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**The Economic Contribution  
of North Dakota Cooperatives  
to the North Dakota State Economy**

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## TABLE OF CONTENTS

|  | <u>Page</u> |
|--|-------------|
| Executive Summary .....  | iii         |
| Section 1: Introduction.....   | 1           |
| Section 2: Economic Contribution Analysis Methodology .....                  | 1           |
| 2.1 Cooperatives in the North Dakota Economy .....                           | 1           |
| 2.2 Use of Input/Output Models .....   | 2           |
| 2.3 Overview of the Input/Output Models.....                                 | 3           |
| 2.4 The IMPLAN Model and Its Application to North Dakota Cooperatives.....   | 4           |
| Section 3: The North Dakota Cooperative Business Sectors.....                | 4           |
| 3.1 Telecommunications .....   | 5           |
| 3.2 Electricity.....   | 7           |
| 3.3 Agricultural Supply and Marketing .....                                  | 8           |
| 3.4 Finance.....   | 9           |
| Section 4: Economic and Fiscal Contributions.....                            | 9           |
| 4.1 Cooperative Business Effects on North Dakota Gross Business Volume ..... | 10          |
| 4.2 Local and State Taxes .....  | 11          |
| 4.3 Economic Contributions to North Dakota .....                             | 11          |
| 4.4 Economic Contribution to Local Industry .....                            | 12          |
| 4.5 Summary .....  | 14          |

## LIST OF TABLES

| <u>Table</u>  | <u>Page</u> |
|---|-------------|
| 1. Telephone Cooperatives in North Dakota.....  | 6           |
| 2. Economic Contribution of North Dakota Telecommunication Cooperatives, 2010.....  | 6           |
| 3. Electricity Cooperatives in North Dakota.....  | 7           |
| 4. Economic Contribution of North Dakota Telecommunication Cooperatives, 2010.....  | 8           |
| 5. Economic Contribution of North Dakota Agricultural Cooperatives, 2010.....   | 8           |
| 6. Economic Contribution of North Dakota Finance Cooperatives, 2010.....  | 9           |
| 7. Ten North Dakota Economic Sectors Most Affected by Cooperative Business<br>Volume, 2010 .....                                  | 10          |
| 8. Total State Taxes Contributed by Cooperative Gross Business Volume, 2010 .....   | 11          |
| 9. Economic Impact of North Dakota Cooperatives, 2010.....  | 12          |
| 10. Ten North Dakota Economic Sectors Most Affected by Cooperative Business<br>Volume, by Cooperative Business Sector, 2010 ..... | 13          |

## **Executive Summary**

Cooperatives are a vital component of the North Dakota economy. Owned by their customers or by privately-held firms, cooperatives provide a variety of goods and services to North Dakota. Based on data provided by the North Dakota Secretary of State, 332 businesses operating in North Dakota identified themselves as cooperatives in 2010; 256 are headquartered in the state.

The economic contribution of the North Dakota cooperatives reaches beyond the local communities where they are headquartered. In 2010, the operations of electric, credit, farm supply and farm output marketing, and telecommunication cooperatives headquartered in North Dakota generated \$3.5 billion of gross business sales. These sales led to secondary business volume of \$2.1 billion. Hence, these 256 cooperatives made a total economic contribution to the state economy of \$5.6 billion.

The economic contribution of cooperatives is also comprised of jobs, labor income and tax revenue to the state. The 256 cooperatives featured in this study employ approximately 8,000 people on a full time basis in North Dakota. These employees were paid approximately \$1.1 billion in wages and benefits. After the cost of goods sold, the principal expenditure of the cooperatives in North Dakota is employee compensation. The gross sales generated by the cooperatives, and the expenses generated by cooperative employee household spending generated an additional 17,000 full time jobs and \$0.6 billion in wages and benefits in the North Dakota economy. Together, these activities generated a corporate, payroll and personal taxes contribution of \$342 million to the state.

## **Section 1: Introduction**

This economic contribution study, conducted by the Quentin Burdick Center for Cooperatives, at North Dakota State University, examines the economic, fiscal and other benefits provided by the cooperatives operating in the North Dakota state economy. These include direct contributions, such as employment by the cooperatives, expenditures within the state and corporate tax payments; and indirect contributions, including jobs created indirectly by co-op expenditures in the local economy.

Several of the 256 cooperatives headquartered in North Dakota participated in developing this study. One hundred forty three of these companies provided data on employment, revenues, operating expenditures and tax payments, as well as guidance on particular details specific to North Dakota and their business operations. Where possible, financial information about the remaining companies was estimated based on the financial information received from other firms. The Quentin Burdick Center for Cooperatives conducted the study and applied a nationally recognized model to estimate the direct and indirect contributions of the firm on the local community. MIG, a research organization in Minneapolis, MN, developed the software employed in this analysis.

The remainder of this report contains five sections. Section 2 discusses the methodology used to complete the study and “Impact Analysis for Planning,” the economic modeling software used for this report. Section 3 provides background on the North Dakota cooperatives, including costs, employment, taxes, and statewide details. Section 4 examines the economic and fiscal contributions of the cooperatives at the state level.

## **Section 2: Economic Contribution Analysis Methodology**

The methodology used to estimate the economic contributions of the North Dakota cooperatives is called input/output analysis. This method allows systematic analysis of the economic links among geographic regions by virtue of their distribution of industrial purchases. In this section, the population of cooperatives considered in this study is presented and the geographic scope of the report is described. The methodology, underpinnings and typical applications of input/output analysis are discussed. It also describes how cooperative business data and the IMPLAN model estimate the statewide economic contributions of cooperative business operation.

### **2.1 Cooperatives in the North Dakota Economy**

Cooperatives incorporate as a legal entity under statutes providing parameters for governance and operation. This incorporation process occurs at the state level. Specific state statutes define and describe the legal requirements for different types of entities, including cooperatives. Because the incorporation status of an organization provides some indication of its structure and operation, it is a potential indicator of whether an organization is a cooperative.

The North Dakota Secretary of State collects registrations for all corporations doing business in North Dakota. In connection with this registration, each corporation selects a

business structure under which to operate, including proprietorships, partnerships, and cooperative associations. A query was made of the database maintained by the North Dakota Secretary of State for all corporations actively doing business in the state which identify themselves as cooperatives. This query resulted in 332 companies. Only business activity conducted in North Dakota was considered for this analysis. In addition, for ease of data collection, only cooperatives headquartered in North Dakota were considered, with exceptions made for one telecommunications cooperative and one agricultural cooperative. This reduced the number of cooperatives considered from 332 to 256. One hundred forty-three of these companies responded to a request for data. In order to estimate gross sales for the remaining firms, assumptions were made about the relative size of the revenues of these firms when compared with the 143 companies. Based on these assumptions, a proportional estimate of revenues and payroll expenditures were generated and used as inputs for the IMPLAN software. Restricting the scope of this study to cooperative business firms headquartered in North Dakota means the number of cooperatives considered in this study analysis is far smaller than the 400 cooperatives considered in the most recent study of the economic contribution of cooperatives in North Dakota (Coon and Leistritz 2005), which also considered cooperative business activity in the state regardless of where the firm was headquartered.

Cooperatives can also be characterized based on the entity which holds the membership role. In farm output marketing cooperatives, utility cooperatives, and grocery stores, for example, the final customer owns the cooperative and patronizes its services. In other cases, such as hardware stores and hotels, only the franchise owner is the member. This second category was omitted from the analysis. Hence, companies like hardware stores, hotels, and home furnishing retailers are not considered.

## 2.2 Use of Input/Output Models

Input/output models capture input, or demand, and output, or supply, interrelationships for detailed business, industry and government sectors in a geographic region. They also capture the consumption of goods and services for final demand by these sectors and by the household sector. These models typically are used when the following key questions need to be addressed:

- How much spending does an economic activity (such as a power plant) bring to a region or local area?
- How much of this spending results in sales growth by local businesses?
- How much income do local businesses and households generate?
- How many jobs does this activity support?
- How much tax revenue does this activity generate?

Typical applications of these models include facility or military base openings and closings, transportation or other public infrastructure investments, industrial recruitment and relocation, and measuring the contribution of a given industry. The basic geographic region for this study is the state, but model results can be developed at the multi-county, state, multi-state and national levels.



## 2.3 Overview of the Input/Output Methodology

Input/output models link various sectors of the economy by their respective spending flows in a reference year. Because of these linkages, the contribution of an economic activity in any sector or geographic area on other sectors and areas can be modeled. These contributions can extend well beyond the sector and area in which the original economic activity is located. They include not only the direct, or initial, effects of the economic activity, but also the secondary, or “ripple,” effects that flow from this activity. Direct effects are analogous to the initial “splash” made by the economic activity, and ripple effects are the subsequent “waves” of economic activity (new employment, income, production and spending) triggered by the splash. A full accounting of the splash must include the waves, as well as the splash itself.

The sum of the two effects is the total effect, and the ratio of the total effect to the direct effect is the “total effect multiplier,” or simply the multiplier effect. Multipliers can be developed for any industry/business sector or geographic area in the model. Multipliers for a county are smaller than for a larger area, such as the state in which the county is located, because some spending associated with an economic activity migrates from the small area into the larger area. At the local area level, multipliers are larger if the local area produces the types of goods and services required by the firm.

Secondary effects include two components—indirect and induced effects—modeled separately within input/output models. Indirect effects are those influencing the supply chain that feeds into the business/industry sector in which the economic activity is located. For example, when a co-op buys a shovel for \$5, it contributes directly to the economy. Consequently, the company that makes the shovel increases its purchases of steel and wood to maintain its inventory, thus increasing sales in the steel and wood industries. These industries then will have to purchase more inputs for their production processes, and so on. The result will be an economic contribution that is greater than the \$5 initially spent for the shovel.

The increased income of firm employees and other regional workers leads to higher spending at the household level. That increased spending is the induced effect. To illustrate, when a co-op pays \$5 for a shovel, a portion of the \$5 pays the wages of employees at the company that makes the shovel.

Input/output models incorporate several simplifying assumptions. Input/output models assume a fixed commodity input structure. This means the “recipe” for producing a product or service is fixed, both in terms of inputs and process. A second assumption is constant returns to scale. A doubling of commodity or service output requires a doubling of inputs, and a halving of commodity or service output requires a halving of inputs. There is no opportunity for input use relative to commodity or service production levels to change, as those levels expand or contract, so there are no opportunities for either economies or diseconomies of scale. A third assumption is that input/output models assume no input supply or commodity/service production capability constraints. A final assumption is that all firms and technologies within sectors are very similar.

## 2.4 The IMPLAN Model and Its Application to North Dakota Cooperatives

Several software packages are available in the marketplace that perform input/output analysis. Among these are Impact Analysis for Planning (IMPLAN), Regional Economic Models Inc. and Regional Input-Output Modeling System II. The IMPLAN was selected for this study model primarily because of the availability of the model and data sets.

The U.S. Department of Agriculture's Forest Service developed IMPLAN, in cooperation with the Federal Emergency Management Agency and the U.S. Department of the Interior's Bureau of Land Management, to assist in land and resource management planning. In use since 1979, the Minnesota IMPLAN Group Inc. (MIG) supports the model.

The IMPLAN system consists of two components: software and a database. The software performs the necessary calculations using data associated with a defined geographic study area. It also provides an interface for the user to change a region's economic description, create contribution scenarios and introduce changes into the local model.

The IMPLAN software enables at least three functions: data retrieval, model development, and contribution analyses. The IMPLAN database consists of two major parts: national technology matrices and estimates of regional data for institutional demand and transfers, value added, industry output, and employment for each county in the United States, as well as state and national totals. The model's data and account structure closely follow the accounting conventions used in the input/output studies of the U.S. economy by the U.S. Department of Commerce's Bureau of Economic Analysis. The program is, therefore, flexible in that it provides comprehensive data coverage of North Dakota by county and allows the user to provide model-specific information as well.

In applying the IMPLAN model to the North Dakota cooperatives, each cooperative provided three basic types of data: total revenue, employee compensation expenditures and tax payment data for 2010. The revenue and employment data were mapped to an appropriate IMPLAN North Dakota model sector codes by identifying the industry from which the expenditures associated with these revenues were obtained and assigning them an industrial classification code within IMPLAN sector codes. These assignments are made based on the comprehensive model of the North Dakota economy designed by IMPLAN and based on data from the U.S. Department of Commerce. Based on the circular flow of funds between expenses and revenues, total gross sales reflect the full economic contributions of the firm.

These data then were incorporated into the IMPLAN model, which combined specifics of the local economy with data on the economic activity of the cooperatives to provide estimates of their total contributions. Once the data sets were complete, IMPLAN developed the economic contribution estimates detailed in this report.

### **Section 3: The North Dakota Cooperative Business Sectors**

This section provides background information on cooperatives and North Dakota to frame the results of this report, including details on areas served by cooperatives in North Dakota,

earnings, tax collections, and total employment. The three economic contribution variables featured in this section are:

- gross business volume—the value of production of goods and services, including the sum of direct and secondary economic effects
- employment—measured in jobs provided
- labor income—the earnings of labor
- tax revenue—the value of employee-related taxes, taxes generated directly or secondarily by business activity, and state corporate income taxes

• These economic contributions encompass both direct and secondary impacts. The direct impacts reflect the industry-sector and geographical distribution of North Dakota cooperative business spending without any subsequent spending effects. The secondary impacts include subsequent spending effects and are divided into two types: indirect and induced. Indirect effects reflect how the firm’s spending patterns alter subsequent spending patterns among suppliers. Induced effects reflect how changes in labor income influence the final demand for goods and services, which then contributes to all sectors producing basic, intermediate and final goods and services.

### 3.1 Telecommunications

Fourteen cooperatively owned North Dakota Rural Local Exchange Carriers (RLECs) are headquartered throughout the state (Table 1). The RLECs currently operate by sending telecommunications signals through fiber optic cable or by cellular transmission, with spectrum purchased/leased from the Federal Communications Commission. These cooperatives serve approximately 107,000 members and provide local, intrastate, and long distance telephone service, transmit data through their broadband service infrastructure, provide cell phone service, and cable television programming. Throughout their operation, North Dakota telecommunication cooperatives have been a well-functioning component of the U.S. telecommunications industry. The following table lists the cooperatives and the city where the main corporate office is located.

Table 1. Telephone Cooperatives in North Dakota

| <b>Cooperative</b>                            | <b>Headquarters</b> |
|---|---------------------|
| BEK Communications Cooperatives               | Steele              |
| Consolidated Telecom                          | Dickinson           |
| Dakota Central Telecommunications Cooperative | Carrington          |
| Dickey Rural Telephone Cooperative            | Ellendale           |
| Midstate Telephone Company                    | Stanley             |
| Nemont Telephone Cooperative                  | Scobey, MT          |
| Northwest Communications Cooperative          | Ray                 |
| Polar Communications                          | Park River          |
| Red River Rural Telephone Association         | Abercrombie         |
| Reservation Telephone Cooperative             | Parshall            |
| SRT Communications                            | Minot               |
| United Telephone Mutual Aid Corporation       | Langdon             |
| West River Telecommunications Cooperatives    | Hazen               |

In 2010, North Dakota telecommunications co-ops had estimated gross business volume of over \$396 million. North Dakota telecommunications cooperatives provided a number of well-paying jobs to residents of the state, employing approximately 1,200 people. The following table summarizes the total economic contribution of North Dakota telecommunications cooperatives.

Table 2. Economic Contribution of North Dakota Telecommunication Cooperatives, 2010

| Estimated Direct and Secondary Gross Business Volume | Estimated Direct, Indirect, and Induced Full Time Jobs | Estimated Direct, Indirect, and Induced Labor Income | Estimated Direct, Indirect and Induced Taxes |
|--|--|--|--|
| \$396,000,000  | 2,200  | \$131,000,000  | \$32,000,000                                 |

Cooperatively owned North Dakota RLECs also generate substantial tax revenue in the state. The cooperative RLECs generated, directly or indirectly, an estimated \$32 million in total state and local tax revenue in 2010, including nearly \$23 million in sales and use and property tax revenues and \$2.5 million in state employee compensation taxes, and \$2.7 million in state income taxes.

### 3.2 Electricity

Eighteen cooperatively owned electricity distribution, generation, or transmission cooperatives serve North Dakota (Table 3). These cooperatives provide electricity to over 116,000 members for retail sale, or provide electricity distribution services to residential, commercial, and industrial customers. The following table lists the cooperatives, the city where the main corporate office is located and number of North Dakota counties served by the cooperative.

Table 3. Electricity Cooperatives in North Dakota

| <b>Cooperative</b>                              | <b>Headquarters</b> | <b>Counties Served</b>           |
|---|---------------------|----------------------------------|
| <b>Distribution Cooperatives</b>                |                     |                                  |
| Burke-Divide                                    | Columbus            | 4                                |
| Capital   | Bismarck            | 5                                |
| Cavalier  | Langdon             | 2                                |
| Cass County                                     | Fargo               | 10                               |
| Dakota Valley                                   | Milnor              | 8                                |
| KEM   | Linton              | 5                                |
| McClellan                                       | Garrison            | 1                                |
| McKenzie  | Watford City        | 5                                |
| Mor-Gran-Sou                                    | Flasher             | 3                                |
| Montrail-Williams                               | Williston           | 2                                |
| Nodak   | Grand Forks         | 13                               |
| North Central                                   | Bottineau           | 5                                |
| Roughrider                                      | Dickinson           | 6                                |
| Slope   | New England         | 4                                |
| Verendrye                                       | Minot               | 6                                |
|   |                     |                                  |
| <b>Generation and Transmission Cooperatives</b> |                     |                                  |
| Basin Electric Cooperative                      | Bismarck            | 9 states -135 member cooperative |
| Central Power Cooperative                       | Minot               | 6 cooperatives                   |
| Minnkota Power Cooperative                      | Grand Forks         | 11 member owners                 |

In 2010, North Dakota electricity co-ops contributed \$2.3 billion of gross business volume to the state economy (Table 4). They also provided a number of well-paying jobs to residents of the state, employing approximately 1,800 people full time, and generated a total of approximately 6,200 jobs in the state economy. North Dakota electricity cooperatives also generated substantial tax revenue in the state, contributing an estimated \$274 million in total state and local tax revenue in 2010, including more nearly \$230 million in sales and use and

property tax revenues, and \$21 million in state employee compensation and household related taxes. The following table summarizes the operations of North Dakota electricity cooperatives.

Table 4. Economic Contribution of North Dakota Telecommunication Cooperatives, 2010

| Estimated Direct and Secondary Gross Business Volume | Estimated Direct, Indirect, and Induced Full Time Jobs | Estimated Direct, Indirect, and Induced Labor Income | Estimated Direct, Indirect and Induced Taxes |
|--|--|--|--|
| \$2,300,000,000                                      | 6,200  | \$420,000,000  | \$274,000,000                                |

### 3.3 Agricultural Supply and Marketing

Cooperatively owned businesses provide input supply and/or marketing services for agricultural operations in North Dakota. These cooperatives provide marketing services for approximately 66,000 memberships. These memberships are held by producers of grain, sugar, livestock, potatoes and other goods.

In 2010, North Dakota farm supply and output marketing co-ops contributed gross business volume of about \$2.4 billion to the state economy (Table 5). North Dakota agriculture cooperatives provide full time jobs for approximately 3,700 people, and generated approximately 13,400 jobs in the state economy. They also generated an estimated \$80.2 million in total state and local tax revenue in 2010, including more than \$59 million in sales and use and property tax revenues, and nearly \$14 million in other state employee compensation and household related taxes. The following table summarizes the operations of North Dakota farm supply and output marketing cooperatives.

Table 5. Economic Contribution of North Dakota Agricultural Cooperatives, 2010

| Estimated Direct and Secondary Gross Business Volume | Estimated Direct, Indirect, and Induced Full Time Jobs | Estimated Direct, Indirect, and Induced Labor Income | Estimated Direct, Indirect and Induced Taxes |
|--|--|--|--|
| \$2,400,000,000                                      | 13,400   | \$900,000,000  | \$80,000,000                                 |

### 3.4 Finance

Forty-eight cooperatively owned businesses provide credit services for consumers and other business operations in North Dakota. These cooperatives provide loans, investment products, and a variety of financial services in both rural and urban North Dakota communities.

In 2010, North Dakota financial co-ops had estimated gross business volume of about \$535 million, employed 1,100 people, and generated approximately 3,300 total jobs in the state economy (Table 6). They also contributed an estimated \$30 million in total state and local tax revenue in 2010, including more than \$15 million in sales and use and property tax revenues, and approximately \$12 million in other state employee compensation and household related taxes. The following table summarizes the operations of North Dakota finance cooperatives.

Table 6. Economic Contribution of North Dakota Finance Cooperatives, 2010

| Estimated Direct and Secondary Gross Business Volume | Estimated Direct, Indirect, and Induced Full Time Jobs | Estimated Direct, Indirect, and Induced Labor Income | Estimated Direct, Indirect and Induced Taxes |
|--|--|--|--|
| \$535,000,000  | 3,300  | 258,000,000  | \$30,000,000                                 |

### 3.5 Other

The economic contribution of forty-four cooperative firms that provide goods and services in a variety of other sectors, including water irrigation, hospitality services, home furnishings, hardware, and grocery were not included in this study. This was done because it was impossible to maintain the anonymity of the firm because of the relatively small number of cooperatives firms in the North Dakota economy providing that good or service (e.g. irrigation, grocery), or because the scope of this study excludes cooperatives not owned by the final user (e.g. hardware, home furnishings, hospitality services) of the good or service. For instance, the entity holding a membership in a hospitality cooperative is the entity owning the local hotel, not the guest patronizing the hotel's services.

## Section 4: Economic and Fiscal Contributions

The economic and fiscal contributions of North Dakota cooperatives to the state economy go well beyond employee wages and benefits expenses, input purchases and state taxes. They also reflect the strong stimulus that operations provide for key measures of economic activity—the value of service production, employment and labor income—in the state economy.

North Dakota cooperative business spending lifts economic activity throughout North Dakota. This effect is experienced by the private sector through increased sales and employment,

and by the public sector through increased tax revenues to support public services. Estimates of these effects were developed by applying the Impact Analysis for Planning (IMPLAN) model to financial data provided by 143 North Dakota cooperatives. (For more information on IMPLAN, see Section 2.)

#### 4.1 Cooperative Business Effects on North Dakota Gross Business Volume

The estimated gross business revenues of the 256 North Dakota cooperative business in North Dakota totaled more than \$3.5 billion in 2010. For many cooperatives in the electricity, telecommunications, financial, and agriculture sectors, spending within the state represented a majority of the cooperative's total spending. However, spending by these cooperatives affects not only the sector in which the cooperative operates but those from which it purchases inputs and those from which its employees purchase goods and services. IMPLAN can be used to estimate the labor income and gross revenue generated by cooperatives across all sectors of the North Dakota economy. The ten sectors of the North Dakota economy most affected by the gross business revenue of cooperatives are listed below. The categories are from among IMPLAN's 440 stylized sectors comprising the North Dakota economy and are listed according to the IMPLAN sector description.

Table 7. Ten North Dakota Economic Sectors Most Affected by Cooperative Business Volume, 2010

| Sector   | Gross Effect     |
|--|------------------|
| Electric power generation, transmission, and distribution            | \$ 1,688,000,000 |
| Beet sugar manufacturing   | \$ 669,000,000   |
| Wholesale trade businesses   | \$ 604,000,000   |
| Monetary authorities and depository credit intermediation activities | \$ 334,000,000   |
| Telecommunications   | \$ 257,000,000   |
| Sugarcane and sugar beet farming                                     | \$ 235,000,000   |
| Food services and drinking places                                    | \$ 89,000,000    |
| Transport by rail  | \$ 67,000,000    |
| Offices of physicians, dentists, and other health practitioners      | \$ 63,000,000    |
| Private hospitals  | \$ 63,000,000    |

The electricity production sector of the state economy was affected most by the state's cooperatives, with a total economic contribution of \$1.7 billion. This is approximately 48 percent of the gross business revenues by cooperatives in the state. After electricity, the next two sectors most affected by cooperatives are related to agricultural activity, totaling over \$1.3 billion.

Many of the sectors listed in Table 7 are related to services purchased by cooperative business employees. Since over 90 percent of cooperative employees live in North Dakota, a large portion of the cooperative gross sales (demand of output, employee benefits, salaries and wages) stay "home" in the state. Hence, the importance of employee expenditures on the state economy is underscored by the fact that three of last four most affected sectors are related to



activities conducted by employees, induced by earning wages from cooperatives. The prevalence of service sectors illustrates heavy reliance by cooperatives on local labor and vendors to perform specialized work, including maintenance and construction, design, and consulting services. Other top categories, beyond the ten listed above, include purchases of generic goods such as tools and equipment, which the firm acquires from local retailers and merchants whenever possible. Many of these types of purchases are reflected by the wholesale trade sector, which represents the distribution of merchandise in large quantities to retailers, businesses and institutional clients, as well as in single units to final users. Cooperative businesses also caused contributions to economies outside the state in 2010, as many reported expenditures for products and services (including labor) purchased outside North Dakota. These were largely for specialized products and services unique to each industry.

#### 4.2 Local and State Taxes

In 2010, North Dakota cooperatives generated, either directly or through their induced business activity, approximately \$342 million in state and local tax revenue.

Table 8. Total State Taxes Contributed by Cooperative Gross Business Volume, 2010

| Description                            | Amount        |
|--|---------------|
| <b>State and Local Government</b>      |               |
| Taxes related to employee compensation | \$17,000,000  |
| Indirect business taxes                | \$260,000,000 |
| Taxes paid by households               | \$37,000,000  |
| Corporate income taxes                 | \$29,000,000  |
| Total                                  | \$342,000,000 |

#### 4.3 Economic Contributions to North Dakota

Summary economic impacts for North Dakota cooperatives are presented in Table 9. The direct effects are based on the revenue generated from North Dakota cooperative business activities of \$3.50 billion for 2010.

Table 9. Economic Impact of North Dakota Cooperatives, 2010

|                       | Direct          | Secondary       | Total           |
|-----------------------|-----------------|-----------------|-----------------|
| Gross Business Volume | \$3,500,000,000 | \$2,100,000,000 | \$5,600,000,000 |
| Labor Income          | \$1,100,000,000 | \$640,000,000   | \$1,700,000,000 |
| Employment            | 8,000           | 17,000          | 25,000          |

This value—which is divided among consumer benefits, investor returns, firm purchases, salaries and taxes—reflects the total gross business volume of products and services associated with North Dakota cooperatives. This total includes the expenditures for products and services, including labor. In 2010, the cooperatives employed 8,000 people, which, in turn, created an additional 17,000 jobs as a result of indirect and induced economic activity.

The total economic contribution of cooperative businesses operating and headquartered in North Dakota is \$5.6 billion. Thus, the total economic multiplier for North Dakota is 1.61 (or \$5.683 billion divided by \$3.529 billion). This indicates that for every dollar of gross sales by a cooperative firm, the North Dakota economy produces another \$0.61 on average. This can be explained by relatively large portions of input expenses being paid to businesses outside the state, while almost all the labor force for cooperatives resides within the state. Precise data on how much cooperatives spent on purchases outside the state were not available. The degree of input and service purchases from out-of-state vendors was based on estimates provided by some of the cooperative firms responding to data solicitation requests and from the economic interdependence coefficients in the IMPLAN model.

#### 4.4 Economic Contribution to Local Industry

A cooperative business' economic contributions spread over nearly every economic sector. Although the direct effects are concentrated in a few sectors, the secondary effects—and especially the induced effects—increase the dispersion of economic contributions across other sectors. Table 10 presents the 10 sectors most affected by the co-ops in North Dakota, based on total gross revenues. The sectors are listed in descending order of total gross business volume, i.e. the first one listed is the North Dakota economic sector most affected by having cooperatives operate within that sector.

Table 10. Ten North Dakota Economic Sectors Most Affected by Cooperative Business Volume, by Cooperative Business Sector, 2010

| Cooperative Business Sector | North Dakota Statewide Economic Sector   |
|-----------------------------|--|
| Telecommunications          | Telecommunications<br>Food services and drinking places<br>Private hospitals<br>Offices of physicians, dentists, and other health practitioners<br>Real estate establishments<br>Wholesale trade businesses<br>Architectural, engineering, and related services<br>Nursing and residential care facilities<br>Retail Stores - General merchandise<br>Retail Stores - Food and beverage   |
| Electricity                 | Electric power generation, transmission, and distribution<br>Transport by rail<br>Maintenance and repair construction of nonresidential structures<br>Food services and drinking places<br>Extraction of oil and natural gas<br>Monetary authorities and depository credit intermediation activities<br>Wholesale trade businesses<br>Offices of physicians, dentists, and other health practitioners<br>Private hospitals<br>Real estate establishments   |
| Finance                     | Monetary authorities and depository credit intermediation activities<br>Nondepository credit intermediation and related activities<br>Food services and drinking places<br>Offices of physicians, dentists, and other health practitioners<br>Private hospitals<br>Securities, commodity contracts, investments, and related activities<br>Real estate establishments<br>Hotels and motels, including casino hotels<br>Civic, social, professional, and similar organizations<br>Services to buildings and dwellings |
| Agriculture                 | Beet sugar manufacturing<br>Wholesale trade businesses<br>Sugarcane and sugar beet farming<br>Transport by truck<br>Offices of physicians, dentists, and other health practitioners<br>Food services and drinking places<br>Private hospitals<br>Real estate establishments<br>Retail Stores - General merchandise<br>Retail Stores - Food and beverage  |

Since input costs, payroll and patronage distribution comprise co-op expenses, local economic contributions are most prominent in sectors catering directly to the industry in which the cooperative operates and in sectors most affected by household expenditures (patronage dividends and interest on deposits were assumed to affect household expenditures). Hence, the other sectors most affected by the co-ops relate to goods and services required by the firm's large employment base, including wholesalers, hospitals, medical and dental practices, restaurants, and insurance providers. Indirect spending by firm employees boosts the sales and work forces of these industries, typically operated by local small-business owners.

#### 4.5 Summary

North Dakota cooperatives make a substantial economic contribution to the North Dakota economy. Like other businesses, North Dakota co-ops buy many specialized products and services not available in local and state economies. National and international markets typically provide these products and services. The local and state economic effects of cooperative businesses headquartered in North Dakota are substantial, largely because of the buying power created by high co-op business wages, salaries and benefits. In turn, firm employees buy goods and services provided locally. This spending supports many small businesses in the area.

In addition to the economic benefits cooperatives contribute to North Dakota in the form of jobs, income and taxes, they also enhance the local community in ways difficult to capture with these measures. Cooperatives are committed to the communities where they conduct business. Telecommunication cooperatives, for example, tend to be significant contributors to their surrounding communities because they often exist to satisfy the need for telecommunications services that would not be provided by any other firm. Electricity cooperatives provide critical infrastructure which enables other forms of commerce to take place. Agricultural output marketing cooperatives may offset the ability of individual firms to affect input or output prices in the marketplace.