



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

ECONOMIC IMPACTS OF COOPERATIVES IN NORTH DAKOTA, 1996

Sanjib Bhuyan and F. Larry Leistritz *

Introduction

This report provides estimates of the contributions of North Dakota cooperatives in the state economy, using key economic indicators such as total business activity, employment, and tax revenue. The estimates are based on actual expenditures of 235 North Dakota cooperatives in 1996 and their projected expenditures for 1997.

North Dakota is known throughout the United States for its leadership role in cooperative development. Currently there are over 440 cooperatives in the state, and most of them are agriculture related, dealing with agricultural inputs (farm supplies and services) or output marketing (Figure 1). In general, these cooperatives were formed to achieve higher prices for their member-farmers' produce or to provide farm supplies, including energy and credit, at a more competitive rate than other forms of business. This study found that cooperatives are important components of the North Dakota economy, making substantial contributions in terms of employment, business activity, taxes and community services.

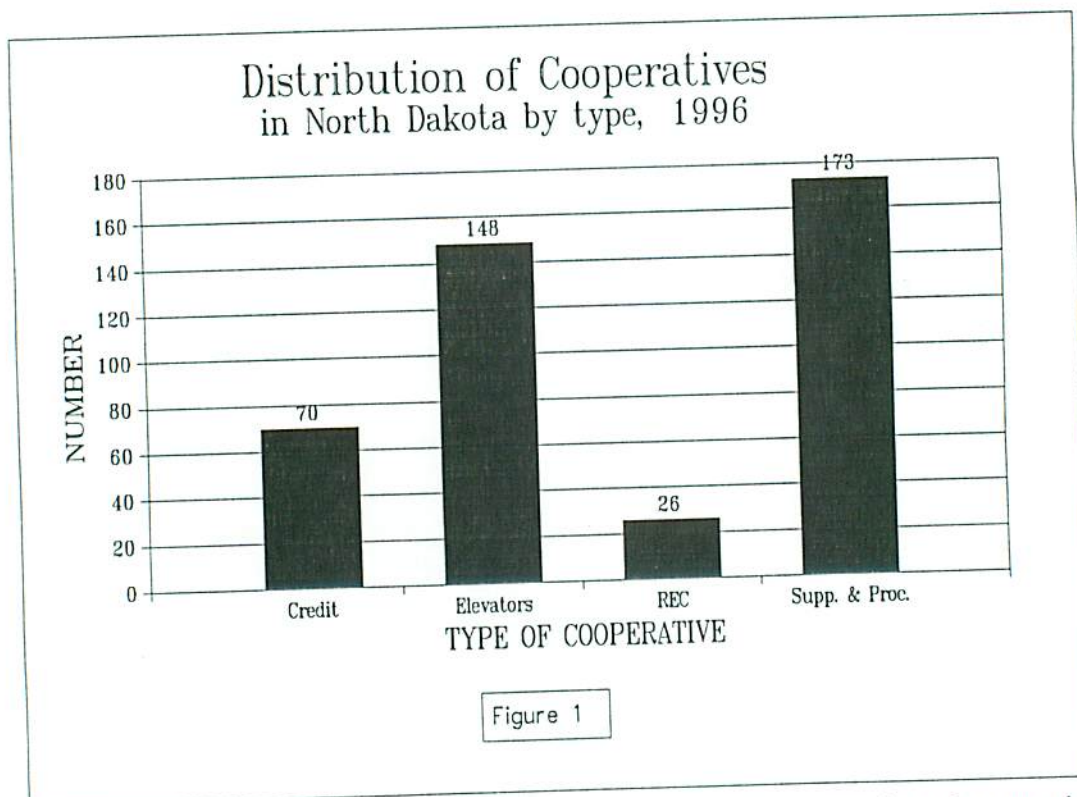


Figure 1

REC= rural electric cooperatives; Supp. & Proc.= agricultural supply and processing cooperatives.

* Authors are, respectively, Research Associate, Quentin Burdick Center for Cooperatives, and Professor, Department of Agricultural Economics, North Dakota State University, Fargo.

Research Method

Economic impact analysis, or economic contribution analysis of a firm (or group of firms as in this study) or an industry in an area (the state of North Dakota in this study), is defined by Coon and Leistriz (1986) as the effect that employment, revenues, taxes paid, and expenditures of that firm (or group of firms) or an industry will have on the state or regional economy in terms of economic variables (i.e., personal income, retail trade activity, and total business activity). Gathering information such as annual revenue, number of employees, plans for future hiring, annual taxes paid, and money spent and planned on new and upgraded facilities from North Dakota cooperatives was the first step in the economic impact assessment.

The analytical methods used in this study are similar to those described in previous impact studies (Coon and Leistriz, 1986; Leistriz, 1995). First, a survey questionnaire (see Appendix A), developed by the North Dakota Coordinating Council for Cooperatives and North Dakota Farmers' Union, was sent to all 445 registered cooperatives in North Dakota. A list of these cooperatives was obtained from the Corporate Division of the North Dakota Secretary of State's office in Bismarck in March 1996. The survey questionnaire was used to obtain each cooperative's annual revenue, number of employees, annual payroll, annual property taxes paid, dollars spent on new/upgraded facilities, future spending plans on facilities, plans for future hiring, and community services rendered for the fiscal year 1995. Survey response was over 53%, or 235 of the listed 445 cooperatives responded to the survey. Among the 445 registered cooperatives in North Dakota, almost 40 cooperatives were either out of business or have yet to start operation.

The information collected in the survey was applied to the North Dakota input-output (I-O) model to estimate the contributions made by the cooperatives to the state's economy. The impacts of cooperative activities in North Dakota in 1996 are categorized into direct and secondary economic impacts. Direct economic impacts are changes in employment or income from the initial expenditures on payroll and expenditures for new or upgraded facilities by these cooperatives. Secondary economic impacts result from subsequent rounds of spending and respending within the North Dakota economy. Input-output analysis traces linkages (i.e., the amount of spending and respending) among sectors of an economy and estimates the total business activity resulting from a direct impact in a particular business sector, such as construction.

Expenditures for payroll and for new or upgraded facilities reported by cooperatives responding to the survey were adjusted to approximate totals for the industry. These expenditures were then applied to the North Dakota input-output (I-O) model to estimate the total economic contribution of North Dakota cooperatives. The I-O model uses interdependence coefficients, or multipliers, that measure the level of total gross business volume or gross receipts generated in each sector of the state's economy from an additional dollar of sales to final demand in a given sector. When cooperatives' expenditures are applied to these interdependence coefficients, estimates of the cooperatives' contribution to gross receipts in each of the state's economic sectors are obtained. These estimates of gross business volume are then used to estimate secondary employment and state tax revenues, based on historic relationships. All values in this analysis are expressed in terms of current year dollars (nominal) dollars.

Results

Estimated direct impacts of different types of North Dakota cooperatives are summarized in Table 1. Amounts reported by the 235 cooperatives that responded to the survey were adjusted, based on the percentage of cooperatives of each type that responded, to approximate industry totals. Annual payroll of North Dakota's cooperatives was estimated to be about \$251.4 million, while their annual expenditures for new or expanded/upgraded facilities were estimated at \$158.4 million. Thus, the direct expenditure by North Dakota cooperatives amounted to \$409.9 million. Direct employment of these firms was estimated to be 8,716 workers (Figure 2). Based on Bureau of Census data, the direct employment by cooperatives in North Dakota is equivalent to almost 3% of total state employment. Respondents projected a total of 1,200 new jobs for 1997.

Table 1. Estimated Direct Impacts of North Dakota Cooperatives, 1996

Type of cooperative	Annual payroll	Annual expenditures for new or updated facilities -----(\$000)-----	Direct employment (number)	Number of firms ^a
Credit	18,298	2,022	615	70
Country elevators	50,250	39,402	1,879	148
Rural electric	22,830	36,621	591	26
Agricultural supply & processing	160,063	80,380	5,631	173
Totals	251,441	158,425	8,716	417

^a Does not include rural telephone cooperatives and miscellaneous cooperatives such as water cooperatives.

Among the responding cooperatives, *agricultural supply and processing cooperatives* were the largest employer (Figure 2) and the largest spender on new or upgraded facilities, followed by *cooperative country elevators* (Figure 3). This is not surprising considering that the agriculture sector plays a vital role in the North Dakota economy -- the agricultural sector was the third largest employer and fourth largest contributor to the state economy in 1990, the last data available, according to the U.S. Bureau of Census (1994).

The direct economic expenditures North Dakota cooperatives make in the state and local economy were applied to the North Dakota interdependence coefficients, or multipliers, to estimate the associated impacts. This linkage resulted in estimates of business activity, secondary employment, and selected tax revenue collections. When the direct expenditures were applied to the I-O multipliers, the total economic contribution of North Dakota's cooperatives was estimated to be over \$1.16 billion (Table 2). That is, the \$409.9 million in direct expenditures from the 235 North Dakota cooperatives generated total business activity in excess of \$1.16 billion. Based on Bureau of Census data, the total business activity generated by cooperatives in North Dakota is equivalent to almost 15% of total business activities in retail and service sectors in the state. The secondary impact was over \$750 million in nine sectors (Table 2) of the North Dakota economy. For example, direct expenditures by North Dakota cooperatives resulted in over \$252 million in retail sales. Sectors with substantial impacts include *households* (personal income), *retail trade*, and *construction* (Figure 4).

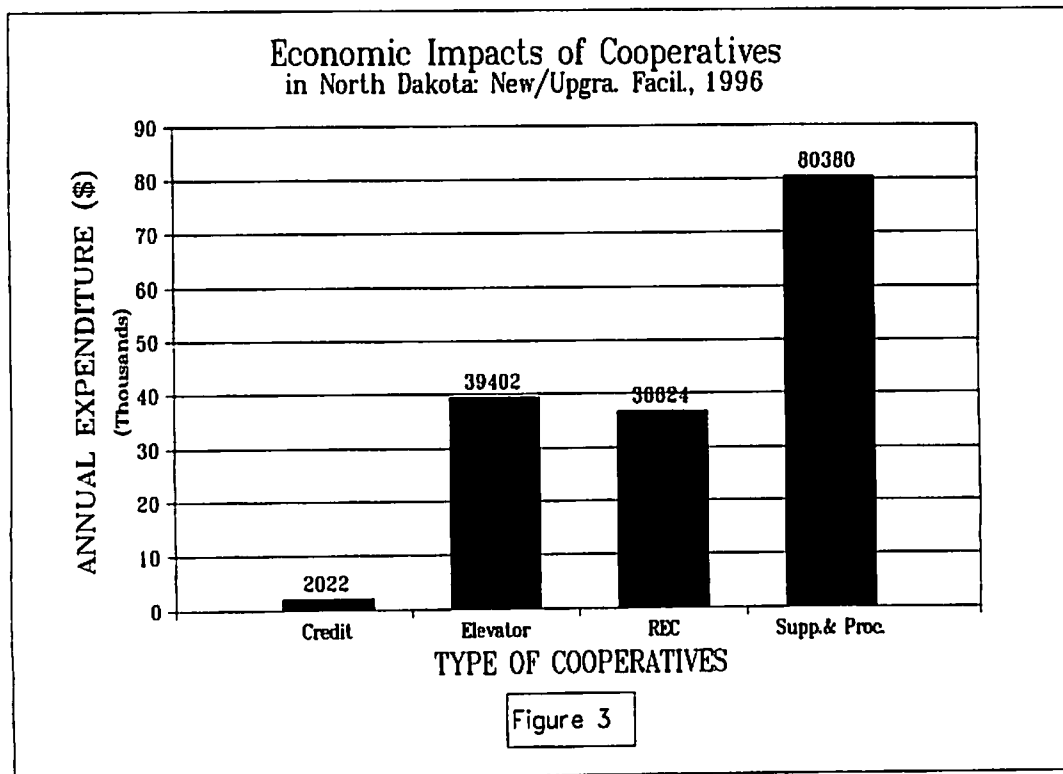
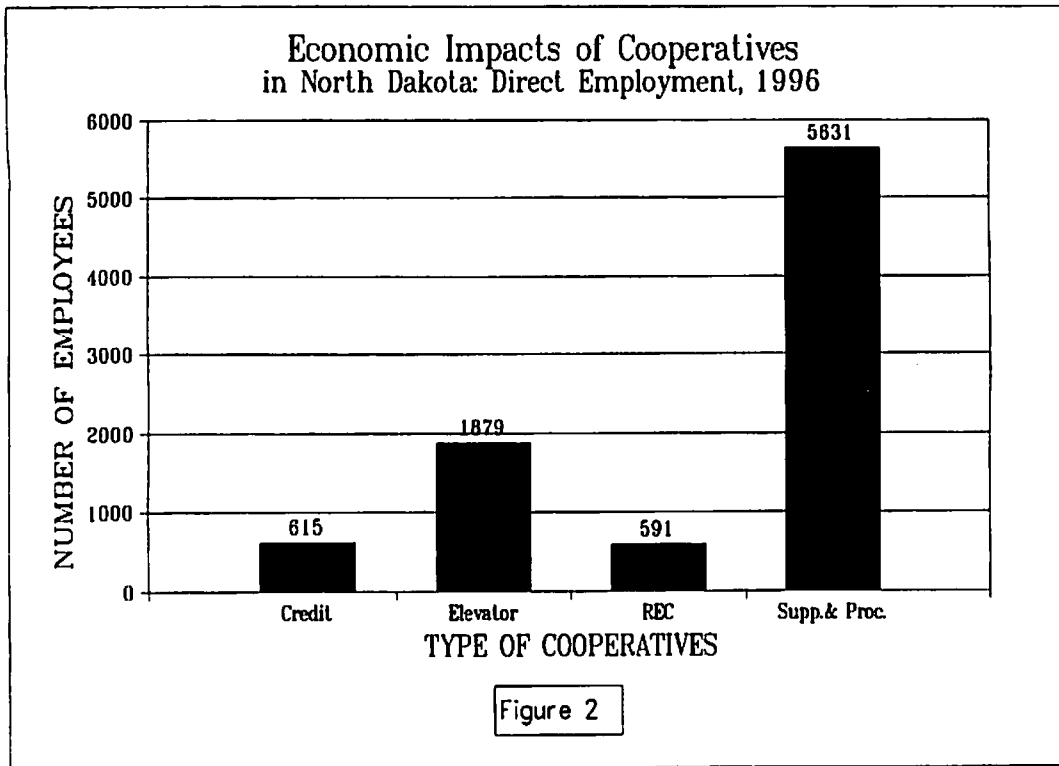
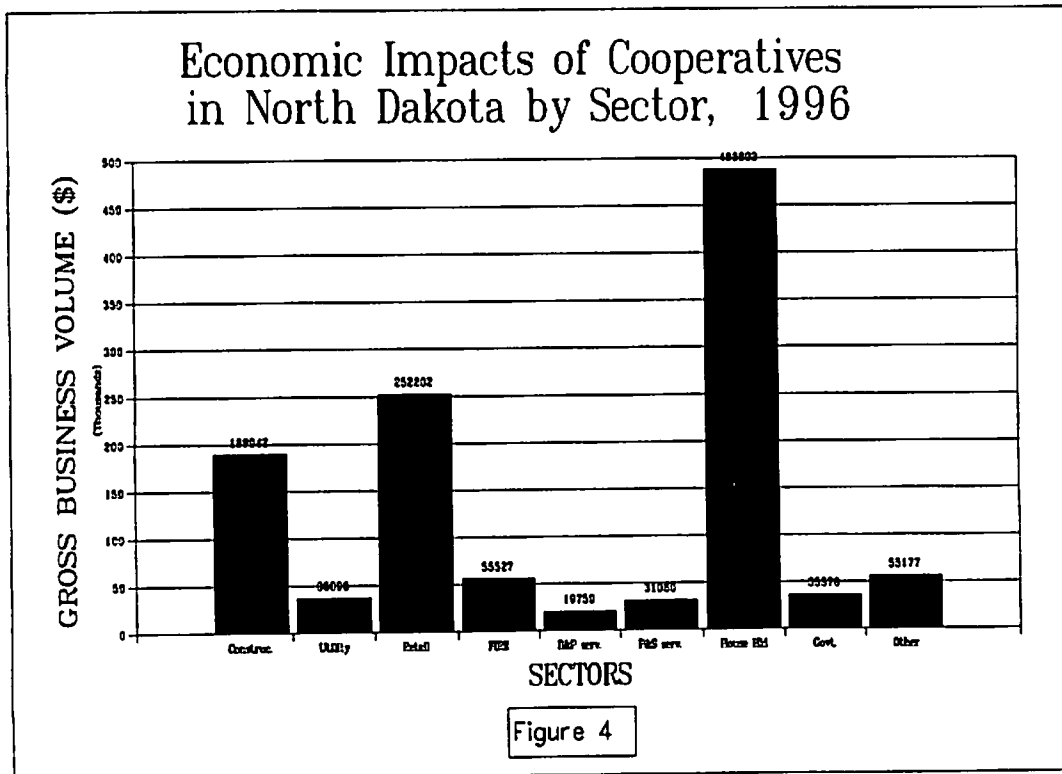


Table 2. Estimated Total Economic Impacts of North Dakota Cooperatives, 1996

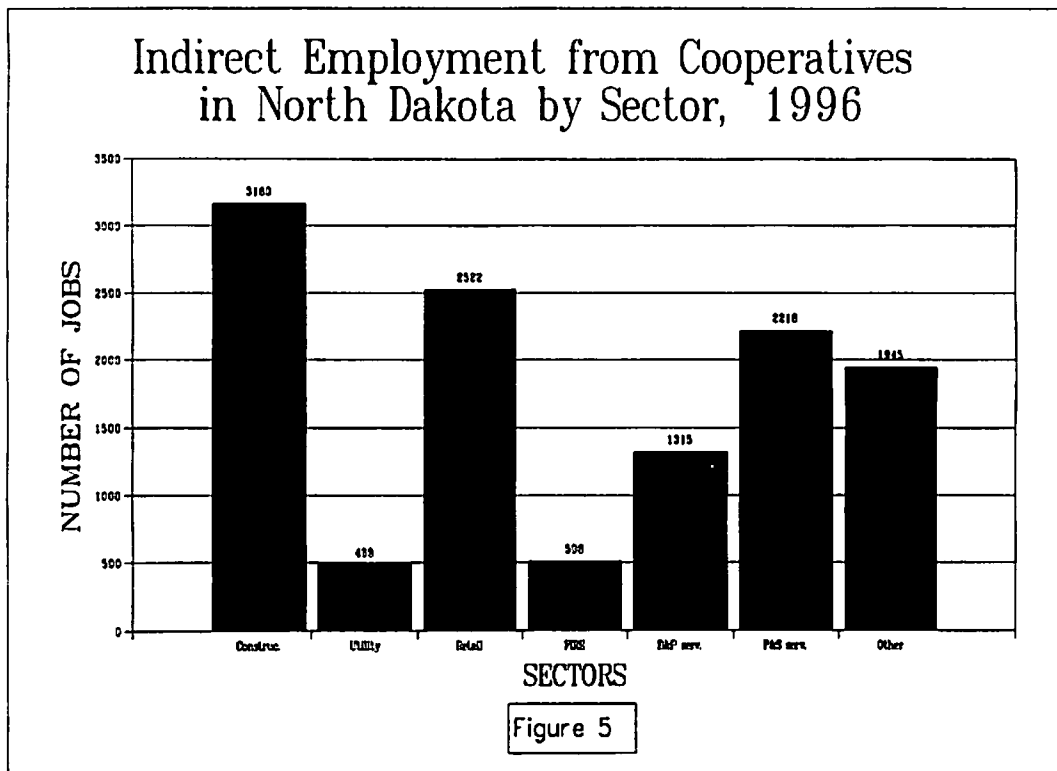
Sector	Gross business volume (\$000) (direct & secondary)	Jobs created (no.) (secondary)
Construction	189,042	3,160
Commercial & Public Utilities	36,096	488
Retail Trade	252,202	2,522
Finance, Insurance & Real Estate	55,527	506
Business & Personal Services	19,759	1,315
Professional & Social Services	31,060	2,218
Households	486,802	NA
Government	35,378	NA
Other	55,177 ^a	1,945 ^b
Totals	1,161,043	12,154

^a Includes agriculture, mining, transportation, and manufacturing; ^b Includes those in note a plus government; NA = not applicable.



Construc. = construction; FIRE = finance, insurance & real estate; B&P serv. = business and personal services; P&S serv. = professional and social services; House Hld. = house holds; Other = includes agriculture, mining, transportation, and manufacturing.

Direct expenditures by North Dakota cooperatives also create secondary, indirect and induced, employment in the state. Economic impacts associated with cooperative operations support about 12,154 secondary jobs (slightly over 4% of total state employment), in addition to the estimated 8,716 persons employed directly by these cooperatives (Table 2). Thus, for every job created within the cooperative sector in North Dakota, another 1.4 jobs are created to provide goods and services within the economy. Sectors with substantial numbers of secondary jobs include *construction, retail trade, professional and social services, and business and personal services* (Table 2 and Figure 5).



Other = includes agriculture, mining, transportation, manufacturing, and government

These economic measures, i.e., total business activity and indirect employment, are indicators of the contributions to the North Dakota economy resulting from direct expenditures by the sample cooperatives. These impact estimates are conservative because the analysis did not include these cooperatives' other in-state expenditures, e.g., for such items as purchasing supplies and utility services, or their investments in other cooperatives in the state. Thus, the secondary impact of such expenditures was not estimated.

The economic impacts of the North Dakota cooperatives resulted in substantial state tax revenues, both indirect and direct. For instance, estimated tax revenues (Table 3) show that added revenues from three major state taxes amounted to about \$19.9 million annually (almost 2.7% of total state taxes, based on data provided by the North Dakota Office of State Tax Commissioner), the highest accrued from *sales and use tax* (almost \$11.7 million).

Table 3. Estimated State Tax Revenue Resulting From Economic Contribution of North Dakota Cooperatives,^a 1996

Type of tax	Dollars (\$000)
Sales and Use	11,677
Personal income	6,328
Corporate income	1,884
Total	19,889

^a These tax revenues are in addition to taxes paid directly by the cooperatives.

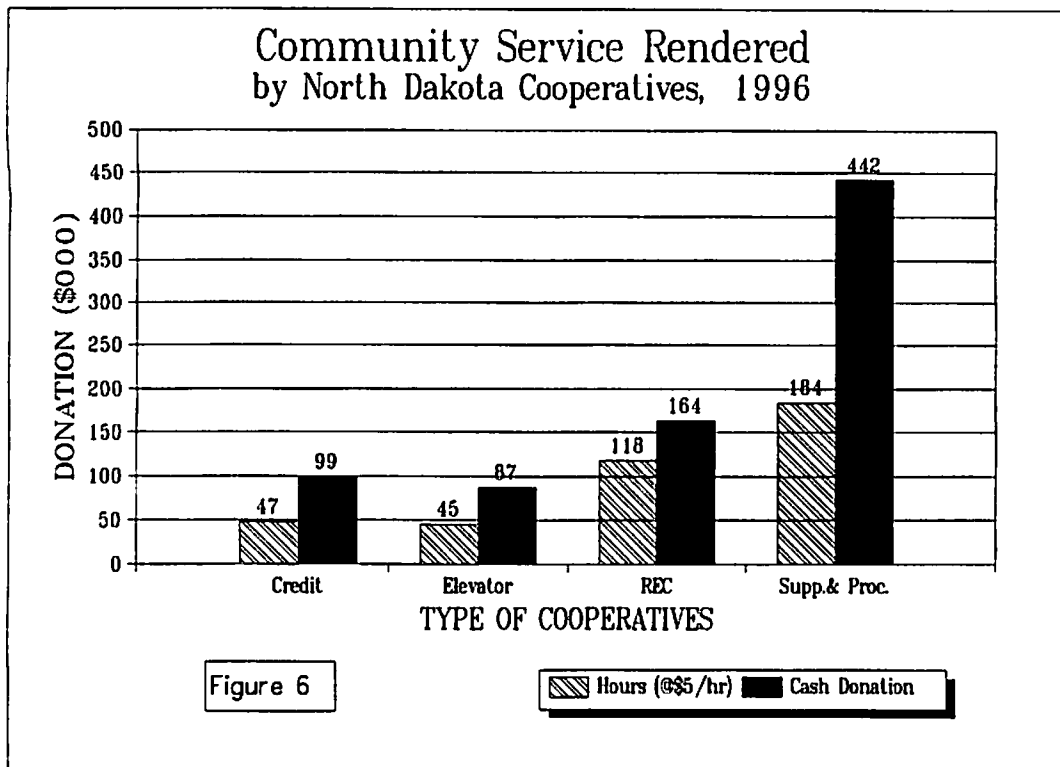
Tax revenues reported in Table 3 are those arising from the secondary impacts of cooperative operations. These estimates are in addition to the taxes paid directly by cooperatives. Based on the survey data, sample cooperatives paid over \$21 million in local property taxes in 1996, which is equivalent to almost 5.5% of total state property taxes and over 2.8% of gross taxes collected in North Dakota (based on tax data provided by the North Dakota Office of State Tax Commissioner). So, the total impact of cooperatives in terms of tax revenue is about \$41 million (almost 5.5% of total state taxes).

Cooperatives in North Dakota are also involved in community activities. The 235 responding cooperatives and their employees have donated over \$790,000 in cash and almost 79,000 hours of community services, including donations to local charities, fund raisers, and community projects, in 1996 (Table 4). Total contributions are much more than this because the reported results do not include over 170 non-responding cooperatives in the state. Among different kinds of cooperatives in the state, *agricultural supply and processing cooperatives* donated the largest amount of time and money to their local communities (Figure 6).

Table 4. Community Service rendered by North Dakota Cooperatives,^a 1996 (N=235)

Type of cooperative	Hours of service	Cash donations (\$000)
Credit	9392	99
County elevators	9000	87
Rural electric	23,615	164
Agricultural supply & processing	36,795	442
Total	78,802	792

^a Does not include rural telephone cooperatives (RTCs).



Note: donated community service hours are converted to dollar amount @\$5.00 per hour for ease of presentation.

Concluding Remarks

North Dakota is well known as a leader in the cooperative movement throughout the United States. There are over 440 cooperatives in the state, mostly dealing with agriculture related activities such as farm supplies, farm credit, and output marketing (including agricultural processing). A survey of 235 North Dakota cooperatives reveals that they were directly responsible for providing employment to over 8,700 people or almost 3% of state employment, at an annual payroll of almost \$252 million in 1996. Cooperatives paid over \$21 million dollars in local property taxes in 1996, which is nearly 3% of total state taxes. These cooperatives plan to create about 1,200 new jobs in 1997 in North Dakota. In addition, cooperatives were also involved in community activities--the survey shows that those 235 cooperatives that responded donated almost 79,000 hours of community service and over \$790,000 in cash to local charities, fund raisers and community projects.

An input-output analysis of the reported expenditures on payroll and facilities of the surveyed cooperatives showed indirect or secondary impacts of these cooperatives on the North Dakota economy. The total economic contribution of cooperatives was estimated to be almost \$1.2 billion in business activities, which is equivalent to 15% of total business activities in the state's retail and service sectors. Cooperative activities in the state also indirectly created over 12,000 jobs (slightly over 4% of total state employment) and generated almost \$20 million in state tax revenues or almost 2.7% of total state taxes. These impact estimates are conservative because the analysis did not include these cooperatives' other in-state expenditures, e.g., for such items as purchasing supplies and utility services, or their investments in other cooperatives. Nonetheless, this study shows that cooperatives in North Dakota play a vital role in the state's economy and make substantial contributions in terms of employment, total business activity, taxes, and community services.

References

Coon, R. C. and F. L. Leistritz. *North Dakota Lignite Industry's Contribution to the State Economy*, Agr. Econ. Misc. Rpt. No. 99, Department of Agricultural Economics, North Dakota State University, Fargo, 1986.

Leistritz, F. L. *Potential Local Economic Impacts of the Proposed ProGold Processing Plant*. Agr. Econ. Rpt. No. 328, Department of Agricultural Economics, North Dakota State University, Fargo, 1995.

North Dakota Office of State Tax Commissioner (Research Section). Contacted by the first author during preparation of this report, 1996.

U.S. Bureau of Census. *Statistical Abstracts of the United States, 1994*, U.S. Department of Commerce, Washington, D.C., 1994.

APPENDIX A

CO-OP SURVEY

THIS INFORMATION WILL BE KEPT CONFIDENTIAL

Name of Cooperative _____

Address _____

Signed _____

Annual Sales \$ _____ Annual Savings \$ _____

Total cash paid out since co-op was organized \$ _____

Number of Patrons _____

Number of employees: Full time _____ Part time _____

Annual payroll \$ _____ Annual property taxes \$ _____

Products & Services offered now that weren't offered five years ago

How many dollars were spent on new/updated facilities in the past two years?

\$ _____

How many dollars do you intend to spend on facilities in the next two years?

\$ _____

How many employees do you plan on hiring in the next two years? _____

Is there any specific training you'd like these employees to have prior to employment?

Number of hours employees donate to community service/activities _____

Types of community service employees are involved in _____

Annually, how many dollars does your co-op donate to community/school/youth activities, etc. \$ _____