, such as investor-owned companies, can be compared, providing information to policymakers and investors as to the difference in impact between user- and investor-owned businesses. Finally, by creating an accurate measure of the impact of cooperatives in the economy, analysis could be performed, using these results, to identify additional opportunities for investment and sector growth. Such a measure would provide very valuable analysis in a time of increasing demand for economic and social service solutions to help address society's critical social and economic problems. Providing an accurate empirical analysis of the economic impact of cooperatives could point the way towards adopting future, successful cooperative business strategies.

Since the components of the economic impact of cooperatives are complex, generating such a measure, especially at the national level, will be challenging. The purpose of this paper is to discuss issues that will be encountered when measuring the nationwide economic impact of cooperatives. These difficulties call into four categories.

First, the population of cooperatives for each sector must be determined. There appears to have been no attempt to track cooperative activity in all sectors on a national basis. Though the number of firms comprising various sectors, such as credit unions, electric cooperatives, and agricultural marketing cooperatives is relatively easy to identify through various types of industry-wide associations, other sectors have no national representation. It would be challenging to enumerate these firms. Second, given the inevitable difficulty associated with distinguishing the national population of cooperatives from alternative business forms, consistent guidelines must be made with respect to how to identify them. Third, in order to accurately measure the economic impact of cooperatives in any sector, the economic impact of cooperatives alone needs to be disaggregated from any financial data obtained through survey or other methods. This measurement is complicated when cooperatives form relationships with other types of firms, participate in joint ventures, and provide business to non-member patrons. Finally, the classical problem of measuring the scope of non-pecuniary benefits, this time on a national scale, must be specifically addressed. These benefits include the presence of countervailing market power, guaranteed market access, or provision of services not otherwise provided by investor-owned firms.

This paper proceeds as follows. Section Two provides a background of previous economic impact studies, those done specifically for cooperatives, a description of models used to calculate the economic impact of cooperatives, and the limitations of these studies. Section Three discusses the particular challenges of generating a nationwide economic impact assessment. Finally, Section Four discuss the implications of these difficulties.

## **2. Previous Measures of the Economic Impact of Cooperatives**

In general, economic impact studies quantify the economic effects of a given business sector within a geographic region. For example, employment, expenditures, distribution of profits, and taxes paid to local, state and national governments are used to measure total direct economic impacts of business sectors. A more complete measure is obtained when induced effects are also measured, composed of actions by the target business sector which change the demand for goods and services in other sectors. Economic impact studies of the cooperative business sector, therefore, measure the direct and indirect effects of cooperative business for a selected sector of goods or services within a selected geographical area. The preparation of these studies is traditionally justified by their use in quantifying the size of the selected business sector within a given region, their usefulness for informing policy makers and members of the business community about its impact on an economy, and to promote the developments of favorable policy.

A handful of economic impact studies have been written within the last decade to measure the economic impact of the cooperative business sector within a state or regional economy (Zeuli et al., 2003). Folsom (2003) measured the economic impact of cooperatives in the state of Minnesota. He found that with \$6.07 billion in revenues in 2001, the state's cooperative industry contributed \$10.89 billion in direct, indirect, and induced economic impacts, with benefits from local ownership contributing \$600 million in output and \$210.5 million in tax revenue. Zeuli et al. (2003) measured the economic impact of cooperatives in the state of Wisconsin. The authors found that with \$5.5 billion in gross sales in 1999, the state's cooperative industry contributed \$114 million in total

income and \$500 million in value added to the state. Coon and Leistriz (2005) determined the economic impact of cooperatives to the North Dakota State economy to be approximately \$6.1 billion in 2004. Herman and Fulton (2001) measured the economic impact of the cooperative sector in Saskatchewan. Other studies measure the economic impact of specific cooperative business sectors, such as Iowa electric cooperatives (Siegelman and Otto, 2004), or sugar beets cooperatives in the Upper Great Plains (Bangsund and Leistriz, 1998 and 2004). Studies at smaller geographic scales, such as counties, have not been found.

The chief constraint in producing studies at both the state and local levels is the difficulty in obtaining accurate data about cooperatives. The paucity of data can also cause limitations to subsequent analysis. Zeuli et al. (2003), Folsom (2003), and Herman and Fulton (2001) indicate that cooperative business population surveys of economic data can be incomplete. Incomplete surveys, exclusion of various cooperatives because of exemption from financial and legal reporting requirements, and variation in the type of data reported as values for the same variable across cooperatives, such as total revenues, are common problems in measuring the direct economic impact of cooperatives.

Once the direct economic impact associated with a business or activity has been estimated, then secondary (indirect and induced) economic impacts can be measured. These arise from the spending and respending of the initial expenditures (direct impacts) within the study area economy and are sometimes termed multiplier effects. Several types of regional economic impact models can be used to estimate the secondary economic effects of an activity, and model selection involves tradeoffs (Loveridge 2004). Some research the total economic impact of selected cooperatives as a case study (Folsom,

2003), while others tabulate the total business volume number of employees and members (Henehan and Ferguson, 1992). In recent years, regional input-output models have become the most common tools for economic impact analysis (Leistriz 2003; Loveridge 2004). Regional input-output (I-O) models are attractive because they provide estimates of impacts disaggregated by sector (industry) and because they are sensitive to differences in both the magnitude and composition of local expenditures from various businesses or activities. Recent studies that have used I-O models to estimate the impact of cooperatives include Kenkel et al. (2003), Coon and Leistriz (2005), McNamara et al. (2001) and Zeuli et al. (2003).

While there are several sources of input-output models for geographic regions (Rickman and Schwer 1995), the IMPLAN system is the most widely used. The IMPLAN method can be used for estimating secondary economic impacts of cooperatives (Lindall and Olson 2004). The IMPLAN system produces Type I, Type II, and Type III multipliers (Lindall and Olson 2004, Kenkel et al. 2003). Type I multipliers include direct and indirect effects, but do not include induced effects. Type II multipliers include direct, indirect, and induced effects, by bringing households into the model as an additional industry. However, Type II multipliers are thought to sometimes overestimate the multiplier effect because they assume that population remains constant (Kenkel et al. 2003). Type III multipliers attempt to correct for this problem by allowing for population change. Regardless of whether Type II or Type III multipliers are chose, both the total economic impact of cooperative activity can be measured in terms of its effects on industry output, total income, and employment, and using IMPLAN output, income and employment multipliers, respectively.

The research reviewed in the above discussion largely focuses on the pecuniary measure of direct and indirect economic impacts. A discussion of non-pecuniary benefits, such as the value of countervailing market power or the value of providing services that would otherwise not be supplied, has been omitted in these studies. Although these studies have also indicated their own incompleteness as an accurate pecuniary measure of economic impact, the failure to include non-pecuniary economic impacts of cooperatives understates the economic impact of this business model at state or regional level. This understatement is even larger if omitted at the national level. Below we discuss some of the complexities that traditional pecuniary measures of economic impact will encounter when conducting a national measure as well as complexities encountered in estimating non-pecuniary impacts.

### **3. Research Issues for a National Measure of the Economic Impact of Cooperatives**

Measuring the economic impact of cooperatives at the national level is both easier and harder than regional and sector-level studies. If only a single, national economic impact measure is given, this will be easier to generate than at a regional level for at least one reason: when gathering survey data there is no need to quantify the state-specific level of business for a company that does business in multiple states. More generally, any survey data gathered at the company level will only need to be disaggregated at the domestic and international levels. Since most cooperatives currently participate only in domestic commerce, then disaggregation at the national level is unnecessary for a majority of the cooperative population.

However, the difficulties associated with conducting a regional study are exacerbated in several ways. First, and most obviously, there are more cooperatives to enumerate in a national study than in a local or state-level study, hence enumerating the population will be relatively complex. Second, conducting a nation-wide survey of cooperative businesses will present several complexities, such as how to achieve a sufficient response rate in order to make statistically valid statements about the population. Third, criteria must be established for distinguishing cooperative businesses from alternative models. This is becoming increasingly complex as many cooperatives engage in joint ventures, or are incorporated as alternative business structures, such as LLCs, but function as cooperatives. Fourth, several measurement issues arise. The most complex is to measure non-pecuniary economic impacts. Related issues include measuring benefits not captured by members, disaggregating domestic and international profits distributed as patronage dividends, resolving the influence of aggregate accounting error over so many business units on the accuracy of measuring direct economic impacts, and resolving the influence of aggregate accounting error on the accuracy of measuring indirect economic impacts. Each of these issues is discussed below.

### 3.1. Enumerating the Cooperative Population

Enumerating cooperative/producer-owned businesses at the national level will be difficult since there has been no consistent attempt to track cooperative activity in all sectors on a national basis. In 1984, the Cooperative Information Consortium (CIC) indicated that its book, “Finding Co-ops: A Resource Guide and Directory,” was the first public listing of the 20,000 cooperatives it had identified. A previous effort to track

cooperatives in the food sector on a national basis was done by the Cooperative Directory Association, which was dissolved in 1980 (CIC, 1984). A 2005 report by the National Cooperative Business Association (NCBA) identified over 21,000 cooperatives (NCBA, 2005). This number represented cooperatives in readily identifiable business sectors and was not intended to represent the entire population of cooperative businesses.

Identifiable sectors highlighted in the NCBA report include 3,140 agricultural cooperatives with 2.8 million members and business volume of \$111.6 billion, 9,346 credit unions with over 86 million members and \$443.5 billion in loan volume, the Farm Credit sector with 101 Farm Credit Institutions providing over \$96 billion in loans to over 450,000 members, the electric utilities sector with 930 generation and distribution cooperatives serving 37 million customers in 47 states, the grocery sector with approximately 350 retail food and grocery cooperatives generating \$33 billion in revenues and the housing sector where an estimated 7,500 housing cooperatives serve 3 million members (1.2 million families) with combined budgets of \$11.5 billion.

In conducting a survey of the national cooperative population, non-respondents must be properly accounted for. In studies of state-level economic impacts (Zeuli et al., 2003; Folsom, 2003), authors provide exact numbers of cooperative businesses within various states, but explicitly mention that relying on government records alone for identifying individual cooperative businesses is incomplete. Follow up contacts by phone or targeted mailings can improve response rate for surveys and generate a more complete population measure. In such cases, however, specific knowledge of key personnel is required. At the national level, a challenge will be to develop or reliably duplicate this knowledge. Consistent membership of the research group will lead to uniform method and modeling

from multiple experts from multiple regions of country, with experience in relatively important geographic sectors. This can improve the likelihood of consistent findings. Regional affiliations of researchers or professionals who are familiar with the cooperative business sector, such as NCERA-194, the NCBA, or government agencies, such as the USDA, may be critical to such an effort. Since specialized local knowledge, which is difficult to replicate, may be required to increase survey response rate, making periodic updates of the database will be challenging.

Furthermore, even if such an update could be accomplished, it is unclear whether the data can be interpreted in the same way. Herman and Fulton (2001) mention that since some cooperatives are not required to provide complete financial data, the validity of data used in their measure of the economic impact of cooperatives in Saskatchewan, particularly for number of employees and wages, can be challenged. Changes in reporting requirements will make cross-year comparisons of databases difficult. Only cross-section analysis for a single point in time will be most complete, and limitations on cross-study analysis should be acknowledged.

An alternative to the specialized-knowledge requirement is to assume that non-responding cooperatives are similar to the respondents. A criterion should be established for when this assumption can be made, such as a description of how much of the expected population should be observed before deciding that something can be assumed about the non-respondent population. Incomplete responses from returned surveys must be accounted for. Examples of omissions in past studies include the size of payroll of in the agricultural sector and the number of customers and employees of grocery cooperatives.

Clarifying the interpretation of data that results from a survey also presents complex issues. A consistent rule for determining when and how data should be clarified needs to be developed. For example, when the measurement of benefits is unclear, when should follow-up discussions be held with cooperatives to clarify available data?

### 3.2. Identifying Cooperatives

A measure of the economic impact of cooperatives in the country will need to be conducted by first gathering data about the population of cooperatives across the country, perhaps by survey. The first step in conducting such a survey, however, is to distinguish the cooperative population from other business forms. This requires establishing criteria for identifying cooperative/producer-owned businesses. This must be done consistently, a task especially difficult for hybrid businesses such as joint ventures, mergers, and holding companies. Hence, the criteria must be broad enough for ease of application, but not so broad as to lead to double-counting.

Distinguishing cooperative businesses from others is a complex subject. It has been addressed on several occasions, including Barton (2004), Chaddad and Cook (2003), Kenkel and Holcomb (2005), Baarda (2004 and 2006), Crooks (2004), and the National Corn Growers Association (2006). In order to consistently distinguish cooperative businesses from other business forms, criteria such as ownership, governance, taxation status, and legal organization must be established. Although specific methods for identifying cooperatives may ultimately have to be made for any given industry, a basic strategy could involve two steps. First, a broad view of the cooperative business form can be used to develop the potential population of cooperatives within each sector. Second,

these populations can then be filtered, using a consistent method, in order to ensure that these firms can clearly be identified as cooperative businesses. One study, for example, listed common characteristics of cooperatives, plus seven defining principles stated by the International Cooperative Alliance (ICA) in order to identify a cooperative, suggesting that these were used in assembling the relevant population (Folsom, 2003). The ICA principles, however, are relatively broad compared to the user-owned, user-controlled, and user-benefits principles.

The advent of new cooperative statutes enabling hybrid member-owned and investor-owned firms has further complicated the identification of cooperatives. A firm's structure must be fully understood before the member-owned portion of the economic activity can be separately measured. There are also entities with some but not all of the characteristics associated with the cooperative business model. Common examples of these "quasi-cooperatives" include member associations, share service networks organized as not-for-profit organizations, and employee stock ownership plans.

The wide variation in objectives for economic impact information exacerbates the difficulties in defining the boundaries of the cooperative business form. Cooperative trade associations and other entities seek a broad definition of the business form. Government agencies seeking to develop cooperatives as a rural development tool may be interested in distinguishing ownership (example: agricultural producer owned) while having less concern over business structure. Finally, economists, cooperative specialists and other scholars may seek to clearly differentiate "pure cooperative" business from other business models.

### 3.3. Analyzing Economic Impacts Unique to Cooperatives

An important application of these results will be to differentiate the economic impact of cooperatives and investor owned firms. In doing so, it is important to note that cooperatives can potentially create a variety of economic impacts over and above what investor-owned firms can potentially generate. Some of the potential economic benefits unique to cooperatives include the economic returns created on behalf of members such as better prices than alternatives, valuable services access to markets otherwise not available, increased market power, valuable information. And so the member-owner may derive significant economic benefits over and above benefits typically derived by investors in an investor-oriented firm.

One could also argue that cooperatives tend to be “anchored” to a specific geographic area by the nature of its mission to serve members. For instance, agricultural cooperatives have a unique link to member production areas. Cooperatives rely on areas where members are located. The necessity to remain in proximity to members makes it less likely to relocate to locations that might have cheaper raw products or labor. Such economic stability may generate a number of benefits for both members and their communities.

#### 3.4. Conducting a Nationwide Cooperative Survey

Upon the identification of the cooperative population, a survey would gather data about revenue, business volume, employment and payroll, direct expenditures, profit distributions, equity devolution, tax payments. A useful method for administering the survey would be to use a stratified survey design. In business sectors with relatively few cooperatives, all firms receive surveys. In business sectors with relatively many

cooperatives, the largest several will receive surveys, while representative samples (stratified by size measured by total assets) will be taken from the remaining population. These surveys would be distributed in through two or three mailings or through email and internet survey services. Upon reception, these data should be input ultimately into a single database.

### 3.5. Measuring Direct, Indirect and Induced Economic Impacts

Our discussion of measurement issues for economic impacts of cooperatives is composed of two parts. First, we discuss issues associated with measuring and detecting direct economic impacts. Second, we discuss issues associated with measuring indirect economic impacts.

Measuring the direct economic impact of cooperatives is made more difficult by the membership structure itself. That is, economic impact occurs at both the cooperative corporate level as well as at the member personal or firm level. By design, cooperatives exist to create economic value for members. Some of that economic value is much easier to measure than some of the less tangible and indirect economic value that is created on behalf of members.

For instance, a producer-owned marketing cooperative creates what can be labeled “extra-cooperative” value that accrues to the community, stakeholders, non-members, or the general public such as tax payments, employment opportunities, market enhancements, or non-member services. This same cooperative also generates “intra-cooperative” value that is typically captured primarily by members such as: increased economic well-being, improved profitability, valued member services, patronage

distributions, valued information, technology adoption, market access, improved prices for products or terms of trade.

In many cases the ability of the cooperative to help address market failures could be the most important economic impact that a cooperative could create. Table 2 offers some examples of overall, market economic impacts potentially generated by cooperatives operating in that sector.

**Table 2. Economic Impacts of Cooperatives, by Sector**

Cooperative Sector	Extra-cooperative Economic Value	Intra-cooperative Economic Value
Housing	Create competition	Generate affordable housing
Agriculture	Provide countervailing force Create efficiency in supply chain	Access to key market Market information Enhance market power Extract costs from chain
Utilities	Create competition Extend grid to under-served areas	Less expensive electricity Better service Fewer and shorter outages
Wholesale purchasing	Create competition	Cut costs Increase profitability
Employee/Worker	Enhance performance or retain firms	Retain employment Enhance wages and/benefits
Healthcare	Improve public health	Obtain needed services Cut costs Coordinated delivery
Consumer Food	Provide countervailing force Create competition	Obtain desired products Cut costs and prices

Another complication is accounting for intra-cooperative transactions and business structures. In the agricultural sector, regional cooperatives provide both purchasing and marketing functions for their affiliates local cooperatives. In other instances, an entity, that may or may not be incorporated as a cooperative, coordinates marketing activities for a group of cooperatives with or without taking title to the goods. Cooperatives in all

sectors are increasingly forming joint ventures with firms, both cooperative and investor-owned, to achieve cost savings and scale economies.

Another issue for measuring direct economic effects of cooperatives is the time scale. While the benefits of cooperative development are evident, putting a dollar value on them is difficult, especially before operations start. For example, if communities are asked to provide tax incentives and new services at a time when the timing and size of benefit flows to the community were largely unknown, should this be measured as an economic impact? For example, in the community of Carrington, ND, some of the costs of cooperative enterprise development were higher than expected, including investment and maintenance costs for basic infrastructure and greatly increased demand for other local services not directly linked to the cooperative. Members of the community noted that, due to the structure of tax incentives provided to Dakota Growers, the city was forced to bear the cost of infrastructure development before enjoying an eventual increase in tax revenues from the new plant (Trechter, 2001).

Trechter (2001) stated that “even well after operations are under way, the benefits of a cooperative can be difficult for many to perceive. The Western Area City/County Cooperative (WACCO), for example, has helped reduce costs and improve the quality of local government services while helping communities maintain local autonomy, but it is essentially invisible to local citizens. Further, because the benefits generated by WACCO are primarily costs that are avoided and not revenue streams, which would be more obvious, the cooperative must be aggressive in educating an ever-changing set of political decision makers about its value.”

Hence, within the context of a national economic impact study, a decision must be made about the minimum length of time a cooperative must have conducted business before it is considered a member of the population. Similarly, a decision must be made about the maximum length of time since a change in business structure, such as demutualization, before firms are no longer considered part of the population. In other words, there should be some decision as to whether the full potential economic benefits have been obtained for business conducted within the sample period.

Another issue is the traceability of benefits. If the cooperative is asked to report its revenues or profits, then the analysis implicitly assumes that the cooperative has perfect ability to identify measurable economic benefits attributable to its own activity. Ultimately the analyst needs to be able to state that it is unlikely that the measured benefit would have occurred in the timeframe covered by the survey in absence of the given cooperative. The benefit must have been actually realized, with the customers, employees, or members actually experiencing a benefit.

Finally a decision about the set of variables measured to obtain information about these benefits must be made. Obviously, if only pecuniary economic benefits are considered then only a partial measure has been generated. For some industries, like credit unions, surveys can be used to elicit information on interest rate differentials between the cooperative institution and competitor forms of business. Other industries may be able to provide estimated responses about the value of their associated community service.

Measuring indirect and induced economic impacts from cooperatives is complex at the national level. A unique aspect of cooperatives that affects their local economic

impact is their distribution of cash patronage refunds to their members, who typically reside in the local area. If these businesses were structured as an investor-oriented firm, these profits would generally be paid out as dividends to investors, who would likely be spread across the country (Kenkel et al. 2003, Zeuli et al. 2003). The patronage refunds can thus be used to estimate the additional economic impact accruing to the local area because an activity is organized as a cooperative. The patronage payments constitute the direct impact and the IMPLAN multipliers can be used to estimate the secondary and total impact associated with retaining the profits within the local community.

Using an IMPLAN or sector-based model has difficulties as well. First is the division of economic activity; not all businesses fall completely into one sector or other. Criteria must be established for splitting the data so that even if the correct business structure has been identified the correct sector also will be.

Second, in order to estimate community impact multipliers for the various categories of cooperatives, a key challenge for a nationwide survey will be to decide on the definition of “community” that will be used. If the area of interest is defined as the county where the cooperative is headquartered, the impact multipliers will be smaller than if the area of interest were, for example, the entire state.

Finally, another interesting issue in the application of the IMPLAN or any other model is whether it assumes that all beneficiaries, either the cooperative itself or its members, are equally able to utilize their direct and induced benefits. To the degree various beneficiaries are more or less able to utilize their associated benefits the cooperative provides more or less of an economic impact overall.

Ultimately, computing the indirect and induced economic impact of cooperatives answers the questions of what the economic state of the country would be, but for the presence of cooperatives. In other words, any model used to calculate these effects must make assumption about what services the economy would provide if the cooperative did not exist. This requires the analyst to decide whether the output cooperatives add to the economy would have been provided by other business models, or is the cooperative providing services that would not have otherwise existed. As always, it is impossible to construct the counterfactual alternative. Hence, care must be made in describing how these benefits would not have otherwise occurred. For example, Bangsund and Leistritz (1998) measured the economic impact of cooperatives and demonstrated that in certain situations, multiple industries must be included in assessing the economic impact of cooperatives. For example, the sugar beet processing industry in North Dakota and Minnesota is completely owned by cooperatives, but without these, sugar beet production would not exist.

Finally, in selecting the determinants of indirect and induced economic impacts, there will be decisions made about what to include and not include. In making such decisions consideration must be made as to the effect this has on the final results. There are sectors in the cooperative industry where information on cooperative number, membership, and business volume is limited. These include worker cooperatives, internet and other telecommunications cooperatives, agricultural cooperatives marketing organic products, craft manufacturing and marketing cooperatives, health care, day care and elder care cooperatives, and public service cooperatives such as those providing transportation or education services. The omission of these cooperatives ignores the economic impact of

these businesses on local communities. Furthermore, since cooperative businesses are often heavily involved in their communities, the economic impacts of employment, purchases, revenues, or profit distributions are not measured. “Because the relationship between cooperatives and their communities is so important, cooperatives face the challenge of clearly documenting and describing the benefits they create, not just for their members but also for the broader community. At the same time, local community leaders need to carefully assess not only the benefits but also the costs of fostering this form of new business development” (Trechter, 2001).

#### **4. Conclusions and Implications**

The objective of this paper has been to summarize previous research about the economic impact of cooperatives and to present issues that will need to be resolved when a national measure of the economic impact of cooperatives is conducted, as requested by the United States Department of Agriculture. We have discussed several issues, including complexities associated with enumerating the cooperative population; distinguishing cooperatives from other firms will require consistent criteria; benefit measurement must be thorough and systematic; and that non-pecuniary benefits cannot be omitted in completing a national measurement of the economic impact of cooperatives. This discussion of issues is intended to provide an agenda for developing methods which will develop an accurate measure.

Our discussion has shown that several methodological issues described above will need to be addressed in order to generate an accurate estimate of the economic impact of

the cooperative sector. Most importantly, more analysis of non-pecuniary economic impacts is needed. Also, creative approaches to measuring and analyzing the pro-competitive and countervailing market power roles of cooperatives, as well as distinguishing them from other business forms, should be developed.

Multi-state research programs were established by USDA to enable research on high priority topics among State Agricultural Experiment Stations in partnership with Cooperative State Research, Education and Extension Service and other research institutions and agencies. NCERA-194 is an integrated regional research and education project focusing on cooperatives. While originating in the North Central region, NCERA-194 has become a national focal point for promoting and coordinating research and educational activities related to cooperative business. The NCERA-194 annual meeting provides a forum for academics, upper and middle management personnel from cooperatives, directors from cooperatives, and researchers in USDA Rural Business-Cooperative Service to coordinate ongoing research on cooperatives, identifying research issues, and organizing research teams among the participants. The meeting also allows these cooperative experts to distribute their research results and to discuss implications for cooperatives, their producer-members, the food production and distribution system, the environment, and rural communities.

The NCERA-194 committee represents a key resource in addressing the technical and methodological issues involved in a national study of economic impact. The committee could be used to form a consensus definition for the boundaries of the cooperative sector, for example. NCERA-194 members could also promote greater response to surveys by identifying cooperative organizations in their individual states and geographic areas, and

provide industry contacts who could help identify cooperatives. NCERA-194 members, many of which work with different cooperative structures, could also identify key areas of intra-cooperative activity.

An accurate measure of the economic impact of cooperatives, developed a consensus-developed methodology, will allow the public, policy makers, cooperatives, and their members to benefit more completely from the information contained in it. This may result in encouragement for increased investment in cooperative education, research and development. Increased understanding of how cooperative create economic value would be useful for cooperative leaders and members as they try to better evaluate cooperative performance and position in today's markets.

## References

- Baarda, J. 2004. "Outside Equity: Obligations, Trade-offs and Fundamental Cooperative Character," selected paper at the NCERA-194 2004 Annual Meeting, November 2, 2004. <http://www.agecon.ksu.edu/accc/ncr194/Events/2004meeting/Baarda2004.pdf>. Accessed October 2006.
- Baarda, J. 2006. "Current Issues in Cooperative Finance and Governance: Background and Discussion Paper." Washington, D.C.: USDA, Rural Development, Cooperative Programs, 196 pp.
- Bangsund, D. and F. Leistritz. 1998. "Economic Contribution of the Sugarbeet Industry to North Dakota and Minnesota." Agribusiness and Applied Economics Report 352. North Dakota State University. 28 pp.
- Bangsund, D. and F. Leistritz. 2004. "Economic Contribution of the Sugarbeet Industry in Minnesota, North Dakota, and Eastern Montana." Agribusiness and Applied Economics Report 352. North Dakota State University. 37 pp.
- Barton, D. 2004. "A Comparison of Traditional and Newly Emerging Forms of Cooperative Capitalization." Selected paper at the NCERA-194 2004 Annual Meeting, Nov. 2, 2004. Online <http://www.agecon.ksu.edu/accc/ncr194/Events/2004meeting/bartonpaper.pdf>. Accessed October 2006.
- Chaddad, F. and M. Cook. 2003. "The Emergence of Non-Traditional Policy Structures: Public and Private Policy Issues," selected paper at the NCERA-194 2003 annual meeting. <http://www.agecon.ksu.edu/accc/ncr194/Events/2003meeting/ChaddadandCook.pdf>. Accessed October 2006.
- Coon, R. and L. Leistritz. 2005. "Economic Contribution North Dakota State Cooperatives Make to the State Economy," Staff Paper AAE05001, Department of Agribusiness and Applied Economics, North Dakota State University, Fargo, 6 pp.
- Crooks, A. 2004. "The Horizon Problem and New Generation Cooperatives: Another Look at Minnesota Corn Processors; Cooperative Capitalization," selected paper at the NCERA-194 2004 Annual Meeting, Nov. 2, 2004. <http://www.agecon.ksu.edu/accc/ncr194/Events/2004meeting/crookspaper.pdf>. Accessed October 2006.
- Dillman, D. 1989. "Our Changing Sample Survey Technologies." Choices. Third Quarter, 1989.

Folsom, J. 2003. "Measuring the Economic Impact of Cooperatives in Minnesota." RBS Research Report 200. USDA , Rural Business-Cooperative Service, Washington, D.C. 23 pages.

Henehan, B. and A. Ferguson. 1992. "The Education and Service Needs of Cooperatives in the Northeast: A Needs Assessment Survey." Northeastern Cooperative Council, Ithaca, NY. October.

Herman, R. and M. Fulton. 2001. "An Economic Impact Analysis of the Cooperative Sector in Saskatchewan, Update 1998." Centre for the Study of Cooperatives, University of Saskatchewan. Online [http://www.usaskstudies.coop/research/past\\_research/impactrev.php](http://www.usaskstudies.coop/research/past_research/impactrev.php) . Accessed October 2006.

Kenkel, P, S. Barta, and M. Woods. 2003. "Economic Impact of Oklahoma Cooperative on the State Economy." Stillwater, OK: Oklahoma State University, Dept. of Agricultural Economics, 24 pp.

Kenkel, P. and R. Holcomb 2005. "Feasibility Templates for Value-Added Manufacturing Businesses," *Journal of Food Distribution Research*, 36(1): 232-235.

Leistritz, F. 2003. "Measuring the Economic Impact of Producer Cooperative." Pp 247-261 in *cooperatives and Local Development: Theory and Applications for the 21<sup>st</sup> Century*, C Merrett and N. Walzer, eds. Armonk, NY: M.E. Sharp.

Lindall, S. and D. Olson. 2004. "The IMPLAN Input-Output System." Stillwater, MN: MIG, Inc. Online <http://www.implan.com/index.html>.

Loveridge, S. 2004. :A Typology and Assessment of Multi-sector Regional Economic Impact Models. *Regional Studies* 38:305-317.

McNamara, K., J. Fulton, and S. Hine. 2001. "The Economic Impacts Associated with Locally Owned Agricultural Cooperatives: A Comparison of the Great Plains and the Eastern Cornbelt." Paper presented at the NCR-194 meeting. Department of Agricultural Economics, Purdue University, West Lafayette, IN, 13 pp.

National Cooperative Business Association. 2005. "Cooperative Businesses in the United States: A 2005 Snapshot." Washington, D.C. October.

National Corn Growers Association. 2006. "Taking Ownership of Grain Belt Agriculture." Online [http://www.ncga.com/public\\_policy/takingOwnership/index.htm](http://www.ncga.com/public_policy/takingOwnership/index.htm). Accessed October 2006.

Rickman, D. and R. Schwer. 1995. "A Comparison of the Multipliers of IMPLAN, REMI, and RIMS II: Benchmarking Ready-made Models for Comparison." *The Annals of Regional Science* 29:363-374.

Siegelman, H. and D. Otto. 2004. "The Economic Impact of Iowa's Electric Cooperatives." Strategic Economics Group Whitepaper. Online [http://www.iowarec.org/public/economic\\_impact/economicimpactWhitePaper.doc](http://www.iowarec.org/public/economic_impact/economicimpactWhitePaper.doc). Accessed October 2006.

The Cooperative Information Consortium. 1984. "Finding Co-ops: A Resource Guide and Directory." The Cooperative Information Consortium, Washington, D.C.

Trechter, D. 2001. "The Impact Of New Generation Cooperatives On Their Communities." RBS Research Report 177. USDA, Rural Business-Cooperative Service, Washington, D.C. 92 pages.

United States Department of Agriculture, Rural Business-Cooperative Service. 2006. Online <http://www.rurdev.usda.gov/rbs/coops/fedregreic.pdf>. Accessed October 2006.

Zeuli K., G. Lawless, S. Deller, R. Cropp, and W. Hughes. 2003. "Measuring the Economic Impact of Cooperatives: Results from Wisconsin." RBS Research Report 196. USDA, Rural Business-Cooperative Service, Washington, D.C. 14 pages.