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## **Economic Contribution of North Dakota's Hospitals to the State's Economy for 1991**

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The level of economic contribution of North Dakota's hospitals has been analyzed for 1991. In 1991, the state had 57 facilities, located in 37 of the 53 counties, with a combined capacity of 4,007 beds (see the Appendix for a listing of facilities by county and bed capacities). Estimates of the hospital industry's economic contribution<sup>2</sup> to the state as a whole are presented in this report. Retail trade activity, personal income, total business activity, employment, and tax revenues are the key indicators used in the analysis.

The information for this study was obtained from two sources. Total hospital expenditures and full-time equivalent (FTE) workers are taken from the American Hospital Association *Guide to the Health Care Field* (1991). The percentage of expenditures by economic sector are based on responses to a mail survey. Forty-five of the 57 hospitals responded to the survey. The distribution of expenditures for hospitals which did not respond to the survey were assigned the average of all hospitals.

The North Dakota Input-Output Model was used in this analysis to estimate the economic contribution of North Dakota hospitals. The model consists of sets of interdependence coefficients, or multipliers, that measure the level of business activity generated in each sector as a result of an additional dollar of expenditures in a given sector. For a complete description of the 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. Levels of business activity generated by the input-output model can be used to estimate such economic indicators as tax revenues and secondary (indirect and induced) employment, based on historic relationships (Coon et al. 1984).

North Dakota hospital facilities made expenditures of \$651.8 million in 1991. Of this amount, \$583.3 million (or 90%) was made within the state for supplies, services, and payrolls. Distribution of these in-state expenditures to sectors of the

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<sup>2</sup>Because the facilities primarily serve the state's residents and therefore receive funding primarily from in-state sources, this analysis is termed an *economic contribution* study (Coon et al. 1989). However, a substantial portion of the funds these facilities receive represents federal transfer payments through programs such as Medicare and Medicaid. Nationally, 68 percent of all hospital patient charges were Medicare/Medicaid reimbursements in 1991. To the extent that the facilities' receipts are drawn from these out-of-state sources (representing "new wealth" to the state), the analysis of their role in the state's economy could also be termed an *economic impact* study.

input-output model is presented in Table 1. Expenditures to the household sector for payrolls accounted for \$346.8 million in 1991, almost 60 percent of the total in-state expenditures.

Table 1	
Estimated North Dakota Expenditures by Hospitals for Operations and Capital Improvements, 1991	
Sector	Expenditures -million dollars-
Construction	13.6
Communications & Public Utilities	14.5
Retail	63.8
Finance, Insurance, Real Estate	9.4
Business & Personal Services	86.5
Professional & Social Services	48.7
Households	<u>346.8</u>
Total (All Sectors)	583.8

Business activity generated from the hospital industry's expenditures totaled \$1,710.1 million for 1991 (Table 2). This figure represents over 6 percent of the state's total business activity. The resulting personal income was \$708.0 million (about 8.2% of total state personal income), and the level of retail trade activity associated with this industry amounted to \$429.3 million (7.5% of total state retail trade). Other economic indicators estimated from the input-output analysis include state tax revenues for sales and use (\$19.9 million), personal income (\$9.2 million), and corporate income (\$2.8 million) taxes (Table 3). Table 4 presents employment associated with hospitals in North Dakota. Full-time equivalent jobs in this industry were 12,893 in 1991. In addition, 29,436 secondary jobs could be attributed to the industry.

This analysis shows that the hospital facilities in the state contribute a substantial amount of business activity. The high percentage of this industry's total expenditures that is made within the state maximizes its economic contribution. Perhaps even more important are the 12,893 FTE jobs it provides for the state's residents. These jobs provide average individual annual earnings of \$26,895 which is 48 percent higher than the average annual earnings of \$18,132 that Job Service reported for 1991 for all jobs in all industries (Job Service 1992). The total number of direct and indirect (secondary) jobs associated with the hospital industry was roughly 14 percent of all employment statewide in 1991. Furthermore, the state receives about 32 million in tax revenues from hospital activities. Although many of the hospital facilities are located in the state's larger cities, many are also located in smaller communities which helps distribute economic activity and jobs to rural areas of the state.

Table 2

**Estimated Economic Activity From North Dakota Hospitals, 1991**

Item	Economic Activity
	--million dollars--
Personal Income	708.0
Retail Sales	429.3
Business Activity for All Business Sectors*	898.8
Total Business Activity	1,710.1

\* Includes all sectors except agriculture (livestock and crops), households, and government.

Table 3

**Estimated State Tax Revenue Resulting From Activities From North Dakota Hospitals, 1991**

Tax	Amount
	--million dollars--
Sales and Use	19.9
Personal Income	9.2
Corporate Income	2.8
Total Taxes	31.9

**References**

American Hospital Association. 1991. *Guide to the Health Care Field*. Chicago, Illinois.

Coon, Randal C., Carlene F. Vocke, William Ransom-Nelson, and F. Larry Leistritz. 1984. *North Dakota Economic-Demographic Assessment Model (NEDAM): Technical Description of Update and Enhancement*. Agr. Econ. Misc. Rpt. No. 76. Fargo: North Dakota State University, Department of Agricultural Economics.

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, Department of Agricultural Economics.

Coon, Randal C., F. Larry Leistritz, and Thor A. Hertsgaard. 1989. *The 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, Department of Agricultural Economics.

Job Service North Dakota. 1992. *Annual Planning Report, 1992*. Bismarck: Job Service North Dakota, Research and Statistics Division.

Table 4

**Estimated Direct and Secondary Employment From North Dakota Hospitals, 1991**

Category	Employment
Direct	12,898
Secondary	29,436

APPENDIX TABLE 1. NUMBER OF BEDS REPORTED IN NORTH DAKOTA HOSPITALS, 1991

County	City	Beds	Name of Facility	County	City	Beds	Name of Facility
Adams	Hettinger	46	West River Regional Medical Ctr.	Nelson	McVille	14	Community Hosp. in Nelson Cty.
Barnes	Valley City	50	Mercy Hospital	Pembina	Cavalier	30	Pembina County Memorial Hosp.
Bottineau	Bottineau	41	St. Andrew's Hospital	Pierce	Rugby	49	Good Samaritan Hospital Assoc.
Bowman	Bowman	39	St. Luke's Tri-State Hospital	Ramsey	Devils Lake	55	Mercy Hospital
Burleigh	Bismarck	239	MedCenter One	Ransom	Lisbon	25	Community Memorial Hospital
	Bismarck	261	St. Alexis Medical Center	Renville	Mohall	26	Renville Bottineau Mem. Hospital
Cass	Fargo	181	Dakota Hospital	Richland	Hankinson	55	St. Gerard's Community Hospital
	Fargo	71	Heartland Med. Ctr. (St. John's)	Rolette	Belcourt	42	U.S. Pub. Health Serv. Indian Hosp.
	Fargo	384	St. Luke's Hospitals-Meritcare		Rolla	53	Presentation Medical Center
	Fargo	132	Veterans Affairs Medical Center	Sioux	Fort Yates	16	U.S. Pub. Health Serv. Indian Hosp.
Cavalier	Langdon	28	Cavalier County Memorial Hospital	Stark	Dickinson	81	St. Joseph's Hosp. & Health Center
Dickey	Ellendale	21	Dickey County Memorial Hospital		Richardton	26	Richardton Health Center
	Oakes	30	Oakes Community Hospital	Stutsman	Jamestown	56	Jamestown Hospital
Divide	Crosby	25	St. Luke's Hospital		Jamestown	464	ND State Hospital
Emmons	Linton	25	Linton Hospital	Towner	Cando	22	Towner County Memorial Hosp.
Foster	Carrington	30	Carrington Health Center	Traill	Hillsboro	24	Community Hospital
Grand Forks	Grand Forks	42	UND-Medical Center		Mayville	28	Union Hospital
	Grand Forks	287	United Hospital	Walsh	Grafton	27	Unity Hospital
	Grand Forks	38	United Recovery Center		Park River	22	St. Ansgar's Hospital
	Grand Forks	25	U.S. Air Force Hospital	Ward	Kenmare	24	Kenmare Community Hospital
	Northwood	26	Northwood Deaconess Hospital		Minot	175	St. Joseph's Hospital
Grant	Elgin	50	Jacobson Mem. Hosp. Care Center		Minot	170	Trinity Medical Center
Griggs	Cooperstown	19	Griggs County Hosp. & Nsg. Home		Minot	35	U.S. Air Force Regional Hospital
McIntosh	Ashley	26	Ashley Medical Center	Wells	Harvey	49	St. Alouisius Medical Center
	Wishek	24	Wishek Community Hospital	Williams	Tioga	29	Tioga Medical Center
McKenzie	Watford City	22	McKenzie County Memorial Hosp.		Williston	99	Mercy Medical Center
McLean	Garrison	25	Garrison Memorial Hospital				
	Turtle Lake	28	Community Memorial Hospital	North Dakota*		4,007	
Mercer	Hazen	32	Sakakawea Medical Center				
Morton	Mandan	36	Medcenter One-Mandan				
Mountrail	Stanley	28	Stanley Community Hospital				

\* One hospital, City Hospital, in Eddy County was only operational for part of 1991 and is not included in this table.

Source: 1991 American Hospital Association Guide to the Health Care Field.