



**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](mailto: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.*

# Economic Contribution North Dakota Cooperatives Make to the State Economy

Randal C. Coon and F. Larry Leistritz\*

Measuring the economic contribution a specific firm, crop, or industry makes to the state's economy provides valuable economic indicators. The importance of these indicators is reflected in the large number of entities that have commissioned studies to determine these values. Included in this group are the lignite, potato, sugarbeet, wheat, barley, and bison industries plus several individual agricultural processing enterprises. This study will not look at a specific industry, but rather several industries organized under the cooperative business structure. North Dakota is recognized throughout the United States for its leadership role in cooperative development (Bhuyan and Leistritz 1996), so estimating the economic contribution these businesses make to the state's economy is important. This report will provide estimates of the contribution North Dakota cooperatives make to the state's economy in terms of key economic indicators such as retail trade, personal income, total business activity, employment, and tax revenue.

## METHODOLOGY

North Dakota currently has 337 cooperatives (USDA 1999; North Dakota Credit Union Online 2001) with most related to agriculture (farm supply, agricultural processing, and grain handling). In addition, 27 utility and 62 credit union cooperatives are operating in the state (Figure 1). These cooperatives were formed to help vertically integrate farmer-produced raw materials and to provide farm supplies, energy, and credit for their members.

Expenditures of cooperatives operating in North Dakota constitute the basic data for this study. A survey instrument was developed to obtain cooperatives' in-state expenditures. The questionnaire was distributed to all cooperatives in North Dakota by the North Dakota

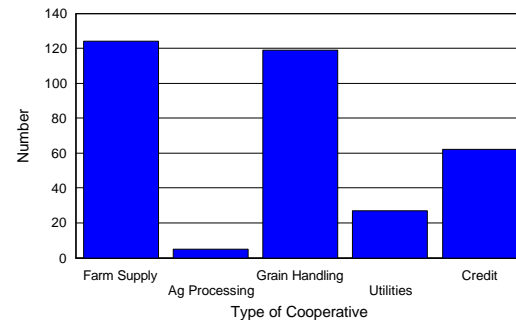


Figure 1. Cooperatives Operating in North Dakota, by Service Type, 2000

Coordinating Council for Cooperatives in January 2001. A total of 137 useable survey instruments were returned from the five cooperative types. All utility cooperatives returned questionnaires, and representative samples were obtained from the farm supply, agricultural processing, grain handling, and credit cooperatives. Mean values were determined for each expenditure category for each cooperative type. These values were applied to the respective number of cooperatives to estimate total in-state expenditures for each cooperative type. It was not the intent of this study to analyze the economic contribution for each cooperative type, but rather for all cooperatives in the state.

Expenditures for the five cooperative types were summed and analyzed collectively, but it is interesting to look at total in-state expenditures by cooperative type. Agricultural processing cooperatives had the largest in-state expenditures in 2000 (Figure 2). The primary reason for in-state expenditures from agricultural processing cooperatives being larger than those for grain handling cooperatives, lies in the structure of the survey instrument. Processors reported their purchases of raw product inputs as in-state

\*Research specialist and professor, Department of Agribusiness and Applied Economics, North Dakota State University, Fargo. Financial support for this study was provided by the North Dakota Coordinating Council for Cooperatives.

## RESULTS

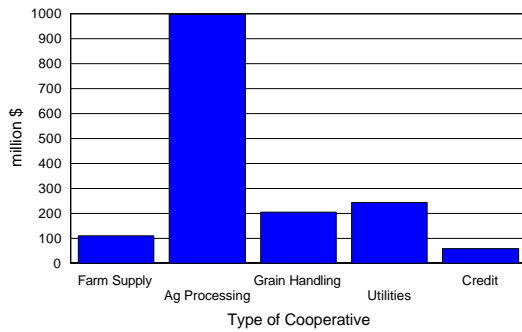


Figure 2. Total Annual In-State Expenditures by Cooperatives Operating in North Dakota, by Service Type, 2000

expenditures. Grain handling cooperatives did not report their grain purchases as in-state expenditures, only the net difference between sales and purchases was reported on the questionnaire. Although agricultural processing cooperatives made large expenditures for raw products purchased in North Dakota, these purchases would not be as much as the outlays for grain by cooperative grain elevators.

The North Dakota Input-Output Model was used to analyze the economic contribution of cooperatives to the state. The model uses interdependence coefficients, or multipliers, that measure the level of total gross business volume generated in each sector from an additional dollar of sales to final demand in a given sector. This model applies the industry's expenditures to the interdependence coefficients to estimate business activity by economic sector. For a complete description of the North Dakota Input-Output Model, a listing of the coefficients, and how the model can be used to perform an economic contribution study, see Coon et al. (1985 and 1989). Resulting levels of business activity were used to estimate tax revenue and indirect and induced employment, based on historic relationships (Coon et al. 1992).

Expenditures by North Dakota cooperatives are assumed to work their way through the local economy (via the multiplier process) the same as expenditures of firms in other sectors of the state's economy. All values in this analysis are expressed in terms of current year dollars (i.e., nominal dollars).

North Dakota cooperatives' in-state direct expenditures totaled \$1.6 billion in 2000 (Table 1), based on data provided by the survey. The largest expenditure category was the household sector (\$741.9 million) which was comprised of payroll, patronage refunds, and stock retirement. These expenditures accounted for 46 percent of cooperative expenditures. The second largest expenditure category was for raw products (\$463.6 million) for agricultural processing cooperatives. This reflects the importance of agricultural processing cooperatives' role in obtaining higher prices for their farmer-members. Of the total expenditures cooperatives make in North Dakota, nearly 75 percent were to the household and crops sectors. The largest share of cooperatives' spending was for the purchase of members' products, for workers' salaries, and refunds to members.

Table 1. Estimated North Dakota Direct Expenditures, by Economic Sector, for Cooperatives Operating in North Dakota, 2000

Sector	Expenditure ---million \$---
Ag, Livestock	4.4
Ag, Crops	463.6
Construction	61.7
Transportation	63.3
Communications & Public Utilities	59.1
Retail Trade	74.3
Finance, Insurance & Real Estate	127.3
Business & Personal Service	12.2
Professional & Social Service	1.8
Households	741.9
Total	1,609.6

Direct expenditures North Dakota cooperatives made in-state were applied to the North Dakota Input-Output Model interdependence coefficients (multipliers) to estimate the associated impacts. Estimates of business activity were generated for each sector of the North Dakota economy, but only key measures will be presented in this report. Total economic contribution resulting from cooperatives' direct expenditures was \$5.2 billion in 2000 (Table 2). Cooperative expenditures resulted in \$1.9 billion in personal income, and \$1.2 billion in retail trade activity.

Table 2. Estimated Direct Plus Indirect Personal Income, Retail Sales Activity, Business Activity for all Business Sectors, and Total Business Activity, for Cooperatives Operating in North Dakota, 2000	
Item	Amount --million \$--
Personal income	1,931.3
Retail sales	1,205.4
Business activity for all business sectors <sup>a</sup>	2,432.5
Total business activity	5,183.2
<sup>a</sup> Includes all sectors except agriculture (livestock and crops), household, and government	

Cooperative business activity also contributes to the state tax revenue. Total taxes attributable to the industry were estimated to be \$88.4 million (Table 3). Sales and use tax collections were \$55.8 million, or 63 percent of the total. Direct employment for cooperatives was obtained from the survey. Cooperatives provided full-time jobs for 9,078 workers and part-time employment for another 3,097 people (Table 4). It was not possible to convert the part-time workers to full-time equivalents. Direct expenditures by cooperatives also create secondary, or indirect and induced, employment in the state. Cooperative operations supported another 42,290 secondary jobs in 2000. These are jobs that arise to serve and support the economic activity resulting from cooperatives operating in North Dakota.

Table 3. Estimated State Tax Revenue Resulting from Activities of Cooperatives Operating in North Dakota, 2000	
Tax	Revenue -----million \$-----
Sales & use	55.8
Personal income	25.1
Corporate income	<u>7.5</u>
Total	88.4

Table 4. Estimated Direct and Secondary Employment <sup>a</sup> for Cooperatives Operating in North Dakota, 2000	
Employment	Workers
Direct: full-time	9,078
part-time	3,097
Secondary	42,290
<sup>a</sup> Direct full-time and secondary employment are in full-time equivalents, direct part-time is number of workers.	

## CONCLUSIONS

Cooperatives are a popular business organization in North Dakota with over 300 operating in the state in 2000. Cooperatives exist to enhance sale price, or reduce costs for their member-owners. However, they also contribute significantly to the state's economy. Direct expenditures by cooperatives result in higher levels of business activity, tax revenues, and employment.

Cooperatives' expenditures in 2000 were in excess of \$1.6 billion. These outlays resulted in higher levels of personal income (\$1.9 billion), retail trade (\$1.2 billion), and total business activity (\$5.2 billion). State-level business activity levels for each of the North Dakota Input-Output Model sectors were available for 1999 (Coon and Leistriz 2001), the last year data were available. Comparing business activity resulting from cooperative operations with state-level data shows that personal income attributed to cooperatives was 15 percent of the state total, retail trade was 12 percent, and all business activity accounted for 12 percent. There are many cooperatives operating in North Dakota, and some are very large business entities, which is reflected in cooperatives' share of state-level economic measures.

Direct employment at cooperatives was 9,078 in 2000. This represents 2 percent of the North Dakota total with many of these jobs in rural parts of the state. An additional 3,097 persons find part-time work at cooperatives, ranging from seasonal to year-around part-time work. Secondary, or indirect and induced, jobs resulting from cooperative business activity amounted to 42,290 jobs. Also, \$88.4 million in tax revenues to the state are attributed to cooperative business activity.

Cooperatives are an important component of the North Dakota economy, making significant contributions in terms of employment, business activity, and taxes. Jobs created by cooperatives

have employed many workers, especially in rural North Dakota. Cooperatives have helped to integrate agricultural processing, thereby adding value to raw materials produced in the state. Goals of cooperatives to increase product prices and reduce costs for their member-owners have helped keep more dollars in the state. Profits from cooperative operations also tend to remain in North Dakota in the form of patronage refunds. All these factors add up to the fact that cooperatives have played a vital role in the North Dakota economy.

## REFERENCES

- Bhuyan, Sanjib and F. Larry Leistritz. 1996. *Economic Impacts of Cooperatives in North Dakota*. AE96009. Fargo: North Dakota State University, Quentin Burdick Center for Cooperatives and Department of Agricultural Economics.
- Coon, Randal C., F. Larry Leistritz, and Thor A. Hertsgaard. 1989. *North Dakota Input-Output Economic Projection Model (NDIO/EPM): Documentation and User's Guide*. Agr. Econ. Software Series No. 4. Fargo: North Dakota State University, Dept. of Agr. Econ.
- Coon, Randal C., F. Larry Leistritz, Thor A. Hertsgaard, and Arlen G. Leholm. 1985. *The North Dakota Input-Output Model: A Tool for Analyzing Economic Linkages*. Agr. Econ. Rpt. No. 187. Fargo: North Dakota State University, Dept. of Agr. Econ.
- Coon, Randal C., F. Larry Leistritz, and T. Alexander Majchrowicz. 1992. *The Role of Agriculture in the North Dakota Economy*. Agr. Econ. Stat. Series No. 50. Fargo: North Dakota State University, Dept. of Agr. Econ.
- Coon, Randal C. and F. Larry Leistritz. 2001. *North Dakota Input-Output Model Data Base*. Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.
- North Dakota Credit Union Online. 2001. *North Dakota Credit Union League & Affiliates Statistics*. 1999. Bismarck, ND: North Dakota Credit Union Website.
- U.S. Department of Agriculture, Rural Business Cooperative Service. 1999. *Farmers Cooperative Statistics. Rural Business Survey Report #59*. Washington, D.C.: U.S. Government Printing Office.

## NOTICE:

The analyses and views reported in this paper are those of the author(s). They are not necessarily endorsed by the Department of Agribusiness and Applied Economics or by North Dakota State University.

North Dakota State University is committed to the policy that all persons shall have equal access to its programs, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation.

Information on other titles in this series may be obtained from: Department of Agribusiness and Applied Economics, North Dakota State University, P.O. Box 5636, Fargo, ND 58105. Telephone: 701-231-7441, Fax: 701-231-7400, or e-mail: [cjensen@ndsuxt.nodak.edu](mailto:cjensen@ndsuxt.nodak.edu).

Copyright © 2001 by Randal C. Coon and F. Larry Leistritz. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.