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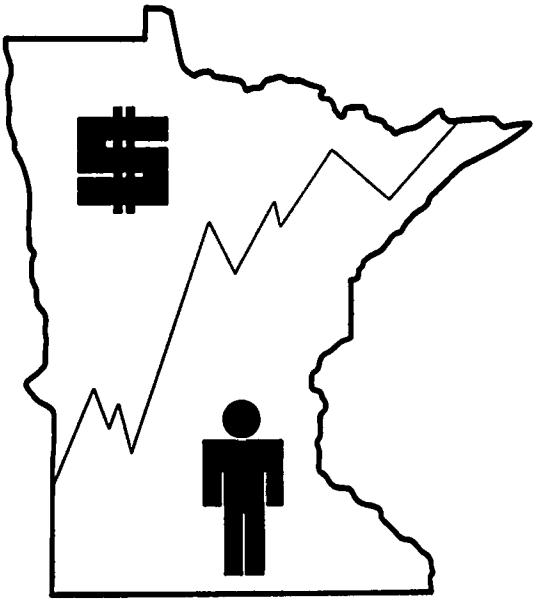
Expansion and Adaptation of the North Dakota Economic-Demographic Assessment Model (NEDAM) For Minnesota: Technical Description



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Preface

The purpose of the research on which this report was based was to test the adaptability of economic-demographic projection models to alternative geographic settings. This report describes the data sources and procedures employed in adapting an existing North Dakota modeling framework for use in Minnesota. A companion document (Agricultural Economics Report No. 158) describes the logic, structure, data bases, and operational procedures of the North Dakota model.

The authors wish to express their appreciation to several individuals who made significant contributions to the successful completion of the study. In particular, we gratefully acknowledge Ms. Lori Cullen for her skillful and expeditious typing of the report, Ms. Carol VavRosky for preparing the graphic materials, and Ms. Brenda Ekstrom for editorial assistance. The authors gratefully acknowledge the manuscript reviews and valuable suggestions contributed by various faculty members of the Department of Agricultural Economics. Finally, we express our appreciation to the state government officials who provided information essential to the analysis.

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Expansion and Adaptation of the North Dakota Economic-Demographic Assessment Model (NEDAM) for Minnesota:

Technical Description

by

Randal C. Coon, Carlena F. Vocke, and F. Larry Leistritz

Introduction

Minnesota has experienced significant changes in its economic base in recent years. Some of the economic changes have resulted in declines, while others caused growth. Economic declines have occurred more frequently in the outer-state areas as a result of downturns in industries such as taconite mining and snowmobile manufacturing, coupled with the loss of border businesses due to an unfavorable tax climate. On the other hand, recent growth in processing and manufacturing industries, overall, have added to the economic base of the larger urban centers. The prospect of coal-fired electric generation facilities being built to help ease Minnesota's energy dependency would result in a significant economic impact.

Policymakers are requesting and requiring an increasing number of social and economic impact assessments. Federal, state, and local governments are using impact assessments to estimate and evaluate social and economic effects resulting from changes in an area's economic base. In response, a number of socioeconomic impact assessment models have been developed to aid in the evaluation of public and private policies, to estimate the impacts of development or decline of a specific project or industry, and to lend assistance in guiding local and regional planning.

This report describes the modified structure and data base of an existing computerized socioeconomic impact assessment model (North Dakota

Economic-Demographic Assessment Model or NEDAM)[1] for adaptation to Minnesota. NEDAM originally was designed to provide regional and local estimates of economic, demographic, and fiscal changes resulting from alternative scenarios of energy resource development in North Dakota. NEDAM has been adapted successfully for impact assessments in Montana and Wyoming.[2] These adapted versions of the model may be used to project personal income at the multicounty regional level and estimate employment, population, and public sector costs and revenues at county and community levels. Projections are made on an annual basis for the period 1985 to 2005.

Adapting NEDAM to bordering states allows more thorough analysis of socioeconomic impacts of development or declines having interstate effects. NEDAM offers the potential to analyze economic impacts if the agriculturally intensive Red River Valley, located on the North Dakota-Minnesota border, were to experience development of additional processing facilities for its diverse commodities. Impacts accruing to border cities such as Wahpeton-Breckenridge, Fargo-Moorhead, and Grand Forks-East Grand Forks could also be handled more

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[1]For a complete description of NEDAM, see Leistritz, F. Larry, William Ransom-Nelson, Richard W. Rathge, Randal C. Coon, Robert A. Chase, Thor A. Hertsgaard, Steve H. Murdock, Rakesh Sharma, and Pai-Sung Yang, North Dakota Economic-Demographic Assessment Model (NEDAM): Technical Description, Agricultural Economics Report No. 158, Department of Agricultural Economics, North Dakota Agricultural Experiment Station, North Dakota State University, Fargo, September 1982.

[2]Chase, Robert A., Randal C. Coon, Connie L. Chase, Carlena F. Vocke, Rebecca J. Vuchetich, F. Larry Leistritz, Thor A. Hertsgaard, William Ransom-Nelson, Steve H. Murdock, Pai-Sung Yang, and Rakesh Sharma, Expansion and Adaptation of the North Dakota Economic-Demographic Assessment Model (NEDAM) for Montana: Technical Description, Agricultural Economics Miscellaneous Report No. 61, Department of Agricultural Economics, North Dakota Agricultural Experiment Station, North Dakota State University, Fargo, December 1982; and Coon, Randal C., Carlena F. Vocke, Robert A. Chase, Brenda L. Ekstrom, William Ransom-Nelson, Richard W. Rathge, Thor A. Hertsgaard, F. Larry Leistritz, Rebecca J. Vuchetich, and Babu Ranganathan, Expansion and Adaptation of the North Dakota Economic-Demographic Assessment Model (NEDAM) for Wyoming: Technical Description, Agricultural Economics Miscellaneous Report No. 63, Department of Agricultural Economics, North Dakota Agricultural Experiment Station, North Dakota State University, Fargo, May 1983.

accurately through use of such models. Businesses relocating in a neighboring state could be analyzed regardless of whether it was a development or decline to the respective state. In addition, the development of new electric generation facilities located in Minnesota and fired by North Dakota coal would cause measurable socioeconomic impacts to both states. Finally, because the major trade center of Minneapolis-St. Paul serves as a source of specialized equipment used in many resource development projects in North Dakota, total project impacts could be analyzed for both states.

Study Area

The geographic scope of the project encompasses all 87 counties in Minnesota (Figure 1). Minnesota is bounded by North Dakota and South Dakota to the west, Iowa to the south, Wisconsin to the east, and the Canadian provinces of Ontario and Manitoba on the north. The state's total land area is approximately 84,000 square miles, of which about 5,000 square miles are covered with inland water.[3] Federal government land holdings are almost 7 percent of the state's total area with the Forest Service owning the most (2,796,092 acres), followed by the Fish and Wildlife Service (329,598 acres), Geological Survey (126,952 acres), Bureau of Land Management (41,945 acres), and Bureau of Indian Affairs (28,698 acres).[4]

The 1980 census population of Minnesota was 4,075,970 inhabitants, and the 1982 adjusted gross personal income was $45.8 billion.[5] Minnesota per

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[3]U.S. Bureau of Land Management, Public Land Statistics, U.S. Department of Interior, U.S. Government Printing Office, Washington, D.C., 1981.

[4]Ibid.

[5]Bureau of the Census, 1980 Census of Population--General Social and Economic Characteristics: Minnesota, PC80-1C25, U.S. Department of Commerce, U.S. Government Printing Office, Washington, D.C., August 1983; and Bureau of Economic Analysis, "Survey of Current Business," Vol 63, Number 4, U.S. Department of Commerce, U.S. Government Printing Office, Washington, D.C., April 1983.

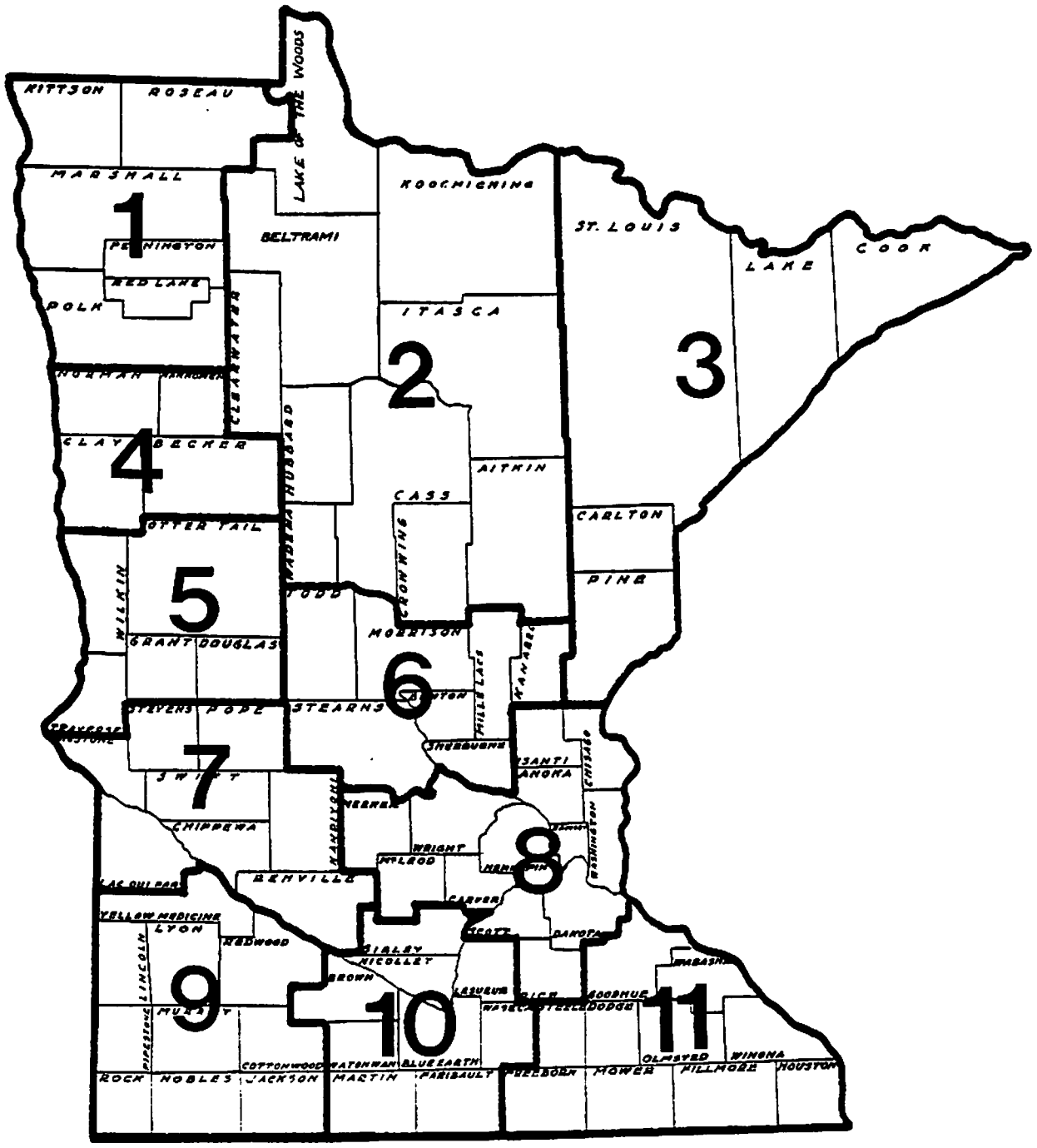

Figure 1. The Eleven Minnesota Functional Economic Regions

capita income ranked eighteenth in the United States at $11,082 in 1982.[6] Natural-resource-based industries (agriculture, forestry, mining, and tourism) and manufacturing form the state's economic backbone.

Problem Statement

In recent years, Minnesota has had industries experiencing significant declines, while others have realized growth and development. The recent decline in metal mining activities in Minnesota has caused the loss of not only employment but also the associated tax revenues. Despite the downturn of the mining sector of the economy, manufacturing and processing sectors, overall, have experienced steady growth. The problem of solving the state's energy dependency may give rise to coal-fired electric generation facilities being built in Minnesota. Questions relating to the magnitude, manner, and effects of these economic developments and declines can be answered by a detailed socioeconomic description of the state as it currently exists. An analytical framework must be developed which is capable of assessing the direct and secondary (indirect and induced) socioeconomic impacts associated with alternative scenarios of economic decline or development as proposed by various public and private entities in Minnesota. Likewise, similar questions and analytical requirements are evident in connection with proposed developments of Minnesota minerals or other resources.

In response, a socioeconomic assessment model has been developed to meet these needs in Minnesota. It is a modified version of NEDAM, a model initially developed in 1976 to provide comprehensive information and projections of the economic and demographic effects of various existing and anticipated energy

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[6]Bureau of Economic Analysis, 1983, op. cit.

resource developments for state and local policymakers in North Dakota. This computerized, user-interactive model has the capability to make baseline and single- or multiple-project impact forecasts for any designated site in North Dakota. Though the basic structure of NEDAM remains essentially unchanged, model transfer necessitated extensive modification of the economic, demographic, and fiscal/service components.

The development of energy resources has prompted creation of a number of computerized socioeconomic assessment models such as NEDAM.[7] Although the number of assessment models has dramatically increased, few attempts have been made to adapt such models to settings other than those for which they originally were designed. Yet the need for such transfer and adaptation efforts is all too apparent, given the growing expense of developing an assessment model. In addition to savings in time and money, other advantages of model transfer and adaptation include the opportunity to expand and refine a model's structure and capabilities. Such refinements are seldom possible during initial model development. Given the number of existing models, such adaptations may well be more important than building additional assessment models.

Since all assessment models are developed for specific geographic areas, a successful adaptation effort will require incorporation of and, where appropriate, modification to the unique characteristics (e.g., public revenue and expenditure patterns) of the particular study area. The processes

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[7]For a review of selected impact assessment models, see Murdock, Steve H. and F. Larry Leistritz, "Selecting Socioeconomic Assessment Models: A Discussion of Criteria and Selected Models," Journal of Environmental Management, Vol. 10, 1980, pp. 241-252; Leistritz, F. Larry and Steve H. Murdock, The Socioeconomic Impact of Resource Development: Methods for Assessment, Westview Press, Boulder, Colorado, 1981; and Leistritz, F. Larry, Steve H. Murdock, and Robert A. Chase, "Socioeconomic Impact Assessment Models: Review and Evaluation," Impact Assessment Bulletin, Vol. 1, No. 4, 1982, pp. 35-49.

involved in adapting a modeling system may vary from simply the alteration of its data base (i.e., to include data unique to the area of interest) to substantial and complex changes in its computational structure.[8] An example of a successful transfer and adaptation effort is the Texas Assessment Modeling System (TAMS). Adapted from an earlier version of NEDAM, TAMS essentially retains the basic structure with the exception of extensive modification of the economic subcomponent, since the input-output model incorporated within the North Dakota version did not reflect the economic structure of eastern Texas. The other subcomponents in the model (i.e., demographic, fiscal, and service) were left relatively intact within the TAMS version. The adaptation of the NEDAM version to the Texas environment began in the fall of 1978, and the model became fully operational a year later. The relatively long time period for adaptation was, in large part, a result of extensive development of the Texas input-output model for use within the modeling system. Since its inception, the TAMS version has been widely used by state and local agencies for impact planning purposes.[9]

NEDAM also has been adapted for use in Montana. This adaptation involved a much shorter period of time than the TAMS effort because a new input-output model was not developed. The North Dakota input-output model was

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[8]For a description of the major steps in adapting a model and considerations for successful transfer, see House, Peter W. and John McLeod, Large-Scale Models for Policy Evaluation, John Wiley and Sons, New York, 1977; Murdock, Steve H. and F. Larry Leistritz, "Computerized Socioeconomic Assessment Models: Selection, Development, and Adaptation," Unpublished Manuscript, Department of Rural Sociology, Texas A&M University, College Station, 1980; and Chase, Robert A. and F. Larry Leistritz, "A Case Study in Impact Assessment Model Adaptation," Paper presented at the Mid-Continent Regional Science Association meeting, Vail, Colorado, June 1982.

[9]For a more complete discussion of the TAMS adaptation experience, see Murdock, Steve H., Lonnie L. Jones, F. Larry Leistritz, and Donald R. Andrews, "The Texas Assessment Modeling System (TAMS): A Case Study in Model Adaptation," Paper presented at the Conference on Computer Models and Forecasting Growth and Development, Jasper, Alberta, April 1980.

augmented with secondary data to replicate the Montana economy. After the data base for Montana was gathered, the model was basically operational because the major subcomponents were relatively unchanged. The Montana extension of NEDAM has been used extensively for impact analysis of coal extraction and conversion projects.[10]

Adaptation of NEDAM to Wyoming was completed in 1983.[11] Input-output coefficients developed for the Montana version were used in the Wyoming model. Because it was not necessary to develop a new input-output model, NEDAM adaptation to Wyoming was accomplished in a time period similar to the Montana transfer. The major portion of the adaptation to Wyoming was the development of the data base, because the major subcomponents were left relatively unchanged. Information on site-specific actual and proposed developments in Wyoming was available to construct a comprehensive list of potential projects and their magnitude.[12] These project files were incorporated into the model allowing extensive impact analysis of natural-resource-based development and expansion. The Wyoming model also is useful for analyzing nonresource-based impacts, such as a large military development with the possible deployment of the MX missile.

Outline of the Report

The remainder of this report consists of (1) a description of the methodology for the various data bases incorporated within the NEDAM extension

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[10]For a complete description of the adaptation of NEDAM to Montana, see Chase, Robert A., et al., 1982, op. cit.

[11]For a complete description of the adaptation of NEDAM to Wyoming, see Coon, Randal C., et al. 1983, op. cit.

[12]Goodier, John T., Wyoming Mineral Development Monitoring System, Unpublished Data and Update, Wyoming Department of Economic Planning and Development, Cheyenne, January 1983.

and adaptation to Minnesota and a presentation of results from the adapted version, and (2) a concluding discussion on validation of the adapted version of the model.

In addition to the main text of the report, several appendices are provided. These appendices include (1) a discussion of data sources and procedures for the economic module; and (2) a number of input-output (final demands, gross business volumes), employment, and productivity ratio tables.

Methodology

The adapted version of NEDAM, designed to cover the 87 counties of Minnesota, has the capability to incorporate both energy- and nonenergy-related developments and allows for the evaluation of expansion, as well as decline, in the economic base. The user may select any one of the 11 designated functional regions or a group of counties (up to 15 counties) as the basis for model output.

The adapted Minnesota version provides for both baseline and impact projections for the period between 1985 and 2005. Baseline projections produced by the model indicate the expected response of economic and demographic factors in a designated region if the trends of the 1960s and 1970s were to continue to 2005. Given the historical trends of declining farm and ranch numbers and rural population, the baseline projections represent limited economic development opportunities for many areas in the region. These estimates provide the necessary background against which the impacts of resource developments are assessed.

The projections provided by the adapted model allow for the assessment of various socioeconomic impacts of single and multiple developments, decline, or combinations of the two, at alternative sites anywhere in the state.

Essentially, the starting points for these projections are baseline population and economic data from the 1960s and 1970s. All changes from this initial baseline estimate for the years 1985 through 2005 are predicated on the expected expenditure and employment levels resulting from various developments.

The methodology used in expanding NEDAM into Minnesota involves a number of steps:

1. Definition of the study area
2. Description of the economic module
3. Description of the demographic module
4. Description of the residential allocation module
5. Modification of the fiscal impact model parameters

These methods along with their results are described in the following sections.

Definition of the Study Area

Adaptation of NEDAM involved applying the methodology and collecting the appropriate data for all 87 Minnesota counties. Since model reports are furnished at the regional, county, and municipality levels, two major tasks had to be completed:

1. Selection of counties and communities for model inclusion
2. Disaggregation of the study area into functional economic regions

The sources consulted and methods used in defining the study area are described below.

Community Selection

Essentially, the communities selected for model inclusion either were incorporated municipalities having a 1980 population greater than 300 people or unincorporated municipalities with a 1980 count of at least 500 people. A

total of 503 Minnesota communities were included in the extended model. In addition, 41 border communities in North Dakota, South Dakota, Iowa, and Wisconsin were included to account for interstate spillover effects of projects located close to (either side of) the border. Table 1 (and Appendix B, Table 1) lists both the counties and the communities included in the model.

Functional Economic Regions

In the NEDAM adaptation, the user may select either a group of counties or a designated region. The designated regions have been defined as functional economic areas (i.e., retail/wholesale trade areas) where each region is served by a major trade center. After consulting with available sources,[13] the study area was disaggregated into 11 regions (Table 2). The boundaries of these regions were drawn along county boundaries to conform with available sources of statistical data. Figure 1 shows the study area as divided into 11 functional economic regions.

Description of the Economic Module

The economic module in the adapted version consists of six major components:

1. Economic Sector Delineation
2. Input-Output (I-O) Technical and Interdependence Coefficients
3. Baseline Economic Projections

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[13]See Borchert, John R. and Russel B. Adams, Trade Centers and Trade Areas of the Upper Midwest, Urban Report No. 3, Upper Midwest Council, Minneapolis, Minnesota, 1963; Rand-McNally, 1982 Commercial Atlas and Marketing Guide, 113th Edition, Chicago, Illinois, 1982; Chalmers, J. A., E. J. Anderson, T. Beckhelm, and W. Hannigan, "An Empirical Model of Spatial Interaction in Sparsely Populated Regions," Paper presented at 24th Annual Meeting of Regional Science Association, Philadelphia, November 1977; and Bureau of Economic Analysis and U.S. Department of Agriculture, 1972 OBERS Projections: Economic Activity in the United States, Department of Commerce and Economic Research Service, U.S. Government Printing Office, Washington, D.C., 1972.

TABLE 1. COUNTIES AND COMMUNITIES FOR MODEL INCLUSION

County	Community
Aitkin	Aitkin, Hill City
Anoka	Andover, Anoka, Blaine**, Centerville, Circle Pines, Columbia Heights, Coon Rapids, East Bethel, Fridley, Ham Lake, Hilltop, Lexington, Lino Lakes, Ramsey, St. Francis, Spring Lake Park**
Becker	Detroit Lakes, Frazee, Lake Park
Beltrami	Bemidji, Blackduck, Lower Red Lake*
Benton	Foley, St. Cloud**, Sartell**, Sauk Rapids
Big Stone	Clinton, Graceville, Ortonville
Blue Earth	Amboy, Eagle Lake, Good Thunder, Lake Crystal, Madison Lake, Mankato**, Mapleton, St. Clair
Brown	Comfrey**, New Ulm, Sleepy Eye, Springfield
Carlton	Carlton, Cloquet, Moose Lake, North Carlton*, Scanlon
Carver	Carver, Chanhassen**, Chaska, Cologne, Norwood, Victoria, Waconia, Watertown, Young America
Cass	Cass Lake, East Gull Lake, Lake Shore, Pine River, Walker
Chippewa	Clara City, Granite Falls**, Montevideo
Chisago	Branch, Chisago City, Harris, Lindstrom, North Branch, Rush City, Stacy, Taylors Falls, Wyoming
Clay	Barnesville, Dilworth, Glyndon, Hawley, Moorhead, Ulen
Clearwater	Bagley, Clearbrook
Cook	Grand Marais, West Cook*
Cottonwood	Mountain Lake, Westbrook, Windom
Crow Wing	Baxter, Brainerd, Crosby, Crosslake, Deerwood, Emily, Ironton, Nisswa, Pequot Lakes, West Crow Wing*
Dakota	Apple Valley, Burnsville, Eagan, Farmington, Hastings**, Inver Grove Heights, Lakeville, Mendota Heights, Rosemount, South St. Paul, West St. Paul

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TABLE 1. COUNTIES AND COMMUNITIES FOR MODEL INCLUSION (CONTINUED)

County	Community
Dodge	Claremont, Dodge Center, Hayfield, Kasson, Mantorville, West Concord
Douglas	Alexandria, Evansville, Osakis**
Faribault	Blue Earth, Elmore, Kiester, Minnesota Lake, Wells, Winnebago
Fillmore	Chatfield**, Harmony, Lanesboro, Mabel, Preston, Rushford, Rushford Village, Spring Valley
Freeborn	Albert Lea, Alden, Clarks Grove, Glenville
Goodhue	Cannon Falls, Goodhue, Kenyon, Lake City**, Pine Island**, Red Wing, Wanamingo, Zumbrota
Grant	Elbow Lake, Herman, Hoffman
Hennepin	Bloomington, Brooklyn Center, Brooklyn Park, Champlin, Corcoran, Crystal, Dayton**, Deephaven, Eden Prairie, Edina, Excelsior, Golden Valley, Greenfield, Greenwood, Hanover**, Hopkins, Independence, Long Lake, Maple Grove, Maple Plain, Medina, Minneapolis, Minnetonka, Minnetonka Beach, Minnetrista, Mound, New Hope, Orono, Osseo, Plymouth, Richfield, Robbinsdale, Rockford**, Rogers, St. Anthony**, St. Bonifacius, St. Louis Park, Shorewood, Spring Park, Tonka Bay, Wayzata, Woodland
Houston	Calendonia, Hakah, Houston, La Crescent, Spring Grove
Hubbard	Park Rapids
Isanti	Braham, Cambridge, Isanti
Itasca	Bovey, Bowstring Lake*, Coleraine, Deer Lake*, Deer River, Grand Rapids, Keewatin, La Prairie, Marble, Nashwauk, Northeast Itasca*
Jackson	Heron Lake, Jackson, Lakefield
Kanabec	Mora
Kandiyohi	Atwater, New London, Prinsburg, Raymond, Spicer, Willmar
Kittson	Hallock, Karlstad
Koochiching	International Falls, Littlefork, Northome, Northwest Koochiching*, Rainy Lake*, South International Falls

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TABLE 1. COUNTIES AND COMMUNITIES FOR MODEL INCLUSION (CONTINUED)

County	Community
Lac qui Parle	Dawson, Madison
Lake	Silver Bay, Two Harbors
Lake of the Woods	Baudette, Rainy River*
Le Sueur	Cleveland, Kasota, Le Center, Le Sueur, Montgomery, New Prague**, Waterville
Lincoln	Hendricks, Ivanhoe, Lake Benton, Tyler
Lyon	Balaton, Cottonwood, Marshall, Minneota, Tracy
McLeod	Brownton, Glencoe, Hutchinson, Lester Prairie, Silver Lake, Stewart, Winsted
Mahnomen	Mahnomen
Marshall	Argyle, Stephen, Warren
Martin	Ceylon, Fairmont, Sherburn, Trimont, Truman, Welcome
Meeker	Cosmos, Dassel, Eden Valley**, Grove City, Litchfield, Watkins
Mille Lacs	Isle, Milaca, Onamia, Princeton**
Morrison	Little Falls, Pierz, Randall, Royalton
Mower	Adams, Austin, Brownsdale, Grand Meadow, LeRoy, Lyle
Murray	Fulda, Slayton
Nicollet	Lafayette, Nicollet, North Mankato, St. Peter
Nobles	Adrian, Brewster, Ellsworth
Norman	Ada, Halstad, Twin Valley
Olmsted	Byron, Chatfield**, Eyota, Oronoco, Rochester, Stewartville
Otter Tail	Battle Lake, Fergus Falls, Henning, New York Mills, Parkers Prairie, Pelican Rapids, Perham
Pennington	Thief River Falls
Pine	Hinckley, Pine City, Rock Creek, Sandstone
Pipestone	Edgerton, Jasper**, Pipestone

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TABLE 1. COUNTIES AND COMMUNITIES FOR MODEL INCLUSION (CONTINUED)

County	Community
Polk	Crookston, East Grand Forks, Erskine, Fertile, Fosston, McIntosh
Pope	Glenwood, Starbuck
Ramsey	Arden Hills, Falcon Heights, Lauderdale, Little Canada, Maplewood, Mounds View, New Brighton, North Oaks, North St. Paul, Roseville, St. Anthony**, St. Paul, Shoreview, Spring Lake Park**, Vadnais Heights, White Bear Lake
Red Lake	Oklee, Red Lake Falls
Redwood	Lamberton, Morgan, Redwood Falls, Sanborn, Wabasso, Walnut Grove
Renville	Bird Island, Buffalo Lake, Danube, Fairfox, Franklin, Hector, Morton, Olivia, Renville, Sacred Heart
Rice	Faribault, Lonsdale, Morristown, Northfield**
Rock	Hills, Luverne
Roseau	Greenbush, Roseau, Warroad
St. Louis	Aurora, Babbitt, Birch Lake*, Biwabik, Buhl, Chisholm, Cook, Duluth, Ely, Ely Lake*, Eveleth, Floodwood, Gilbert, Heikkila Lake*, Hermontown, Hibbing, Hoyt Lakes, Mountain Iron, Northwest St. Louis*, Pike Lake*, Procter, Sand Lake*, Towner, Virginia
Scott	Belle Plaine, Jordan, New Prague**, Prior Lake, Savage, Shakopee
Sherburne	Becker, Big Lake, Elk River, St. Cloud**, Zimmerman
Sibley	Arlington, Gaylord, Gibbon, Henderson, Winthrop
Stearns	Albany, Avon, Belgrade, Brooten, Cold Spring, Eden Valley**, Freeport, Holdingford, Kimball Prairie, Melrose, Paynesville, Richmond, Rockville, St. Cloud**, St. Joseph, Sartell**, Sauk Centre, Waite Park
Steele	Blooming Prairie, Ellendale, Medford, Owatonna
Stevens	Chokio, Hancock, Morris
Swift	Appleton, Benson, Kerkhoven
Todd	Bertha, Browerville, Clarissa, Eagle Bend, Long Prairie, Staples**

- continued -

TABLE 1. COUNTIES AND COMMUNITIES FOR MODEL INCLUSION (CONTINUED)

County	Community
Traverse	Browns Valley, Wheaton
Wabasha	Elgin, Lake City**, Mazeppa, Plainview, Wabasha
Wadena	Menahga, Sebeka, Staples**, Verndale, Wadena
Waseca	Janesville, New Richland, Waseca
Washington	Afton, Bayport, Birchwood Village, Cottage Grove, Dellwood, Forest Lake, Hugo, Lake Elmo, Lakeland, Lake St. Croix Beach, Landfall, Mahtomedi, Marine on St. Croix, Newport, Oakdale, Oak Park Heights, St. Paul Park, Stillwater, Willernie, Woodbury
Watonwan	Butterfield, Medelia, St. James
Wilkin	Breckenridge
Winona	Goodview, Lewiston, Rollingstone, St. Charles, Stockton, Winona
Wright	Albertville, Annandale, Buffalo, Cokato, Delano, Hanover**, Howard Lake, Maple Lake, Monticello, Montrose, Rockford**, St. Michael
Yellow Medicine	Canby, Clarkfield, Granite Falls**

BORDER COMMUNITIES

State	Community
North Dakota	Cavalier, Fairmont, Fargo, Grafton, Grand Forks, Hillsboro, Kindred, Mayville, Pembina, Wahpeton, West Fargo, Wyndmere
South Dakota	Big Stone City, Brookings, Clear Lake, Dell Rapids, Madison, Milbank, Sisseton, Sioux Falls, Watertown, Wilmat
Iowa	Armstrong, Charles City, Clear Lake, Estherville, Lake Mills, Mason City, Northwood, Osage, Rock Rapids, Spencer
Wisconsin	Arcadia, Hudson, La Crosse, Menomonie, New Richmond, Onalaska, River Falls, Superior, Westby

*An unincorporated municipality.
**A municipality located in more than one county.

TABLE 2. FUNCTIONAL ECONOMIC REGIONS FOR MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL

Region 1: East Grand Forks-Thief River Falls						
Kittson	Pennington	Red Lake				
Marshall	Polk	Roseau				
Region 2: Bemidji						
Aitkin	Cass	Crow Wing	Itasca	Lake of the Woods		
Beltrami	Clearwater	Hubbard	Koochiching	Wadena		
Region 3: Duluth						
Carlton	Lake	St. Louis				
Cook	Pine					
Region 4: Moorhead						
Becker	Mahnomen					
Clay	Norman					
Region 5: Breckenridge-Fergus Falls						
Douglas	Otter Tail	Wilkin				
Grant	Traverse					
Region 6: St. Cloud						
Benton	Mille Lacs	Sherburne	Todd			
Kanabec	Morrison	Stearns				
Region 7: Willmar						
Big Stone	Kandiyohi	Pope	Stevens			
Chippewa	Lac Qui Parle	Renville	Swift			
Region 8: Minneapolis-St. Paul						
Anoka	Chisago	Hennepin	McLeod	Ramsey	Scott	Wright
Carver	Dakota	Isanti	Meeker	Rice	Washington	
Region 9: Marshall						
Cottenwood	Lincoln	Murray	Pipestone	Rock		
Jackson	Lyon	Nobles	Redwood	Yellow Medicine		
Region 10: Mankato						
Blue Earth	Faribault	Martin	Sibley	Watonwan		
Brown	Le Sueur	Nicollet	Waseca			
Region 11: Rochester						
Dodge	Freeborn	Houston	Olmsted	Wabasha		
Fillmore	Goodhue	Mower	Steele	Winona		

4. Productivity Ratios
5. County/Municipal Employment Allocators
6. Project Specific Economic Parameters

Data sources and methods used in the preparation of each of these components, and the results, are presented below.

Economic Sector Delineation

NEDAM uses an input-output model to estimate economic activities associated with projected levels of the historic economic base with alternative scenarios of resource development for the area. Input-output analysis essentially tabulates and describes the linkages or interdependencies between various industrial groups within an economy. As such, the model requires the separation of the economy into these various groups called "sectors." The general framework of the model structures economic activity along two major divisions--suppliers and purchasers. Though these divisions are further subdivided into intermediate (processing) and primary (final payments) sectors and intermediate (processing) and final (final demand) purchasers, a further sector disaggregation is required.

The ideal sector delineation would allow unique recognition of supplier groups, each of which produces a homogeneous good. This ideal, however, is not feasible given the constraints of time, financing, and data. Hence, sector selection was determined to a large extent by the objectives of the study. Since the purpose was primarily to determine the impacts of resource development, most economic sectors such as retail trade and business services did not appear to require detailed disaggregation.

The input-output model used in the adapted version includes the 17 economic sectors of the North Dakota version along with three additional sectors: lumber and associated products, metal mining, and metal processing.

The final sector delineations selected for this study are presented in Table 3. A description of the various sectors, their data sources, and their construction is provided in Appendix A.

I-O Technical and Interdependence Coefficients

The description and analysis of the economy is based upon three components: transactions table, technical coefficients (direct requirements) table, and interdependence coefficients (direct and indirect requirements) table. Once data describing the commodities' flows between sectors are collected and tabulated, the technical coefficients can be derived easily. The difficulty, however, is preparing a transactions table that accurately describes the interdependencies among the economic sectors. Since the time and expense required to prepare the transactions table based on primary data are considerable, technical coefficients available from the North Dakota version and the Northwestern Colorado Input-Output Model[14] were used to approximate the interindustry relationships in Minnesota. The similarity of the economies of Minnesota and eastern North Dakota suggests that such a transfer is feasible. An existing I-O model from Colorado was selected as an appropriate source for estimating coefficients in sectors present within the Minnesota regions, but not found in North Dakota (i.e., metallic mining and lumber). Coefficients from this matrix were augmented to the North Dakota matrix so an input-output model replicating the entire Minnesota economy would be available for this adaptation of NEDAM. The technical coefficients developed for Minnesota are provided in Table 4.

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[14]See Leistritz, et al., 1982, op. cit.; and Gray, S. L., J. R. McKean, and J. C. Weber, The Economy of Northwestern Colorado: Description and Analysis, Technical Report No. 25, Colorado Water Resources Research Institute, Colorado State University, Fort Collins, 1981.

TABLE 3. ECONOMIC SECTORS OF INPUT-OUTPUT MODEL AND ASSOCIATED STANDARD INDUSTRIAL CLASSIFICATION CODES FOR MINNESOTA EXTENSION OF NEDAM

Economic Sector	SIC Code[a]
1. Agriculture, Livestock	Group 013 - Livestock
2. Agriculture, Crops	All of Major Group 01 - Agricultural Production, Except Group 013 - Livestock
3. Metal Mining	Major Group 10 - Metal Mining
4. Coal Mining	Major Group 12 - Bituminous Coal and Lignite Mining
5. Petroleum and Natural Gas Exploration and Extraction	Major Group 13 - Crude Petroleum and Natural Gas
6. Nonmetallic Mining	Major Group 14 - Mining and Quarrying of Nonmetallic Metal, Except Fuels
7. Contract Construction	Division C - Contract Construction (Major Groups 15, 16, and 17)
8. Lumber and Associated Products	Major Group 08 - Forestry, Major Group 24 - Lumber and Wood Products, Except Furniture, and Major Group 26 - Paper and Allied Products
9. Agricultural Processing and Miscellaneous Manufacturing	Major Group 50 - Wholesale Trade, Major Group 20 - Food and Kindred Products Manufacturing
10. Petroleum Refining	Major Group 29 - Petroleum Refining and Related Industries
11. Metal Processing	Major Group 33 - Primary Metal Manufacturing
12. Transportation	All of Division E - Transportation, Communications, Electric, Gas, and Sanitary Services, Except Major Groups 48 and 49
13. Communications and Utilities	Major Group 48 - Communication, and Major Group 49 - Electric, Gas, and Sanitary Services, Except Industry No. 4911
14. Thermal-Electric Power Generation	Industry Number 4911 - Electric Companies and Systems
15. Retail Trade	All of Division F - Wholesale and Retail Trade, Except Major Group 50 - Wholesale Trade
16. Finance, Insurance, and Real Estate	Division G - Finance, Insurance, and Real Estate
17. Business and Personal Services	All of Division H - Services, Except Major Groups 80, 81, 82, 86, and 89
18. Professional and Social Services	Major Group 80 - Medical and Other Health Services, Major Group 81 - Legal Services, Major Group 82 - Educational Services, Major Group 86 - Nonprofit Membership Organizations, and Major Group 89 - Miscellaneous Services
19. Government	Division I - Government
20. Households	Not Applicable

[a]Executive Office of the President/Bureau of the Budget, Standard Industrial Classification Manual, 1967, U.S. Government Printing Office, Washington, D.C., 1967.

TABLE 4. INPUT-OUTPUT TECHNICAL COEFFICIENTS FOR 20-SECTOR MODEL, MINNESOTA ECONOMY

Sector	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining
(1) Ag, Livestock	.0937	.0019	.0000	.0000	.0000	.0000	.0000	.0000	.0742	.0000
(2) Ag, Crops	.1534	.0210	.0000	.0000	.0000	.0001	.0000	.0000	.3476	.0000
(3) Metal Mining	.0000	.0000	.1176	.0000	.0000	.0000	.0000	.0000	.0000	.0000
(4) Coal Mining	.0000	.0000	.0004	.0000	.0003	.0000	.0000	.0000	.0000	.0000
(5) Pet/NG Exp/Ext	.0000	.0000	.0000	.0000	.0893	.0000	.0000	.0000	.0000	.0869
(6) Nonmetallic Mining	.0024	.0020	.0012	.0001	.0005	.0348	.0265	.0000	.0006	.0000
(7) Construction	.0014	.0175	.0005	.0108	.0857	.0000	.0129	.0438	.0010	.0035
(8) Lumber & Assoc Prod	.0000	.0000	.0342	.0000	.0000	.0000	.0000	.0116	.0000	.0000
(9) Ag Proc & Misc Mfg	.2737	.0693	.0017	.0241	.0000	.0000	.0000	.0080	.3671	.0000
(10) Pet Refining	.0000	.0000	.0000	.0168	.0000	.0000	.0000	.0000	.0000	.0000
(11) Metal Processing	.0000	.0000	.0084	.0000	.0000	.0000	.0000	.0005	.0000	.0000
(12) Transportation	.0042	.0018	.0556	.0031	.0137	.0208	.0051	.0203	.0024	.0033
(13) Comm & Public Util	.0068	.0035	.0246	.0215	.0230	.0864	.0119	.0236	.0059	.0021
(14) Electric Generation	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
(15) Retail Trade	.0601	.2920	.0013	.0642	.0125	.0965	.1016	.0121	.0090	.0021
(16) Fin, Ins, Real Estate	.0115	.0525	.0122	.0017	.0009	.0170	.0147	.0215	.0044	.0005
(17) Bus & Pers Service	.0028	.0253	.0004	.0018	.0004	.0079	.0036	.1249	.0010	.0000
(18) Prof & Soc Service	.0027	.0019	.0029	.0066	.0004	.0019	.0012	.0334	.0005	.0002
(19) Government	.0100	.0202	.0094	.0014	.0004	.0159	.0055	.0049	.0029	.0023
(20) Households	.3416	.4315	.2295	.3738	.1309	.4259	.3239	.2134	.0431	.0302

- continued -

TABLE 4. INPUT-OUTPUT TECHNICAL COEFFICIENTS FOR 20-SECTOR MODEL, MINNESOTA ECONOMY (CONTINUED)

Sector	(11) Metal Proc	(12) Trans	(13) Comm & Pub Util	(14) Electric Gen	(15) Retail	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) House-holds
(1) Ag, Livestock	.0000	.0000	.0000	.0000	.0575	.0000	.0000	.0005	.0000	.0097
(2) Ag, Crops	.0000	.0000	.0000	.0000	.0013	.0010	.0000	.0000	.0000	.0001
(3) Metal Mining	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
(4) Coal Mining	.0001	.0000	.0000	.1582	.0000	.0000	.0000	.0000	.0000	.0000
(5) Pet/NG Exp/Ext	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
(6) Nonmetallic Mining	.0001	.0058	.0007	.0000	.0003	.0002	.0011	.0005	.0000	.0016
(7) Construction	.0000	.0013	.0174	.0058	.0093	.0016	.0103	.0147	.0000	.0498
(8) Lumber & Assoc Prod	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
(9) Ag Proc & Misc Mfg	.0102	.0000	.0000	.0339	.0002	.0201	.0000	.0010	.0000	.0016
(10) Pet Refining	.0000	.0000	.0000	.0075	.0000	.0000	.0000	.0000	.0000	.0000
(11) Metal Processing	.0130	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
(12) Transportation	.0252	.0014	.0077	.0009	.0067	.0033	.0059	.0019	.0000	.0009
(13) Comm & Public Util	.0244	.0224	.0414	.0024	.0207	.0434	.0536	.0394	.0000	.0443
(14) Electric Generation	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
(15) Retail Trade	.0021	.1506	.0384	.0079	.0582	.0808	.0911	.1420	.0000	.4129
(16) Fin, Ins, Real Estate	.0094	.0314	.0240	.0513	.0097	.0077	.0267	.0223	.0000	.0961
(17) Bus & Pers Service	.0009	.0134	.0050	.0018	.0019	.0278	.0209	.0030	.0000	.0328
(18) Prof & Soc Service	.0054	.0014	.0019	.0033	.0015	.0049	.0037	.0347	.0000	.0593
(19) Government	.0187	.1992	.0398	.0135	.0065	.0184	.0216	.0104	.0000	.0578
(20) Households	.1738	.4210	.4478	.1207	.1780	.6956	.3697	.5654	.0000	.0682

The technical coefficients matrix was subsequently used to derive interdependence coefficients which indicate the total (direct and indirect) input requirements per unit of output. The interdependence coefficients matrix by definition is $(I-A)^{-1}$, where A is the matrix of technical coefficients and I is an identity matrix. Due to its expansion from 17 to 20 sectors (requiring a reinverting of the technical coefficients matrix), the Minnesota version (Table 5) has different interdependence coefficients for comparable sectors than the North Dakota version.

Baseline Economic Projection Procedures

The economic module of the adapted version determines both baseline and impact projections. Baseline projections indicate the level of economic activity (measured by employment, personal income, and sales to final demand) associated with a continuation of current trends in the region's basic sectors. Baseline estimates constitute projections of future economic conditions likely to prevail in the area if no major resource development projects are initiated or closed. These projections are the essential base upon which the changes in economic activity associated with alternative scenarios of resource or industrial development are superimposed.

The general procedures for developing baseline economic projections involved projecting historic sales to final demand for the basic economic sectors through the year 2005. The I-O technical coefficients were applied to these final demand projections to obtain estimates of total economic activity (gross business volume) in each sector for the respective years. Projected gross business volumes for each sector were divided by the projected productivity ratios for their respective sectors for each year to obtain estimated annual employment. In the final step, regional employment was

TABLE 5. INPUT-OUTPUT INTERDEPENDENCE COEFFICIENTS FOR 20-SECTOR MODEL, MINNESOTA ECONOMY

Sector	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining
(1) Ag, Livestock	1.2072	.0774	.0244	.0375	.0159	.0445	.0343	.0287	.1911	.0040
(2) Ag, Crops	.3938	1.0922	.0112	.0285	.0063	.0176	.0134	.0162	.6488	.0016
(3) Metal Mining	.0000	.0000	1.1333	.0000	.0000	.0000	.0000	.0000	.0000	.0000
(4) Coal Mining	.0000	.0000	.0005	1.0000	.0003	.0000	.0000	.0000	.0000	.0000
(5) Pet/NG Exp/Ext	.0000	.0000	.0000	.0016	1.0981	.0000	.0000	.0000	.0000	.0954
(6) Nonmetallic Mining	.0084	.0069	.0039	.0031	.0045	1.0396	.0303	.0038	.0063	.0007
(7) Construction	.0722	.0794	.0339	.0514	.1148	.0521	1.0501	.0807	.0619	.0168
(8) Lumber & Assoc Prod	.0000	.0000	.0392	.0000	.0000	.0000	.0000	1.0117	.0000	.0000
(9) Ag Proc & Misc Mfg	.5730	.1612	.0193	.0617	.0097	.0272	.0207	.0315	1.7402	.0025
(10) Pet Refining	.0000	.0000	.0000	.0168	.0000	.0000	.0000	.0000	.0000	1.0000
(11) Metal Processing	.0000	.0000	.0097	.0000	.0000	.0000	.0000	.0005	.0000	.0000
(12) Transportation	.0151	.0113	.0679	.0082	.0180	.0284	.0105	.0258	.0128	.0053
(13) Comm & Public Util	.0921	.0836	.0696	.0707	.0510	.1557	.0605	.0756	.0767	.0106
(14) Electric Generation	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
(15) Retail Trade	.7072	.8130	.2701	.3975	.1839	.5235	.4101	.3156	.6115	.0458
(16) Fin, Ins, Real Estate	.1526	.1677	.0753	.0767	.0388	.1140	.0837	.0903	.1322	.0101
(17) Bus & Pers Service	.0562	.0684	.0277	.0286	.0139	.0430	.0287	.1528	.0514	.0035
(18) Prof & Soc Service	.0711	.0644	.0384	.0491	.0210	.0560	.0402	.0714	.0531	.0055
(19) Government	.0987	.0957	.0626	.0508	.0280	.0853	.0519	.0545	.0796	.0094
(20) Households	1.0459	.9643	.5249	.6630	.3206	.8428	.6091	.5608	.7862	.0828
Gross Receipts Multiplier	4.4935	3.6855	2.4119	2.5453	1.9248	3.0297	2.4435	2.5199	4.4518	1.2940

- continued -

TABLE 5. INPUT-OUTPUT INTERDEPENDENCE COEFFICIENTS FOR 20-SECTOR MODEL, MINNESOTA ECONOMY (CONTINUED)

Sector	(11) Metal Proc	(12) Trans	(13) Comm & Pub Util	(14) Electric Gen	(15) Retail	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) House-holds
(1) Ag, Livestock	.0171	.0455	.0379	.0250	.0889	.0617	.0384	.0571	.0000	.0674
(2) Ag, Crops	.0128	.0179	.0152	.0321	.0318	.0368	.0152	.0230	.0000	.0267
(3) Metal Mining	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
(4) Coal Mining	.0001	.0000	.0000	.1582	.0000	.0000	.0000	.0000	.0000	.0000
(5) Pet/NG Exp/Ext	.0000	.0000	.0000	.0010	.0000	.0000	.0000	.0000	.0000	.0000
(6) Nonmetallic Mining	.0016	.0092	.0044	.0019	.0025	.0050	.0044	.0051	.0000	.0058
(7) Construction	.0207	.0496	.0653	.0320	.0348	.0740	.0546	.0787	.0000	.0902
(8) Lumber & Assoc Prod	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
(9) Ag Proc & Misc Mfg	.0276	.0277	.0239	.0781	.0452	.0704	.0237	.0363	.0000	.0417
(10) Pet Refining	.0000	.0000	.0000	.0102	.0000	.0000	.0000	.0000	.0000	.0000
(11) Metal Processing	1.0132	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
(12) Transportation	.0280	1.0079	.0135	.0046	.0104	.0120	.0118	.0100	.0000	.0093
(13) Comm & Public Util	.0509	.0840	1.1006	.0375	.0529	.1322	.1104	.1192	.0000	.1056
(14) Electric Generation	.0000	.0000	.0000	1.0000	.0000	.0000	.0000	.0000	.0000	.0000
(15) Retail Trade	.1754	.5476	.4318	.2256	1.2735	.6765	.4526	.6669	.0000	.7449
(16) Fin, Ins, Real Estate	.0487	.1205	.1129	.0976	.0578	1.1424	.1085	.1401	.0000	.1681
(17) Bus & Pers Service	.0153	.0461	.0375	.0200	.0194	.0766	1.0509	.0455	.0000	.0605
(18) Prof & Soc Service	.0274	.0519	.0527	.0300	.0276	.0816	.0497	1.1026	.0000	.0982
(19) Government	.0495	.2583	.0999	.0443	.0395	.1071	.0774	.0881	1.0000	.1080
(20) Households	.3401	.7878	.7953	.3953	.4036	1.2019	.7161	1.0438	.0000	1.5526
Gross Receipts Multiplier	1.8284	3.0540	2.7909	2.1934	2.0879	3.6782	2.7137	3.4164	1.0000	3.0790

allocated to counties and municipalities based on each entity's projected share of regional employment.

Baseline final demand projections were developed by first estimating the baseline sales to final demand for each sector for the period 1960 to 1982. The economic baseline for the study region was defined as the export sales of that region's basic producing sectors to the "rest-of-the-world" without any major new resource development projects. The major components of the area's sales to final demand were sales by the agricultural (both crops and livestock), mining, and manufacturing sectors, plus federal government outlays and tourist expenditures. Historical estimates of sales to final demand were developed using data from secondary sources (see Appendix A) and techniques similar to those utilized elsewhere.[15] Final demand vectors for one Minnesota functional economic region (Region 1, East Grand Forks-Thief River Falls) for the years 1960 to 1982 are presented in Table 6. Final demand vectors for the remaining regions and Minnesota totals are included in Appendix B, Tables 2-12. Projections of future baseline activity were based on time series projections of the final demand vectors that existed in 1960 through 1982. Several time series regression analysis techniques were employed for each region and sector for the years 1960 through 1982 to arrive at the best set of projecting equations for the model. Equations estimated by robust regression analysis with an intercept adjustment were selected for use in the model (Table 7 and Appendix B, Tables 13-23). A detailed discussion of the regression analysis is included in Appendix A. As in the North Dakota version, projections for each final demand vector were obtained by linear extrapolations of the regression equations to the year 2005 for the respective sectors (Table 8 and Appendix B, Tables 24-34).

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[15]Hertsgaard, T. A., R. C. Coon, F. L. Leistritz, and N. L. Dalsted, Developing Economic Impact Projection Models for the Fort Union Coal Region, EPA-908/4-77-009, U.S. Environmental Protection Agency, Denver, Colorado, 1977.

TABLE 6. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MINNESOTA REGION 1, 1960-1982, MILLION DOLLARS (1980 = BASE DOLLARS)

	Sector								
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(15) Retail Trade	(17) Bus & Pers Service	(20) Households
1960	93.7	144.3	--	2.1	60.4	3.1	8.8	3.1	46.7
1961	92.6	127.6	--	2.3	62.7	5.4	9.5	3.1	48.3
1962	91.7	134.6	--	2.0	64.6	7.0	9.8	3.3	55.3
1963	86.8	120.7	--	2.0	66.5	8.9	9.9	3.2	54.6
1964	90.9	180.2	--	2.7	71.7	13.2	10.2	3.4	56.1
1965	92.7	201.9	--	3.3	76.0	16.9	10.3	3.3	60.5
1966	98.9	160.1	--	3.0	79.7	20.3	10.2	3.5	76.0
1967	94.7	163.5	--	2.9	79.9	26.7	10.8	3.6	85.5
1968	90.5	143.7	--	3.7	78.9	40.0	10.7	3.7	92.2
1969	87.2	154.0	--	1.4	77.4	51.3	11.6	3.9	102.6
1970	86.9	123.9	--	5.6	75.2	61.8	11.8	4.1	97.9
1971	87.4	186.6	--	7.0	75.2	61.2	12.0	4.1	107.4
1972	87.6	176.8	--	2.0	80.3	72.5	12.1	4.1	106.4
1973	114.6	333.8	--	5.0	85.1	94.3	13.1	4.4	116.8
1974	92.7	436.4	--	1.5	89.0	107.7	13.9	4.6	116.2
1975	90.0	323.4	--	4.4	68.6	140.7	14.1	4.7	113.8
1976	100.0	328.6	--	2.7	81.2	145.5	14.8	5.0	118.5
1977	89.3	340.4	--	2.5	83.6	156.8	15.1	5.1	118.8
1978	93.8	407.7	--	1.7	97.7	141.9	15.6	5.2	124.6
1979	107.7	399.3	--	2.1	105.0	159.3	16.4	5.4	127.8
1980	103.5	314.5	--	2.2	86.3	175.3	16.6	5.5	146.7
1981	86.0	464.8	--	1.8	76.5	181.4	16.4	5.4	126.3
1982	82.2	380.9	--	1.8	70.0	214.0	17.0	5.7	108.6

TABLE 7. REGRESSION EQUATIONS[a] FOR PROJECTING FINAL DEMAND VECTORS FOR THE 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 1, THOUSAND DOLLARS (1980 = BASE DOLLARS)

Sector	Equation
(1) Ag, Livestock	Y = 507,598.7 - 210.516(X)
(2) Ag, Crops	Y = -28,375,980 + 14,519.3(X)
(3) Metal Mining	Y = 0[b]
(4) Coal Mining	Y = 0[b]
(5) Pet/NG Exp/Ext	Y = 0[b]
(6) Nonmetallic Mining	Y = 0[b]
(7) Construction	Y = 47,122.32 - 22.8112(X)
(8) Lumber & Assoc Prod	Y = -2,401,026 + 1,251.2(X)
(9) Ag Proc & Misc Mfg	Y = -19,328,910 + 9,853.19(X)
(10) Pet Refining	Y = 0[b]
(11) Metal Processing	Y = 0[b]
(12) Transportation	Y = 0[b]
(13) Comm & Pub Util	Y = 0[b]
(14) Electric Generation	Y = 0[b]
(15) Retail Trade	Y = -743,472.9 + 383.715(X)
(16) Fin, Ins, Real Estate	Y = 0[b]
(17) Bus & Pers Service	Y = -247,139.2 + 127.548(X)
(18) Prof & Soc Service	Y = 0[b]
(19) Government	Y = 0[b]
(20) Households	Y = -8,906,453 + 4,560.15(X)

[a]Robust regression with an intercept adjustment technique.
[b]An economic sector having no sales for final demand.

TABLE 8. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MINNESOTA REGION 1, SELECTED YEARS 1983 TO 2005, MILLION DOLLARS (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1) Ag, Livestock	90.4	89.9	88.9	87.8	86.8	85.7
(2) Ag, Crops	401.3	430.3	502.9	575.5	648.1	720.7
(3) Metal Mining	--	--	--	--	--	--
(7) Construction	1.9	1.9	1.8	1.6	1.5	1.4
(8) Lumber & Assoc Prod	78.9	81.4	87.6	93.9	100.1	106.4
(9) Ag Proc & Misc Mfg	200.1	219.8	269.1	318.4	367.6	416.9
(15) Retail Trade	17.1	17.8	19.7	21.7	23.6	25.5
(17) Bus & Pers Service	4.7	4.9	5.6	6.2	6.8	7.5
(20) Households	131.8	140.9	163.7	186.5	209.3	232.1

These projections do not attempt to account for short-term deviations from historical trends. Rather, the projections represent the average final demand values that determine the levels of employment and population.

Productivity (Gross Business Volume/Employment) Ratios

The productivity ratio for each economic sector refers to the gross business volume produced per full-time equivalent worker in that sector. Gross business volume estimates by economic sector were made regionally for the years 1960 to 1982 (Table 9 and Appendix B, Tables 35-45). Productivity ratios for each functional region were determined by dividing each sector's historic gross business volume (estimated by applying the interdependence coefficient matrix to the final demand vectors) by its employment[16] in the corresponding years (Table 10 and Appendix B, Tables 46-56). The resulting estimates of gross business volume per worker for the respective sectors and years are shown in Table 11 and Appendix B, Tables 57-67. Inconsistencies in the data used to disaggregate county employment to sectors sometimes resulted in sectors having gross business volume but no employment and occasionally vice versa.

Ratios of gross business volume per worker were projected through the year 2005 by using a method similar to that utilized in projecting final demand vectors.[17] Robust regression analysis with an intercept adjustment provided estimation equations for each sector and region (Table 12 and Appendix B, Tables 68-78). These equations were used to project gross business volume per worker

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[16]See Appendix A for data sources used in determining *employment*.

[17]These methods are similar to those employed in North Dakota. For further discussion see, Hertsgaard, T. A., S. H. Murdock, N. E. Toman, M. Henry, and R. Ludtke, REAP Economic-Demographic Model: Technical Description, North Dakota Regional Environmental Assessment Program, Bismarck, 1978; and Toman, N. E., S. H. Murdock, and T. A. Hertsgaard, REAP Economic-Demographic Model Version II: Technical Description, North Dakota Regional Environmental Assessment Program, Bismarck, 1979.

TABLE 9. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 1, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS

	Sector										
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	130,730	199,095	--	--	--	2,404	30,180	61,107	86,710	--	30
1961	128,792	182,021	--	--	--	2,318	29,483	63,434	87,565	--	31
1962	129,104	190,576	--	--	--	2,409	30,563	65,356	91,326	--	32
1963	122,489	174,711	--	--	--	2,288	29,314	67,278	89,617	--	33
1964	133,174	244,246	--	--	--	2,809	35,910	72,539	109,301	--	36
1965	138,179	271,253	--	--	--	3,059	39,363	76,889	120,601	--	38
1966	144,216	230,716	--	--	--	2,939	38,093	80,632	124,090	--	40
1967	141,332	237,205	--	--	--	3,022	39,250	80,835	133,797	--	40
1968	137,716	222,726	--	--	--	2,994	39,562	79,823	151,608	--	39
1969	137,356	240,261	--	--	--	3,095	39,287	78,306	171,424	--	39
1970	136,460	213,985	--	--	--	3,045	41,353	76,080	184,508	--	38
1971	142,508	282,554	--	--	--	3,577	48,663	76,080	194,292	--	38
1972	144,068	279,252	--	--	--	3,444	43,673	81,239	212,511	--	40
1973	194,021	475,936	--	--	--	5,063	63,965	86,096	291,928	--	43
1974	178,115	588,094	--	--	--	5,581	67,983	90,041	319,303	--	45
1975	171,790	484,673	--	--	--	4,983	62,054	69,403	356,293	--	34
1976	185,877	497,739	--	--	--	5,161	63,182	82,150	371,811	--	41
1977	176,144	513,800	--	--	--	5,230	64,072	84,578	387,347	--	42
1978	184,755	579,801	--	--	--	5,703	69,662	98,843	375,539	--	49
1979	204,728	587,627	--	--	--	5,933	72,413	106,228	412,842	--	53
1980	196,914	503,946	--	--	--	5,454	66,679	87,310	424,821	--	43
1981	186,897	664,453	--	--	--	6,216	74,665	77,395	448,459	--	38
1982	180,730	591,918	--	--	--	5,684	67,663	70,819	488,579	--	35

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TABLE 9. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 1, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS) (CONTINUED)

	Sector									
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households	TOTAL
1960	5,229	31,364	--	252,797	53,233	30,838	25,500	32,338	353,015	1,294,565
1961	5,136	30,433	--	242,739	51,103	30,221	24,816	31,148	341,748	1,250,987
1962	5,339	31,963	--	254,936	53,710	31,653	26,116	32,728	360,830	1,306,640
1963	5,175	30,559	--	241,491	50,933	30,667	25,039	31,090	343,743	1,244,422
1964	6,124	36,872	--	298,913	62,926	36,311	29,957	38,041	414,724	1,521,879
1965	6,602	39,957	--	325,052	68,501	38,925	32,438	41,325	450,017	1,652,198
1966	6,503	39,208	--	310,085	65,819	38,290	32,151	40,081	444,928	1,597,791
1967	6,660	40,651	--	321,702	68,246	39,335	33,375	41,565	463,960	1,650,973
1968	6,590	40,315	--	315,689	67,149	38,807	33,128	41,027	461,292	1,638,465
1969	6,847	42,656	--	336,206	71,361	40,470	35,013	43,560	491,068	1,736,945
1970	6,583	40,540	--	315,817	67,053	38,649	33,178	41,098	464,234	1,662,616
1971	7,397	46,881	--	374,683	79,291	43,553	38,213	48,207	540,429	1,926,359
1972	7,506	46,930	--	372,708	79,050	44,050	38,263	48,103	538,375	1,939,210
1973	10,231	65,943	--	544,674	114,904	59,211	52,980	69,131	756,433	2,790,554
1974	11,302	73,615	--	621,253	130,566	66,372	58,853	77,868	842,591	3,131,575
1975	9,890	64,851	--	540,917	113,587	57,117	51,570	68,210	743,498	2,798,870
1976	10,523	67,992	--	562,961	118,477	60,770	54,198	71,234	776,569	2,928,681
1977	10,707	69,087	--	573,222	120,595	62,048	55,002	72,378	787,524	2,981,775
1978	11,760	75,653	--	631,134	132,819	68,737	60,429	79,458	862,111	3,236,448
1979	12,332	78,543	--	650,734	137,132	71,382	62,683	82,222	892,001	3,376,849
1980	11,213	72,904	--	597,124	125,904	64,566	58,308	76,010	837,486	3,128,680
1981	12,276	81,384	--	691,918	144,876	71,324	64,338	86,376	931,347	3,541,957
1982	11,363	74,225	--	626,621	131,041	65,312	58,224	78,349	841,429	3,291,985

TABLE 10. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 1, 1960-1982

Year	Sector (1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber & Assoc Prod	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	9,388	--	--	--	--	798	354	2,859	--	--
1961	9,197	--	--	--	--	763	353	2,857	--	--
1962	9,007	--	--	--	--	771	365	2,947	--	--
1963	8,816	--	--	--	--	763	368	2,978	--	--
1964	8,625	--	--	--	--	784	358	2,897	--	--
1965	8,420	--	--	--	--	928	383	3,394	--	--
1966	8,214	--	--	--	--	741	385	3,962	--	--
1967	8,009	--	--	--	--	692	714	3,559	--	--
1968	7,803	--	--	--	--	740	699	3,940	--	--
1969	7,598	--	--	--	--	662	684	5,444	--	--
1970	7,430	--	--	--	--	625	676	5,293	--	--
1971	7,353	--	--	--	--	916	685	6,248	--	--
1972	7,232	--	--	--	--	713	675	6,043	--	--
1973	7,109	--	--	--	--	708	977	6,059	--	--
1974	6,987	--	--	--	--	718	1,617	5,770	--	--
1975	7,009	--	--	--	--	903	1,532	5,579	--	--
1976	7,031	--	--	--	--	878	1,596	5,945	--	--
1977	7,052	--	--	--	--	901	1,510	5,812	--	--
1978	7,072	--	--	--	--	986	1,560	6,474	--	--
1979	7,149	--	--	--	--	1,019	1,562	6,724	--	--
1980	7,116	--	--	--	--	856	1,562	5,901	--	--
1981	7,190	--	--	--	--	780	1,514	6,009	--	--
1982	7,264	--	--	--	--	697	1,487	5,814	--	--

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TABLE 10. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 1, 1960-1982 (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	500	568	--	3,143	449	489	2,107	3,474	--
1961	470	534	--	3,103	467	505	2,177	3,572	--
1962	470	534	--	3,170	479	523	2,253	3,769	--
1963	464	527	--	3,247	485	532	2,295	3,992	--
1964	475	540	--	3,430	498	566	2,438	4,244	--
1965	505	563	--	3,517	515	774	2,321	4,412	--
1966	531	571	--	3,545	544	700	2,469	4,654	--
1967	546	548	--	3,668	561	771	2,814	4,772	--
1968	640	539	--	3,680	579	716	14,463	4,735	--
1969	648	473	--	4,139	627	753	3,159	4,768	--
1970	639	466	--	4,251	647	791	3,320	4,988	--
1971	613	610	--	4,362	637	694	3,530	5,148	--
1972	814	698	--	4,893	652	886	4,322	5,174	--
1973	643	643	--	5,154	664	1,032	3,979	5,348	--
1974	572	619	--	4,772	711	803	3,835	5,341	--
1975	609	564	--	4,693	743	787	4,071	5,481	--
1976	770	533	--	5,121	789	903	4,344	5,763	--
1977	701	491	--	5,649	804	1,194	3,917	5,835	--
1978	632	644	--	5,804	908	1,115	4,286	5,965	--
1979	663	675	--	5,899	944	1,163	4,470	5,907	--
1980	599	659	--	5,533	981	1,132	4,868	5,989	--
1981	610	672	--	5,660	1,043	1,199	5,153	6,136	--
1982	593	653	--	5,628	1,060	1,216	5,229	6,002	--

TABLE 11. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 1, 1960-1982 (1980 = BASE DOLLARS)

	Sector									
Year	(1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	35,133	--	--	--	--	37,820	172,619	30,329	--	--
1961	33,795	--	--	--	--	38,641	179,700	30,649	--	--
1962	35,492	--	--	--	--	39,641	179,058	30,989	--	--
1963	33,711	--	--	--	--	38,419	182,821	30,093	--	--
1964	43,759	--	--	--	--	45,804	202,623	37,729	--	--
1965	48,626	--	--	--	--	42,417	200,755	35,534	--	--
1966	45,645	--	--	--	--	51,408	209,434	31,320	--	--
1967	47,264	--	--	--	--	56,720	113,214	37,594	--	--
1968	46,193	--	--	--	--	53,462	114,196	38,479	--	--
1969	49,700	--	--	--	--	59,346	114,482	31,489	--	--
1970	47,166	--	--	--	--	66,165	112,544	34,859	--	--
1971	57,808	--	--	--	--	53,126	111,066	31,097	--	--
1972	58,534	--	--	--	--	61,252	120,354	35,166	--	--
1973	94,241	--	--	--	--	90,346	88,123	48,181	--	--
1974	109,662	--	--	--	--	94,684	55,684	55,338	--	--
1975	93,660	--	--	--	--	68,720	45,302	63,863	--	--
1976	97,229	--	--	--	--	71,961	51,472	62,542	--	--
1977	97,837	--	--	--	--	71,112	56,012	66,646	--	--
1978	108,110	--	--	--	--	70,651	63,361	58,007	--	--
1979	110,834	--	--	--	--	71,063	68,008	61,398	--	--
1980	98,491	--	--	--	--	77,896	55,896	71,991	--	--
1981	118,408	--	--	--	--	95,724	51,120	74,631	--	--
1982	106,367	--	--	--	--	97,077	47,625	84,035	--	--

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TABLE 11. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 1, 1960-1982 (1980 = BASE DOLLARS) (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	10,458	55,218	--	80,432	118,559	63,063	12,103	9,309	--
1961	10,928	56,991	--	78,227	109,428	59,844	11,399	8,720	--
1962	11,360	59,856	--	80,421	112,129	60,522	11,592	8,683	--
1963	11,153	57,987	--	74,374	105,016	57,645	10,910	7,788	--
1964	12,893	68,281	--	87,147	126,357	64,154	12,288	8,963	--
1965	13,073	70,972	--	92,423	133,012	50,291	13,976	9,367	--
1966	12,247	68,665	--	87,471	120,991	54,700	13,022	8,612	--
1967	12,198	74,181	--	87,705	121,651	51,018	11,860	8,710	--
1968	10,297	74,796	--	85,785	115,974	54,200	2,291	8,665	--
1969	10,566	90,182	--	81,229	113,813	53,745	11,084	9,136	--
1970	10,302	86,996	--	74,292	103,637	48,861	9,993	8,239	--
1971	12,067	76,854	--	85,897	124,476	62,756	10,825	9,364	--
1972	9,221	67,235	--	76,172	121,242	49,718	8,853	9,297	--
1973	15,911	102,555	--	105,680	173,048	57,375	13,315	12,927	--
1974	19,759	118,926	--	130,187	183,637	82,655	15,346	14,579	--
1975	16,240	114,984	--	115,260	152,876	72,576	12,668	12,445	--
1976	13,666	127,565	--	109,932	150,161	67,298	12,477	12,361	--
1977	15,274	140,707	--	101,473	149,994	51,966	14,042	12,404	--
1978	18,608	117,474	--	108,741	146,276	61,648	14,099	13,321	--
1979	18,600	116,360	--	110,313	145,267	61,377	14,023	13,919	--
1980	18,720	110,628	--	107,920	128,343	57,037	11,978	12,692	--
1981	20,125	121,107	--	122,247	138,903	59,486	12,486	14,077	--
1982	19,162	113,668	--	111,340	123,624	53,711	11,135	13,054	--

TABLE 12. REGRESSION EQUATIONS[a] FOR PROJECTING GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR THE 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 1 (1980 = BASE DOLLARS)

Sector	Equation
(1) & (2) Agriculture	Y = -8,206,795.0 + 4,197.15(X)
(3) Metal Mining	Y = 10,000,000[b]
(4) Coal Mining	Y = 10,000,000[b]
(5) Pet/NG Exp/Ext	Y = 10,000,000[b]
(6) Nonmetallic Mining	Y = 10,000,000[b]
(7) Construction	Y = -4,230,903.0 + 2,181.29(X)
(8) Lumber & Assoc Prod	Y = 49,373[c]
(9) Ag Proc & Misc Mfg	Y = -4,382,721.0 + 2,251.19(X)
(10) Pet Refining	Y = 10,000,000[b]
(11) Metal Processing	Y = 10,000,000[b]
(12) Transportation	Y = -811,119.2 + 419.21(X)
(13) Comm & Public Utilities	Y = -6,351,839.0 + 3,264.50(X)
(14) Electric Generation	Y = 10,000,000[b]
(15) Retail Trade	Y = -3,418,227.0 + 1,782.97(X)
(16) Fin, Ins, Real Estate	Y = -2,730,907.0 + 1,444.32(X)
(17) Bus & Pers Service	Y = 46,039.86 + 5.404(X)
(18) Prof & Soc Service	Y = -97,605.94 + 55.110(X)
(19) Government	Y = -544,028.4 + 281.324(X)
(20) Households	Y = 10,000,000[b]

[a]Robust regression with an intercept adjustment technique.
[b]Because very little or no employment exists in this sector, arbitrarily large numbers resulting in appropriate levels were used for determining projected employment.
[c]The productivity ratio for this sector was projected as a constant using the average of the 1981 and 1982 levels.

to the year 2005. The resulting estimates of gross business volume to employment ratios projected through the year 2005 are shown for Region 1 in Table 13 and for the remaining regions in Appendix B, Tables 79-89.

County and Municipal Employment Allocators

Baseline employment is allocated to cities and counties on the basis of each city's or county's projected share of total regional employment. Projected shares for each city were extrapolations of that city's share of

TABLE 13. PROJECTED GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR MINNESOTA REGION 1, SELECTED YEARS 1983 TO 2005 (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1)&(2) Agriculture	111,956	120,351	141,336	162,322	183,308	204,294
(3) Metal Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(4) Coal Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(5) Pet/NG Exp/Ext	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(6) Nonmetallic Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(7) Construction	92,414	96,776	107,683	118,589	129,496	140,402
(8) Lumber & Assoc Prod	49,373	49,373	49,373	49,373	49,373	49,373
(9) Ag Proc & Misc Mfg	79,138	83,640	94,896	106,152	117,408	128,664
(10) Pet Refining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(11) Metal Processing	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(12) Transportation	19,755	20,593	22,689	24,786	26,882	28,978
(13) Comm & Pub Util	118,400	124,929	141,252	157,574	173,897	190,219
(14) Electric Generation	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail Trade	115,620	119,185	128,100	137,015	145,930	154,845
(16) Fin, Ins, Real Estate	131,735	134,624	141,845	149,067	156,289	163,510
(17) Bus & Pers Service	56,751	56,761	56,788	56,815	56,842	56,869
(18) Prof & Soc Service	11,622	11,732	12,008	12,283	12,559	12,835
(19) Government	13,556	14,118	15,525	16,932	18,338	19,745
(20) Households	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

county employment between 1960 and 1980.[18] Since employment data were not available at the subcounty level, population was used as a proxy. Each city's share of employment was based on that city's share of total municipal population in the functional economic region from 1960 to 1980. Cities' shares were used to allocate the region's total nonagricultural employment among the cities in each region to 2005. In similar fashion, the region's agricultural employment was allocated to the counties in the region based on each county's share of the region's agricultural employment from 1960 to 1980. Agricultural employment projections to 2005 were based on the county's share in 1980. County and city allocators used in the adapted version are presented for Region 1 in Table 14 and for the remaining regions in Appendix B, Tables 90-99.

Project-Specific Economic Parameters

Economic activity associated with the construction and operation of resource extraction and conversion projects or similar industry-specific development was assumed to be largely additive to trends in baseline activity. The adapted version first computes the baseline economic activity in the region (along with its counties and municipalities) and then computes the economic activity associated with the development scenario specified by the user. Assessment of the economic impacts of a new project (or several projects) is based on a set of project-specific data assembled for each project. The project data file has been designed to allow rapid updating of information regarding specific projects (e.g., changes in construction timetables and labor requirements) and for the addition of information on new projects.

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[18]Constraints were imposed on the extrapolation process such that the sum of all shares would equal 1.00 (i.e., 100 percent of regional employment) and that no city or county's share would be less than zero or more than one.

TABLE 14. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 1, SELECTED YEARS 1980 to 2005

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Kittson	Hallock	0.0329348		0.0315161		0.0301585		0.0288594		0.0276162		0.0264266	
	Karlstad	0.0218941	0.0218944	0.0228296	0.0227283	0.0238051	0.0235587	0.0248223	0.0243857	0.0258830	0.0252094	0.0269890	0.026030
Marshall	Argyle	0.0173699		0.0167071		0.0160695		0.0154563		0.0148665		0.0142992	
	Stephen	0.0210502		0.0208027		0.0205582		0.0203166		0.0200778		0.0198418	
	Warren	0.0493436		0.0487893		0.0482413		0.0476994		0.0471636		0.0466338	
Pennington	Thief River Falls	0.2134306	0.2134333	0.2215144	0.2205313	0.2299047	0.2275245	0.2386126	0.2344150	0.2476503	0.2412052	0.2570306	0.247898
Polk	Crookston	0.2022500		0.1980812		0.1939983		0.1899995		0.1860832		0.1822476	
	East Grand Forks	0.2001136	0.2001160	0.2054827	0.2045708	0.2109961	0.2088116	0.2166572	0.2128459	0.2224703	0.2166806	0.2284395	0.220323
	Erskine	0.0137131		0.0132373		0.0127780		0.0123347		0.0119068		0.0114937	
	Fertile	0.0203704		0.0193733		0.0184250		0.0175231		0.0166654		0.0158496	
	Fosston	0.0374824		0.0360446		0.0346619		0.0333323		0.0320537		0.0308241	
	McIntosh	0.0159634		0.0150527		0.0141939		0.0133841		0.0126205		0.0119004	
Red Lake	Oklee	0.0125645		0.0123165		0.0120735		0.0118353		0.0116018		0.0113729	
	Red Lake Falls	0.0405997	0.0406002	0.0409842	0.0408023	0.0413723	0.0409439	0.0417641	0.0410294	0.0421595	0.0410623	0.0425587	0.041047
Roseau	Greenbush	0.0191512	0.0191514	0.0194074	0.0193212	0.0196670	0.0194634	0.0199301	0.0195795	0.0201967	0.0196711	0.0204669	0.019740
	Roseau	0.0532583		0.0527837		0.0523133		0.0518471		0.0513851		0.0509272	
	Warroad	0.0285044		0.0273419		0.0262268		0.0251571		0.0241311		0.0231470	
SUM OF DECLINING COUNTIES		0.5048046		0.4920461		0.4796979		0.4677447		0.4561713		0.4449635	
ONE MINUS DECLINING COUNTIES		0.4951954		0.5079539		0.5203021		0.5322553		0.5438287		0.5550365	
SUM OF INCREASING COUNTIES		0.4951891		0.5102182		0.5257450		0.5417862		0.5583597		0.5754845	
ADJUSTED TOTAL			0.9999999		0.9999999		0.9999999		1.0000000		0.9999998		1.000000

The final demand vector of the site-specific data file for each project is applied to the input-output model. In the construction phase of a project, this consists of annual expenditures to the contract construction, retail trade, and household sectors. During the operational phase, annual expenditures are to the retail trade and household sectors. The construction phase final demand vector indicates the amount of injection of new dollars into the regional spending stream via the contract construction sector (for bid lettings to local contractors), retail trade sector (for supplies and materials purchased locally), and household sector (for wages and salaries to employees living in the area).

The data file for each energy development project that the user may specify contains the following set of specifications:

1. Project number
2. Start date
3. Location of project
4. Project name and description
5. Number of years after the start of construction that operation begins
6. Land taken for plant and/or mine site
7. Acres mined per year
8. Land taken for urban uses
9. Tons mined per year
10. Kilowatt hours of electricity sold per year
11. Cubic feet of synthetic natural gas sold per year
12. Mine value for property tax purposes
13. State share of Federal coal royalties

14. Project final demand vectors
    a) Households
    b) Retail trade
    c) Construction
15. Direct Labor
    a) Construction (temporary workers)
    b) Operation or permanent workers

The project data file format was designed for energy development, although it can be used for other developments (e.g., taconite mine) by including slightly different information.

Economic downturns occurring in specific industries or sectors can be handled easily by using project files. Industrial declines would be handled as if the lower level of production occurred permanently. To accomplish this, the projected baseline final demand vector would be set as a constant value reflecting reduced production. A project file would be developed to allow the industry to resume its growth trend at a point in time when recovery would most likely occur. By handling declines in this manner, the project actually becomes part of the projected baseline economic activity of the region. Projected industry developments beyond baseline growth would be included as additional project files that could be added to the baseline project file.

Description of the Demographic Module

The demographic data base used in the model was composed of four major components:

1. Detailed county population consisting of 75 age cohorts[19] (single-year) by gender

[19]Census information consisted of 104 age cohorts from 0 to 103. Cohorts 0 and 1 were added to form the first age cohort and cohorts 75 and over were added to form the last age cohort.

2. Birth rates by county of residence for six female five-year cohorts from 15 to 45 years of age
3. Survival rates of 75 age cohorts[20] (single-year) by gender
4. Migration rates by county for age cohorts (single-year) over 64 by gender

The data sources and methods used in the preparation of each of these components are described below.

Population by Age and Gender

Single-year cohort populations were derived from the STF 2A 1980 census data tape for Minnesota.[21] The population counts are in 75 single-year age groups[22] by male and female for each county in 1980.

Birth Rates

Three sets of age-specific birth rates were computed for each county in Minnesota for use in the model. These rates were computed using the general formula:

$$ASFR_i = \frac{({}_iB_{1979} + {}_iB_{1980} + {}_iB_{1981})/3}{{}_iFP_{1980}}$$

where: $ASFR_i$ = age-specific fertility rates for females in age group (cohort) i;

$({}_iB_{1979, 1980, 1981})/3$ = average number of births to females in age group i in 1979, 1980, and 1981;

${}_iFP_{1980}$ = female population of age group i in 1980.

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[20] Ibid.

[21] Ibid.

[22] Ibid.

Data on births were obtained from the Minnesota Department of Health,[23] and 1980 data on the number of females were obtained from the 1980 STF 2A census data tape for Minnesota. The use of an average number of births for a three-year period is a standard procedure[24] used to eliminate the effects of bias due to chance fluctuations in the number of births from year to year.

The three sets of rates computed for the projection period for each county were patterned after completed levels of fertility of 1.8, 2.1, and 2.5 births per female. These total fertility levels are the sum of a set of age-specific fertility rates for women in the childbearing ages that would result if each female were to experience a given set of age-specific rates for each age group as she aged through her reproductive lifetime. Six five-year cohort rates were calculated for each county for 1980. A 25-year national fertility trend for the corresponding six five-year cohorts (i.e., women 15 to 45 years of age) was utilized to project total fertility over time.[25] The age-specific national fertility trends were applied to the ratio of county age-specific fertility rates for 1980 for each projection year, resulting in a set of age-specific fertility rates for each county and level of completed fertility.[26] An example of county fertility rates for 1980 is provided in Table 15 for Kittson County.

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[23]Minnesota Center for Health Statistics, Minnesota Health Statistics 1981, Minneapolis, 1981.

[24]Shryock, H. S., and J. S. Siegel, The Methods and Materials of Demography, U.S. Bureau of the Census, U.S. Government Printing Office, Washington, D.C., 1973.

[25]Bureau of the Census, Projections of the Population of the United States 1977 to 2050, U.S. Department of Commerce, Current Population Reports P-25, No. 704, U.S. Government Printing Office, Washington, D.C., 1977.

[26]Tarver, J. D., and T. R. Black, Making County Population Projections: A Detailed Explanation of a Three-Component Method, Illustrated by Reference to Utah Counties, Utah Agricultural Experiment Station, Logan, 1966; and Irwin, Richard, Guide for Local Area Population Projections, U.S. Bureau of the Census, U.S. Government Printing Office, Washington, D.C., 1977.

TABLE 15. FERTILITY RATES[a] FOR KITTSON COUNTY, MINNESOTA, 1980

Age Group	Birth Rate
15-19[b]	0.0414
20-24	0.1877
25-29	0.1460
30-34	0.0694
35-39	0.0103
40-44[c]	0.0103

[a]Using national completed levels of fertility of 2.1 births per female.
[b]Births to women less than 15 years of age are included in this category.
[c]Births to women over 44 years of age are included in this category.

Survival Rates

Survival rates for 15 age and gender cohorts (Table 16) were determined from a 1980 life table for Minnesota.[27] A 1979 through 1982 average of total deaths in each cohort was used to reduce yearly fluctuations. The survival rates for the 15 age-gender cohorts were disaggregated into 75 single-year age-gender cohorts conforming to the detailed population.

The relatively small variation in mortality from one area to another allowed the application of state survival rates to all of the counties. These rates were computed using the life table survival rate method:

$$S_{x,\ x+t} = \frac{L_{x+t}}{L_x}$$

where: $S_{x,\ x+t}$ = probability of a member of a cohort surviving from the time period x to x + t;

L_{x+t} = number of persons in the cohort alive at the end of the period, x + t;

L_x = number of persons in the cohort alive at the beginning of the period, x.

[27]Computed from unpublished data supplied by the Minnesota Center for Health Statistics, Minneapolis, 1983. One rate is applied to all individuals over the age of 70; thus, the rate is adjusted upward to avoid inflating deaths in this age category due to its cumulative quality.

TABLE 16. MINNESOTA SURVIVAL RATES BY AGE AND GENDER

Age	Male	Female
0-4	.990916	.992323
5-9	.999162	.999385
10-14	.998780	.999078
15-19	.996578	.998710
20-24	.995745	.998545
25-29	.996002	.998537
30-34	.996078	.997493
35-39	.993565	.994784
40-44	.987941	.992418
45-49	.977918	.987186
50-54	.961527	.981356
55-59	.946554	.968281
60-64	.902236	.951824
65-69	.841166	.927631
70-74	.956160	.977685
75+	.890000	.920000

L_{x+t} and L_x are derived from the appropriate column of a standard life table. Survival rates for the 1979 to 1981 period were assumed to prevail throughout the projection period.

Migration Rates

Migration rates were not specified for age-gender cohorts 1 to 65 because the employment-based method determines migration. The interface component, described later in the report, uses a comparison procedure[28] between required employment and available work force, ages 15 to 64, to determine yearly net migration for these age groups. The migration of individuals under age 15 is assumed to be a direct result of net work force migration. A profile of a migrating family was developed from survey data and applied to in- and out-migrants providing migration levels for age-gender cohorts from 1 to 14.

[28]For a more detailed discussion of migration procedures, see pages 41-44 of Leistritz, et al., 1982, op. cit.

Migration rates were utilized for age-gender cohorts (single-year) 65 to 74+. Rates were computed for each county in 1980 from two five-year age-gender cohorts, 65-69 and 70-74+. These rates were computed by using an average of the rates computed by forward and reverse survival rate methods,[29] using data from the 1970 census first count, file B and STF 2A for 1980. Migration rates for 1980 were assumed to prevail throughout the projection period. The 1980 net migration rates for Kittson County are provided in Table 17.

TABLE 17. MIGRATION RATES FOR KITTSON COUNTY, MINNESOTA, 1980

Age Group	Male	Female
65	-.074000	-.042000
66	-.074000	-.042000
67	-.074000	-.042000
68	-.074000	-.042000
69	-.074000	-.042000
70	-.004900	-.001900
71	-.004900	-.001900
72	-.004900	-.001900
73	-.004900	-.001900
74+	-.004900	-.001900

Description of the Residential Allocation Module

The residential allocation component of the model estimates the probable settlement patterns of in-migrating workers and their dependents.[30] The allocations were made at the municipal level using a gravity model. Use of this model assumed that the number of in-migrants moving to a city will be inversely related to the distance between the city and the employment site.

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[29]Leistritz, F. Larry, and Steven H. Murdock, 1981, op. cit; Shryock, H. S., and J. S. Siegel, 1973, op. cit.; and Bowles, G. K., C. L. Beale, and E. S. Lee, Net Migration of the Population, 1960-70 by Age, Sex, and Color, University of Georgia Printing Department, Athens, 1975.

[30]Worker demographic characteristics and labor force participation rates used in the Minnesota version are equivalent to those in the North Dakota version. See Leistritz, et al., 1982, op. cit.

In addition, qualitative factors were assumed to exist among settlements and to affect workers' choices. Previously collected data on settlement patterns of workers were used as a basis for estimating parameters for the gravity model.[31] In symbolic form, these assumptions may be stated as follows for each site:

$$M_i = \frac{\left[\dfrac{E_{B_{t-1}} + fE_{C_{t-2}} + E_{O_{t-1}} + E_{I_{t-1}}}{d_{ij}^{a}}\right] W_i}{\sum_{i=1}^{n}\left[\dfrac{E_{B_{t-1}} + fE_{C_{t-2}} + E_{O_{t-1}} + E_{I_{t-1}}}{d_{ij}^{a}}\right] W_i}$$

where: M_i = the fraction of the project-related employees who reside in city i;

E_B, E_C, E_O, and E_I are baseline, construction, operating, and secondary (indirect and induced) employment, respectively, in the previous year (except for construction employment, which is two years previous);

f = a fraction applied to construction employment in the year t-2;

d_{ij}^{a} = the distance from municipality i to the location of project j raised to the power a;

W_i = the relative qualitative attractiveness of city i.

The residential allocation calculations by the gravity model include 503 municipalities within Minnesota as an inital set, plus 41 adjoining

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[31] Leholm, Arlen G., F. Larry Leistritz, and James S. Wieland, Profile of North Dakota's Electric Power Plant Construction Work Force, Agricultural Economics Statistical Report No. 22, Department of Agricultural Economics, North Dakota Agricultural Experiment Station, North Dakota State University, Fargo, 1976; Mountain West Research, Inc., Construction Worker Profile, Old West Regional Commission, Washington, D.C., December 1975; and Wieland, James S., "Socioeconomic Characteristics and Settlement Patterns Associated with Operating and Construction Work Forces in North Dakota, South Dakota, and Montana," Unpublished M.S. Thesis, Department of Agricultural Economics, North Dakota State University, Fargo, 1977.

municipalities in North Dakota, South Dakota, Iowa, and Wisconsin.[32] Non-Minnesota municipalities are allowed to attract population away from Minnesota during gravity model calculations, but no annual calculations of changes in the population of non-Minnesota cities are made. These cities are assumed to have an employment base equal to their 1980 estimated employment plus construction, operation, and secondary workers that are projected to migrate to these cities.

As in the North Dakota version of the model, the user may specify values for the power "a" to which distance is raised. Separate gravity model allocations are made for each type of worker. Unless the user specifies otherwise, the gravity powers are 1.5 for construction workers, 2.9 for operating workers, and 1.6 for project-related secondary workers. This results in a smaller proportion of construction workers than operating workers being allocated to municipalities near the plant site. Slightly more indirect workers than construction workers are allocated to nearby cities.

The gravity model allocates construction, operation, and secondary workers to communities as a factor of commuting distance to the site of a project, but secondary workers are assumed to both reside and work in the community to which they have been allocated. The residential allocation module is computed for each year there is project-related in-migration, using appropriate previous year's employment of each type for each city.

Modification of the Fiscal Impact Module

Population growth in communities near large-scale developments often results in the need for adjustment in the provision and financing of public services. Fiscal problems resulting from increased service demands and costs

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[32]For a listing of the municipalities included in the Minnesota adaptation, see Appendix B, Table 1.

lie primarily in the timing of revenue collection in relation to public service costs and in the distribution of those costs and revenues between jurisdictions. Fiscal impact analysis is used to project the changes in revenue and expenditure flows of governmental units which are likely to occur in response to large-scale developments. Governmental units of primary interest are those local jurisdictions which may experience substantial changes in service demand as a result of project development.[33] The primary focus is on the public sector costs and revenues associated with a particular project. Using traditional forms of cash-flow analysis in determining costs and revenues, the typical result of fiscal impact analysis is a statement of net surplus or deficit. The key features of this analysis are an exclusive focus on the revenues received and costs incurred by governmental units, and inclusion of the distribution of costs and revenues through time.[34]

For estimating revenue flows, the principal methodological alternatives are either to assume that revenues will be directly proportional to population or to employ more detailed models which first estimate the change in the relevant tax base and then apply the appropriate tax rate. On the expenditure side, two general estimation methods are usually employed, the average cost and the marginal cost approaches. The average cost method projects service demands and associated costs for new population only, utilizing averages per inmigrant and either national, state, or local service standards. In contrast, the marginal cost method attempts to take existing services into account and project new service requirements and associated costs on the basis of marginal demands (i.e., requirements above those that can be met by existing

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[33]Muller, Thomas, Fiscal Impacts of Land Development: A Critique of Methods and Review of Issues, URI 98000, The Urban Institute, Washington, D.C., 1975.

[34]Leistritz, F. Larry and Steve H. Murdock, 1981, op. cit.

services). In selecting either of these approaches, care must be taken to insure that these techniques allow for adequate analysis of the magnitude and timing among different governmental units.

The fiscal implications of an energy development project depend on a number of factors, notably project characteristics (e.g., the magnitude of investment and the size and scheduling of the work force), site area characteristics (e.g., state and local tax structures and capacity of existing service facilities), and the nature of the economic and demographic effects resulting from the project.

Although the basic structure of the North Dakota fiscal impact module remains relatively intact in the Minnesota version, various fiscal functions which estimate the public sector costs and revenues associated with development projects have been modified to conform to those site area characteristics unique to Minnesota. The data sources and methods used in modifying the fiscal model parameters are described below.

Revenue Estimation

The taxation system of Minnesota is very similar to that of North Dakota, thus requiring only slight modification of the fiscal impact module. The three income sources yielding the greatest 1982 revenue for Minnesota were real property taxes ($1.64 billion), individual income ($1.56 billion), and sales and use tax ($.88 billion) (Tables 18 and 19). Together, these three taxes accounted for over $4.0 billion of the $5.7 billion collected in state and local taxes, or almost 72 percent of the total.

Changes in Minnesota's state and local tax collections were obtained by applying the appropriate tax rate to the estimated change in the relevant tax base. A discussion of the various tax estimates for the state and local governments used in the Minnesota version are presented below.

TABLE 18. STATE TAX COLLECTIONS AND PERCENT OF TOTAL, MINNESOTA, FISCAL YEARS 1980-1982

Kind of Tax	1980 Revenue ($000)	1980 Percent of Total	1981 Revenue ($000)	1981 Percent of Total	1982 Revenue ($000)	1982 Percent of Total
Income Taxes						
Individual	1,271,810	39.22	1,405,792	41.38	1,559,319	40.93
Corporate	345,223	10.65	296,065	8.72	295,457	7.76
Bank Excise	36,093	1.11	35,655	1.05	29,718	0.78
Employers Excise Tax	-298	--	-111	--	--	--
Estate Taxes						
Estate	1,156	0.04	7,582	0.22	17,713	0.47
Inheritance	38,810	1.20	20,585	0.61	5,603	0.15
Gift	1,955	0.06	557	0.02	1,077	0.03
Sales and Excise Taxes						
General Sales and Use	657,167	20.27	686,565	20.21	875,867	22.99
Motor Vehicle Excise Tax	88,698	2.74	87,083	2.56	103,767	2.72
Highway Gasoline	202,789	6.25	230,857	6.80	257,391	6.76
Aviation Gasoline	2,106	0.07	2,014	0.06	1,960	0.05
Intoxicating Liquor	40,537	1.25	41,194	1.21	40,898	1.07
Fermented Malt Beverages	11,135	0.34	11,811	0.35	11,595	0.30
Wine	2,736	0.08	2,798	0.08	2,972	0.08
Cigarette	84,307	2.60	86,199	2.54	86,288	2.26
Tobacco Products	2,240	0.07	2,430	0.07	2,670	0.07
Other	19,183	0.59	17,943	0.53	18,287	0.48
Gross Earning Taxes						
Telephone	53,568	1.65	59,684	1.76	66,509	1.75
Telegraph	729	0.02	1,000	0.03	1,484	0.04
Railroad, Regular	8,598	0.27	12,395	0.36	36	--
Railroad, Taconite	3,634	0.11	2,985	0.09	4,961	0.13
Freight Line	1,130	0.03	1,402	0.04	494	0.01
Insurance Premiums	62,297	1.92	62,500	1.84	73,663	1.93
Other	1,766	0.05	1,937	0.05	2,184	0.06
Severance and Tonnage Taxes						
Taconite Production Tax	88,484	2.73	87,185	2.57	99,019	2.60
Occupation Tax on Taconite	14,539	0.45	12,895	0.38	12,112	0.32
Occupation Tax on Iron Ore	2,702	0.08	536	0.02	1,444	0.04
Royalty Tax on Taconite	5,125	0.16	4,118	0.12	5,529	0.15
Royalty Tax on Iron Ore	924	0.03	711	0.02	464	0.01
Royalty Tax on Misc. Ores	35	--	33	--	42	--

- continued -

TABLE 18. STATE TAX COLLECTIONS AND PERCENT OF TOTAL, MINNESOTA, FISCAL YEARS 1980-1982 (CONTINUED)

Kind of Tax	1980 Revenue ($000)	1980 Percent of Total	1981 Revenue ($000)	1981 Percent of Total	1982 Revenue ($000)	1982 Percent of Total
In Lieu of Property Taxes						
Motor Vehicle Licenses	128,293	3.96	140,845	4.15	152,889	4.01
Aircraft Licenses	1,455	0.04	1,447	0.04	1,186	0.03
Airflight Property	4,293	0.13	4,442	0.13	3,873	0.10
Licenses and Permits						
Motor Vehicle Operators	6,233	0.19	8,002	0.24	11,527	0.30
Hunting and Fishing	13,416	0.41	16,111	0.47	16,819	0.44
Others	39,816	1.23	43,679	1.28	44,879	1.18
TOTAL REVENUE	3,242,684	100.00	3,396,930	100.00	3,809,695	100.00

SOURCE: Minnesota Department of Revenue, Minnesota Tax Handbook: A Profile of State and Local Taxes In Minnesota 1982 Edition, Research Office, St. Paul, August 1982; and Minnesota Department of Revenue, Addendum To 1982 Minnesota Tax Handbook, Research Office, St. Paul, September 1983.

State Revenue Sources.

1. State Personal Income Tax: The state personal income tax estimator is 3.43 percent of total personal income. This was derived by dividing total personal income tax collections for 1978 to 1982 ($6,586,447,000) by the estimated total personal income for those years ($192,250,955,000).[35] The Minnesota legislature enacted an income surtax of 7 percent for 1982 which was later increased to 10 percent and extended through 1983.[36] Minnesota will most

[35]Minnesota Department of Revenue, Addendum To The 1982 Minnesota Tax Handbook, Research Office, St. Paul, September 1983; Minnesota Department of Revenue, Minnesota Tax Handbook: A Profile of State and Local Taxes In Minnesota 1982 Edition, Research Office, St. Paul, August 1982; Minnesota Department of Revenue, Minnesota Tax Handbook: A Profile of State and Local Taxes In Minnesota 1980-81 Edition, Research Office, St. Paul, January 1981; Minnesota Department of Economic Development and Revenue, 1979 Minnesota Tax Guide, Research Office, St. Paul, 1979; and Department of Revenue, 1981 Minnesota State Individual Income Tax, Bulletin No. 58, Commission of Revenue, St. Paul, August 1983.

[36]Minnesota Department of Revenue, 1982, op. cit.; Minnesota Department of Revenue, 1983, op. cit.

TABLE 19. LOCAL TAX COLLECTIONS AND PERCENT OF TOTAL, MINNESOTA, FISCAL YEARS 1980-1982

Kind of Tax	1980 Revenue ($000)	1980 Percent of Total	1981 Revenue ($000)	1981 Percent of Total	1982 Revenue ($000)	1982 Percent of Total
Property Taxes						
Real Property	1,286,912	87.55	1,324,958	86.41	1,644,145	87.65
Personal Property	48,426	3.29	47,563	3.10	61,222	3.26
Special Assessments	85,185	5.80	111,263	7.26	125,290	6.68
Mobile Home Property	5,277	0.36	3,402	0.22	4,113	0.22
Tree Growth	227	0.02	270	0.02	272	0.01
Auxiliary Forest	18	--	42	--	55	--
Rural Powerlines	12,520	0.85	13,051	0.85	5,450	0.29
Sales Taxes						
Bloomington	1,277	0.09	1,532	0.10	1,715	0.09
Duluth	4,583	0.31	4,624	0.30	4,665	0.24
Minneapolis	3,236	0.22	2,416	0.16	2,319	0.12
Rochester	678	0.05	741	0.05	791	0.04
St. Paul	331	0.02	375	0.03	427	0.02
St. Cloud	48	--	116	0.01	143	0.01
Stadium Commission	3,193	0.22	3,077	0.20	3,348	0.18
Gross Earnings Taxes						
Minneapolis	5,380	0.36	6,167	0.40	7,080	0.38
St. Paul	12,446	0.85	13,532	0.88	14,491	0.77
Sand and Gravel Taxes	122	0.01	154	0.01	191	0.04
TOTAL REVENUE	1,469,859	100.00	1,533,283	100.00	1,875,717	100.00

SOURCE: Minnesota Department of Revenue, Minnesota Tax Handbook: A Profile of State and Local Taxes In Minnesota 1982 Edition, Research Office, St. Paul, August 1982; and Minnesota Department of Revenue, Addendum To The 1982 Minnesota Tax Handbook, Research Office, St. Paul, September 1983.

likely repeal the income surtax for the 1984 tax year. Disposition of Minnesota income tax is to the State General Fund.

2. State Corporate Income Tax: The corporate income tax estimator is 0.32 percent of the gross business volume of all business sectors. This was determined by comparing the corporate income tax collections for the years 1978 to 1982 ($1,529,844,000) to the estimated gross business volume of all business

sectors ($477,281,522,000) for those years.[37] All state corporate income tax revenues are deposited in the state general fund.

3. State Sales and Use Tax: The state sales and use tax estimator is 2.44 percent of the gross business volume of the retail trade sector. This estimator was derived by comparing the 1978 to 1982 sales and use tax collections ($3,373,928,000) to the estimated gross business volume of the retail trade sector ($138,387,983,000) for the same years.[38]

Minnesota sales tax applies on the retail sale and rental of tangible personal property. Major exemptions from the sales tax are as follows: food for consumption off premises, clothing, drugs and medications, gasoline, publications issued at intervals of three months or less, motor vehicles, materials used or consumed in agricultural or industrial production, text books, and home heating fuels from November through April. Currently, the only tax on electricity generated in Minnesota (e.g., nuclear generation facilities at Monticello and Prairie Island) is sales tax, which allows the exemptions previously mentioned. The sales tax rate was 5 percent until the 1982 Legislature increased it to 6 percent.[39] State sales tax revenues are deposited in the State General Fund.

4. Other State-Collected Taxes: The various highway, liquor, and cigarette and tobacco taxes were estimated on a per capita basis. Per capita estimates were determined from actual tax collections and census

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[37]Minnesota Department of Revenue, 1983, op. cit.; Minnesota Department of Revenue, 1982, op. cit.; Minnesota Department of Revenue, 1981, op. cit.; and Minnesota Department of Economic Development and Revenue, 1979, op. cit.

[38]Minnesota Department of Revenue, 1983, op. cit.; Minnesota Department of Revenue, 1982, op. cit.; Minnesota Department of Revenue, 1981, op. cit.; and Minnesota Department of Economic Development and Revenue, 1979, op. cit.

[39]Minnesota Department of Revenue, 1983, op. cit.

populations.[40] Highway taxes were defined, for purposes of this study, to include revenues from motor vehicle excise tax, highway fuel tax, motor vehicle recycling tax, motor vehicle licenses, and motor vehicle operators permits. The disposition of highway taxes is as follows: motor vehicle excise tax (State General Fund); highway fuel tax (99.25 percent to Highway Users Fund and 0.75 percent to Department of Natural Resources); license and permits (Highway User Tax Distribution Fund).[41]

Cigarette and tobacco tax is the levy of 18 cents per pack of cigarettes, 20 percent of wholesale price of cigars, smoking tobacco, chewing tobacco, and tobacco products other than cigarettes, and cigarette distribution licenses.[42] Revenues from cigarette tax are distributed 89 percent to the State General Fund, 5-1/2 percent to Natural Resources, and 5-1/2 percent to Natural Resources Acceleration Account, while all taxes collected from the tobacco products tax go to the State General Fund. The liquor tax includes the revenues from levies on intoxicating liquor, fermented malt beverages, wine, and alcoholic beverage licenses. All funds from the liquor tax are deposited in the State General Fund. The per capita estimates, in 1980 prices, for the various taxes were:

Highway Taxes	$110.38
Cigarette and Tobacco Taxes	$ 21.46
Liquor Taxes	$ 13.48

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[40]Minnesota Department of Revenue, 1983, op. cit.; Minnesota Department of Revenue, 1982, op. cit.; Minnesota Department of Revenue, 1981, op. cit.; Minnesota Department of Economic Development and Revenue, 1979, op. cit., and Bureau of Census, Census of Population--General Social and Economic Characteristics, U.S. Department of Commerce, U.S. Government Printing Office, Washington, D.C., 1970, 1980, and 1981.

[41]Minnesota Department of Revenue, 1983, op. cit.; and Minnesota Department of Revenue, 1982, op. cit.

[42]Ibid.

5. Severance and Tonnage Tax: Minerals mined in Minnesota are subject to three state taxes: royalty, occupation, and production.[43] In addition to the state taxes, local property taxes apply on certain types of minerals. Minerals subject to royalty taxes are iron ore, taconite, semi-taconite, iron-sulphides, copper-nickel ores, and other ores.[44] Occupation and production taxes are levied against three mineral groups: iron ore; taconite, semi-taconite; and copper-nickel ores. Tax base, tax rate, and disposition of revenues for the three Minnesota mineral taxes are summarized in Table 20. The three mineral taxes will be discussed in detail below.

a. Royalty Taxes: Taxes were first imposed on iron ore royalties in 1923 at a rate of 6 percent. Most recent changes in the royalty tax laws were in 1967 when copper-nickel royalties were taxed at 1 percent and in 1971 when royalty tax on taconite was increased to 15 percent and iron ore to 15.5 percent.[45] All royalties received in connection with exploration or mining are taxed. The tax rate is 15.5 percent for iron ore, 15.0 percent for taconite and semi-taconite, and 1 percent for copper-nickel ore. All revenues from royalty taxes are deposited in the State General Fund.

b. Occupation Taxes: Value of minerals mined or produced in Minnesota are subject to occupation taxes. Taxes are levied on value of minerals mined or produced less certain statutory or nonstatutory deductions at a rate of 15.5 percent for iron ore, 15.0 percent for taconite and semi-taconite, and 1 percent for

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[43]Minnesota Department of Revenue, 1982, op. cit.

[44]Other ores include silver, gold, platinum, and other precious metals.

[45]Minnesota Department of Revenue, 1982, op. cit.

TABLE 20. BASE AND RATE FOR TAXES LEVIED AGAINST MINERALS, AND DISPOSITION OF FUNDS, MINNESOTA, 1982

Tax	Mineral	Tax Base	Tax Rate	Disposition
Royalty Taxes	Iron Ore	Royalties received in connection with exploration or mining	15.5%	State General Fund
	Taconite, Semi-Taconite	Royalties received in connection with exploration or mining	15.0%	State General Fund
	Copper-Nickel[a]	Royalties received in connection with exploration or mining	1.0%	State General Fund
Occupation Taxes	Iron Ore	Value of minerals mined less[b] certain deductions	15.5%	State General Fund with 40% earmarked for elementary and secondary schools, 10% for University of Minnesota, and a constant dollar amount (5% of 1977 proceeds) to Iron Range Resource Rehabilitation Board (IRRRB)
	Taconite, Semi-Taconite	Value of minerals mined less[c] certain deductions	15.0%	State General Fund with 40% earmarked for elementary and secondary schools, 10% for University of Minnesota, and a constant dollar amount (5% of 1977 proceeds) to Iron Range Resource Rehabilitation Board (IRRRB)

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TABLE 20. BASE AND RATE FOR TAXES LEVIED AGAINST MINERALS, AND DISPOSITION OF FUNDS, MINNESOTA, 1982 (CONTINUED)

Tax	Mineral	Tax Base	Tax Rate	Disposition
Occupation Taxes	Copper-Nickel	Value of minerals mined Ores less[d] certain deductions	1.0%	State General Fund with 40% earmarked for elementary and secondary schools, 10% for University of Minnesota, and a constant dollar amount (5% of 1977 proceeds) to Iron Range Resource Rehabilitation Board (IRRRB)
Production Taxes	Taconite and Iron Sulphides	Extracted Tonnage	$1.25/ton[e]	$0.25/ton--taconite cities and towns $0.123/ton--taconite municipal aid account $0.06/ton--taconite schools $0.23/ton--schools qualifying for taconite homestead credit in direct proportion to their lives $1.55/ton--taconite counties $0.04/ton--taconite counties road and bridge fund $0.2575/ton--taconite homestead credit $0.01/ton--State General Fund $0.03/ton--IRRRB $0.02/ton--Range Association of Municipalities and Schools (Remaining revenues go to the Taconite Environmental Protection Fund and the Northeast Protection Fund)

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TABLE 20. BASE AND RATE FOR TAXES LEVIED AGAINST MINERALS, AND DISPOSITION OF FUNDS, MINNESOTA, 1982 (CONTINUED)

Tax	Mineral	Tax Base	Tax Rate	Disposition
Production Taxes	Semi-Taconite	Extracted Tonnage	Sintered in Minnesota--$0.05 per gross ton plus 1/10 of $0.01 for each 1% that iron content exceeds 55% Sintered outside Minnesota--$0.10 per gross ton plus 1/10 of $0.01 per gross ton for each 0.5% that the iron content exceeds 55%	Various taxing districts in which semi-taconite is located as follows: city or town--22% school districts--50% county--22% State General Fund--6%
	Copper-Nickel	Extracted Tonnage	$0.25 per gross ton plus 10% of base tax per ton for each 1/10 of 1% that the average copper-nickel exceeds 1%[f]	Various taxing districts in which copper-nickel is located as follows: city or town--22% school district--50% county--22% State General Fund--6%

[a]A 1% tax also is levied on royalties paid on silver, gold, platinum, and other precious metals.
[b]The minimum rate less labor credit is 14.0%.
[c]The minimum rate less labor credit is 6.75%.
[d]The minimum rate less labor credit is 1.0%.
[e]After 1977, the base rate increases with changes in steel mill products index. An additional tax of 1.6% is imposed for each percent that the iron content of the product exceeds 62%. The 1981 average rate is $1.92 per taxable ton.
[f]This composite rate is subject to increase proportional to changes in the current year average monthly wholesale price index above the 1967 index.

SOURCE: Minnesota Department of Revenue, Minnesota Tax Handbook: A Profile of State and Local Taxes In Minnesota, 1982 Edition, Research Office, St. Paul, August 1982.

copper-nickel ores.[46] Statutory deductions for iron ore included costs of development, mining labor and supplies, administrative expenses, royalty, depreciation of mine plant and equipment, and ad valorem taxes on ore mined. Iron ore nonstatutory deductions are the cost of benefication, including labor, supplies, depreciation, interest, plus allowances for stockpile loading, transportation, and marketing. Occupation tax credits are allowed for iron ore for labor which may reduce the effective tax rate to approximately 14.0 percent. Other credits are allowed for research, experimentation and exploration, pollution control, a loss mine (a mine where the iron ore is sold for less than the cost of mining), and price discounting.

Deductions are allowed for processing costs for taconite, semi-taconite, and iron sulphide. A credit is allowed for labor which can reduce the minimum tax rate to 6.75 percent. Additional credits are allowed for (1) research, experimentation and exploration, and (2) pollution control equipment.

Copper-nickel credits are allowed for processing the ore within the state and for research, experimentation, and exploration. Maximum and minimum tax rates for iron ore (15.5 percent and 14.0 percent), taconite and semi-taconite (15.0 percent and 6.75 percent), and copper-nickel ores (1.0 percent and 1.0 percent) have remained unchanged since 1971.[47] Disposition of occupation tax revenues is earmarked for many funds with education being a primary benefactor (Table 20).

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[46]Ibid.

[47]Ibid.

c. Production Taxes: Tonnages of taconite, iron sulphide, semi-taconite, and copper-nickel ores extracted in Minnesota are subject to production taxes. This tax was first imposed in 1881 with increases in the rate occurring frequently. Latest change in this tax was in 1977 when the tax was indexed, based on the price of steel.[48] Taconite and iron sulphide have a base tax rate of $1.25 per gross ton with an additional 1 to 6 percent tax imposed for each percent that iron content of the product exceeds 62 percent. Semi-taconite sintered in Minnesota is taxed at a rate of $.05 per gross ton plus 1/10 of $.01 for each 1 percent that the iron content exceeds 55 percent, while that sintered outside Minnesota is taxed at a rate of $.10 per gross ton plus 1/10 of $.01 per gross ton for each 0.5 percent that the iron content exceeds 55 percent. Base rate for copper-nickel is $.025 per gross ton plus 10 percent of the base tax per ton for each 1/10 of 1 percent that the average copper-nickel content per ton exceeds 1 percent. This composite rate is subject to increase proportional to changes in the current year average monthly wholesale price index above the 1967 index. Most of the revenues from production taxes are distributed to the areas where the mining occurs (for a detailed breakdown of disposition, see Table 20).

Local Revenue Sources.

1. Ad Valoren Property Tax: The local property tax estimator is 2.21 percent of the market value of the property. This estimator was based on the 1982 state average sales assessment ratio of 23.99 percent and the state

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[48]Ibid.

average mill rate of 92.10.[49] Added property tax revenue was determined by applying the estimator to the projected market value of new business structures and residences.

The estimated investment cost for houses, apartments, and business structures was used as estimated market value for those structures, and the market value for mobile homes was estimated at one-half the purchase price. Capital investment in business structures was estimated by Prestgard[50] at $0.22 per dollar of gross business volume. The estimates of investment cost per unit in 1980 prices were equivalent to those used in the North Dakota version:

Houses	$59,157
Apartments	$26,162
Mobile Homes	$13,392

Minnesota also subjects mined and unmined minerals to the ad valorem property tax. Unmined iron ore is assessed at 50 percent of market value, while low recovery iron is assessed in a range of 30 to 48-1/2 percent.[51] The 1982 state average sales assessment ratio for minerals is 49.59 percent. Using the state average mill rate, a local mineral property tax estimator of 4.57 percent of market value was determined. Applying the estimator to the market value of minerals will yield an estimate of local property tax.

In 1982, Minnesota property tax revenues were distributed in the following manner:[52]

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[49]Department of Revenue, Property Taxes Levied in Minnesota: 1982 Assessments--Taxes Payable in 1983, Property Tax Bulletin No. 12, St. Paul, 1983.

[50]Prestgard, P. G., "Effect of Coal Development on Public Costs in North Dakota," Unpublished M.S. Thesis, Department of Agricultural Economics, North Dakota State University, Fargo, 1974.

[51]Minnesota Department of Revenue, 1982, op. cit.

[52]Minnesota Department of Education, The ABC's of Minnesota School Finance--Paying for the Schools in 1982-1983, Published by the Publications and Public Information Section, St. Paul, 1983.

Disposition	Percent
Schools	49
Counties	28
Municipal	17
Special Districts	4
Township	2

2. Local Sales Tax: Minnesota has a statutory prohibition against the imposition of any local sales or income tax without the specific legislative authorization. Therefore, there is no local optional sales tax. Local sales taxes specifically authorized are described in Table 21. The most common local sales tax is 3 percent on lodging, although Duluth has a more extensive base and a higher rate and Minneapolis has a Stadium Commission tax. All receipts from local sales taxes go to local governments, except the Stadium Commission revenue which goes to the Metropolitan Sports Facilities Commission.[53]

3. Transportation Aid: Highway aid is financed from state gasoline tax and motor vehicle license fees. It is distributed through the County State Aid Highway Fund and the Municipal State Aid Street Fund. State transfers, in 1980 dollars, as a per capita share of state highway taxes were:[54]

County Share Per Capita = $73.65
Municipal Share Per Capita = $12.17

4. Educational Fund Transfers From State: Transfers from the state to local school districts were in the form of foundation aid, special education aid, and transportation aid. The state formula allowed for a 1982-1983 per pupil unit (.5 for kindergarten, 1.0 for grades 1-6, and 1.4 for grades 7-12)

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[53]Minnesota Department of Revenue, 1982, op. cit.

[54]Minnesota Department of Revenue, 1982, op. cit.

TABLE 21. TAX BASE AND RATE FOR LOCAL SALES TAX, AND DISPOSITION OF REVENUES, BY CITY, MINNESOTA, 1982

City	Tax Base	Rate	Disposition
Duluth	Retail sale and rental of tangible personal property	1% piggyback, 3% additional on lodging, plus 1% additional on certain food and beverage and lodging establishments	local government
Bloomington	Sales of transient lodging	3%	local government
Minneapolis	Sales of transient lodging, admissions and amusements	3%	local government
Rochester	Sales of transient lodging	3%	local government
St. Cloud	Sales of transient lodging	3%	local government
St. Paul	Sales of transient lodging	3%	local government
Stadium Commission	Sales of transient lodging and liquor receipts	3%[a]	Metropolitan Sports Facilities Commission

[a]Authority has been given to the Metropolitan Sports Facility Commission to tax lodging and liquor receipts at a variable rate, currently 3 percent, in the city of Minneapolis.

SOURCE: Minnesota Department of Revenue, Minnesota Tax Handbook: A Profile of State and Local Taxes in Minnesota 1982 Edition, Research Office, St. Paul, August 1982.

revenue of $1,346.[55] State basic foundation aid is calculated using the following formula:

STATE BASIC FOUNDATION AID = (BASIC FOUNDATION REVENUE) - (LOCAL BASIC MAINTENANCE LEVY)

= (TOTAL PUPIL UNITS X FORMULA ALLOWANCE)

- (BASIC MAINTENANCE MILL RATE X EQUILIZATION AID REVIEW COMMITTEE VALUATION)

Because state foundation aid would vary for each school district with the assessed valuation of real property, state average per pupil unit transfers were estimated. Transfers were estimated in 1980 dollars for kindergarten, elementary, and secondary students as follows:[56]

Grade	Pupil Unit	Transfer/Pupil Unit	Transfer/Pupil
K	0.5	$781.16	$ 390.58
1-6	1.0	781.16	781.16
7-12	1.4	781.16	1,093.62

5. Local Aids and Shared Taxes Transfer From State: State transfers to local governments are classified as local aids (Local Government Aid, Homestead Credit Aid, Taconite Homestead Credit Aid, Attached Machinery Aid, and Agricultural Aid to School Districts) and shared taxes (Mortgage Registry Tax Aid and Estate Tax Aid). Transfers estimated in 1980 dollars as a per capita share of state local aid and shared taxes were:[57]

County Share Per Capita = $ 91.93
Municipal Share Per Capita = $232.07

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[55]Minnesota Department of Education, 1983, op. cit.

[56]Ibid.

[57]Minnesota Department of Revenue, 1982, op. cit.

6. Taconite Production Tax Aid Transfer From State: (See State Revenues, Severence and Tonnage Taxes section).

7. Federal Revenue Sharing Transfers: Federal government transfers of general revenue sharing funds were to county and municipal governments. Per capita estimates in 1980 dollars of average federal revenue sharing transfers for counties and municipalities were:[58]

Counties = $80.53
Municipalities = $81.04

8. User Fees: User fees were estimated on the basis of average per household expenditures for water, sewer, and solid waste disposal using Minnesota data. The total average annual user fee per household for these items was estimated at $153.02 in 1980 dollars for Minnesota.[59]

9. Special Assessments: Revenues from special assessments are estimated by amortizing the capital investments for streets, water, sewer, and solid waste disposal at a 7 percent interest rate for 20 years.[60]

Cost Estimation

The effect of a development project on local government costs is determined by a number of factors, with the extent of local population growth and level of excess capacity in local public service infrastructure being the

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[58]Bureau of the Census, Governmental Finances in 1981-82, U.S. Department of Commerce, Government Finances, GF82, No. 5, U.S. Government Printing Office, Washington, D.C., 1983.

[59]Bureau of the Census, 1977 Census of Governments: Finances of Municipalities and Township Governments, U.S. Department of Commerce, GC77(4)-4, Government Finances Volume 4, Number 4, U.S. Government Printing Office, Washington, D.C., May 1979.

[60]Chase, Robert A., Randal C. Coon, F. Larry Leistritz, and William Ransom-Nelson, Fiscal Impact Analysis of Repository Siting In Nevada: Adaptation of the SEARS Model Fiscal Component to the Nevada Test Site, Final Report Submitted to the MITRE Corporation, Department of Agricultural Economics, Agricultural Experiment Station, North Dakota State University, Fargo, September 1983.

most important. A description of cost calculations and cost estimating equations is presented below.

State Costs.

1. Educational Fund Transfers to School Districts: Cost to the state was estimated as the total of per pupil payments (see the local revenue, educational fund transfers from the state section).

2. Highway System Operating Expenditures: Increased operating costs for all highway department functions were estimated on a per capita basis to be $218.87 in 1980 dollars.[61]

3. General Government Functions: The cost of general government functions was determined by subtracting education, transportation, and insurance trust expenditures from total direct expenditures for state government in Minnesota. These costs were estimated on a per capita basis to be $422.07 in 1980 dollars.[62]

4. Highway Improvement Costs: Capital costs for highway improvement were estimated on the basis of a per worker inmigrating operating worker cost of $29,987 in 1980 prices and adjusted for inflation annually.[63] Costs were assumed to be funded annually and computed on the basis of inmigrating operating workers that are additional to the previous year.

5. Highway Fund Transfers to Local Governments: Cost to the state is equal to the county government's increased revenue from this source. (See local revenue section in referring to this transfer payment.)

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[61]Minnesota Department of Revenue, 1982, op. cit.

[62]Bureau of the Census, 1983, op. cit.

[63]Leistritz, F. Larry et al., 1982, op. cit.

Local Costs.

1. Schools: Operating expenditures were estimated as a cost per pupil in 1980 prices where both elementary and secondary per pupil costs were determined to be $1,382.88.[64] Expansion costs (i.e., capital investment) were estimated on the basis of $57 per square foot in 1980 prices. Standards used for required per pupil space were 145 square feet for secondary and 92.5 for elementary.[65]

2. Streets: Operating costs were estimated on the basis of $4,435 per mile in 1980 prices.[66] These were assumed to remain constant for all city sizes. The relevant cost per mile is multiplied by the number of new street miles required for a given level of population growth. Expansion requirements for streets were estimated at .0033 miles of street per person, assuming a population at 15 persons per acre in blocks 300 by 300 feet with 50-foot wide streets. Expansion costs (capital investment) were estimated at $324,486 per mile in 1980 dollars.[67]

3. Distribution and Treatment of Water: Expansion costs of water distribution and treatment facilities were estimated at $2,306 per capita in 1980 dollars.[68]

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[64]Minnesota Department of Education, 1983, op. cit.

[65]Murdock, Steve H., F. Larry Leistritz, Rita Hamm, Robert Chase, and Barbara Kiel, The Socioeconomic Analysis of Repository Siting (SEARS): Technical Description, A Report to the Office of Nuclear Waste Isolation, Battelle Columbus and Department of Energy, Department of Rural Sociology, Texas A&M University, College Station, 1982.

[66]Murdock, Steve H. et al., 1982, op. cit.

[67]Ibid.

[68]North Central Consultants, Inc., Representative Costs of Public Facilities In Energy Development Areas, Working Paper, Jamestown, North Dakota, 1974.

4. Waste-Water Systems and Treatment: Expansion costs of waste-water systems and treatment facilities were estimated at $246 per capita in 1980 dollars.[69]

5. Solid Waste Disposal: Expansion costs for waste disposal were estimated at $5.57 per capita in 1980 dollars.[70]

6. Law Enforcement, Fire Protection, and Other Local Government: Operational expenditures for county government functions were estimated on a per capita basis using Minnesota values.[71] The following values were used to estimate regional per capita expenditures in 1980 dollars for city and county services in Minnesota:

a) City fire protection . . . . $ 22.26

b) City police protection . . . $ 39.14

c) City operating costs . . . . $ 28.38

d) County social services . . . $166.46

e) County law enforcement . . . $ 21.40

f) County operating services . $ 37.15

g) County highway . . . . . $ 52.87

Evaluation of the Model

An important factor in determining a model's usefulness is its degree of reliability in simulating socioeconomic changes in the study region. Confidence in a given impact assessment model can be gained in three general ways: (1) critically assessing its theoretical basis, assumptions, data

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[69]Ibid.

[70]Ibid.

[71]Bureau of the Census, 1979, op. cit.; and Bureau of the Census, 1977 Census of Governments: Finances of County Government, U.S. Department of Commerce, GC77(4)-3, Governmental Finances Volume 4, Number 3, U.S. Government Printing Office, Washington, D.C., May 1979.

sources, and computational procedures; (2) investigating its response to perturbations; and (3) testing its ability to reproduce historical data.[72] Most impact assessment models, including NEDAM, have been subjected to the first two types of evaluation. The third general form, historical simulation, was used in evaluating the performance of the Minnesota version of NEDAM. This method involves choosing a past period for which the values of the variables estimated by the model are known. The model was provided with the historical values of the input variables and simulated over this period. The resultant values estimated by the model then were compared to the actual values by applying a number of statistical tests (including Theil's U_1 coefficient, mean absolute error, mean error, and R^2 coefficient)[73] to evaluate the "goodness of fit."

The NEDAM adaptation to Minnesota was evaluated by determining how closely the model reproduces historical personal income as reported by the Department of Commerce.[74] In brief review, the model estimates personal income for each of the years (1960-1982) for the 11 regions and Minnesota using input-output techniques. The interdependence coefficients developed elsewhere in North Dakota[75] and northwestern Colorado[76] were applied to final

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[72]Leistritz, F. Larry, Steve H. Murdock, Donald M. Senechal, and Thor A. Hertsgaard, "Computerized Socioeconomic Impact Models: Usefulness and Limitations," Paper presented at Conference on Computer Models for Forecasting Socioeconomic Impacts of Growth and Development, Jasper, Alberta, April 1980.

[73]Senechal, Donald M., "Analysis of Validity of North Dakota Input-Output Models," unpublished M.S. Thesis, Department of Agricultural Economics, North Dakota State University, Fargo, 1971; and Martinez Salazar, Angel S., "A Methodology for the Evaluation of the Economic-Demographic Simulation Models," Unpublished M.S. Thesis, Department of Agricultural Economics, North Dakota State University, Fargo, 1981.

[74]Bureau of Economic Analysis, Personal Income by Place of Residence, Minnesota, U.S. Department of Commerce, U.S. Government Printing Office, Washington, D.C., 1962, 1965-1981.

[75]Toman, et al., 1979, op. cit.; and Leistritz, et al., 1982 op. cit.

[76]Gray, et al., 1981, op. cit.

demand vectors computed for the state or regions. These estimates of gross business volume (in the household sector row) for each economic sector (or column) are simply those levels of business activity generated by sales for final demand (i.e., exports). The gross business volume for the household sector, except for minor definitional differences, is equivalent to personal income. For each year, the total personal income generated in the region is the summation of personal incomes resulting from final sales (gross business volumes in the household sector row) by the column sectors.

The results of these calculations for each year were compared with estimates of personal income assembled by the Department of Commerce. These results for Minnesota and its 11 regions are presented in Table 22 (and Appendix B, Tables 100-110). The differences, expressed as percentages of the Department of Commerce estimates, indicate consistent patterns for each region and the state. A possible interpretation of this consistency is that the interdependence coefficients were simulating the economy correctly, although gross outputs of the respective sectors were occasionally slightly over- or underestimated.

Statistical tests were used to evaluate performance of the model. Results of these tests are presented for all 11 regions and the state (Table 23). Average absolute difference indicates more variation at the regional level than for the state as a whole, with all but one of the regions having less than a 15 percent difference. The mean average difference indicates that Regions 2, 4, and 8 were slightly underestimated while remaining regions were slightly overestimated. Minnesota personal income was overestimated by the adapted model by 1.04 percent during the 1960 to 1982 period. Standard deviations for the regions range from 3.89 to 10.19, and the state value is 3.20. Theil's coefficients for the regions range from 0.02 to 0.09, and the

TABLE 22. ESTIMATES OF PERSONAL INCOME[a] AND DIFFERENCES IN ESTIMATES, MINNESOTA REGION 1, 1960-1982 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	Input-Output Analysis Estimate	Percent Difference
1960	--	136,756	--
1961	--	133,616	--
1962	136,812	143,624	5.0
1963	--	139,029	--
1964	--	170,085	--
1965	163,333	188,861	15.6
1966	159,552	192,581	20.7
1967	182,967	206,783	13.0
1968	178,508	214,625	20.2
1969	202,641	240,385	18.6
1970	254,407	239,452	- 5.9
1971	274,174	292,432	6.7
1972	307,624	303,585	- 1.3
1973	461,648	450,846	- 2.3
1974	496,963	546,194	9.9
1975	457,556	526,437	15.1
1976	493,967	578,536	17.1
1977	518,831	621,120	19.7
1978	680,543	729,739	7.2
1979	682,414	818,906	20.0
1980	799,513	837,486	4.7
1981	893,712	1,026,715	14.9
1982	--	982,633	--
Average Absolute Difference			12.1
Mean = 11.050 (S.D. = 8.441)			
U_1 = 0.063			

[a]The input-output personal income estimates are in current-year dollars to correspond with Department of Commerce estimates.

state value is 0.02. These values (all very close to 0.0) indicate the model performs quite well and can be used with confidence for predictive purposes.

The mean average difference indicates the sales for final demand for Regions 2, 4, and 8 were slightly underestimated. Regions 2 and 4 were underestimated by a very insignificant amount (about 1 percent or less), and Region 8 was low by only slightly over 3 percent. Underestimating sales for final demand for a region is quite possible when a major trade center is

TABLE 23. COMPARISON OF STATISTICAL TESTS FOR THE ECONOMIC-DEMOGRAPHIC MODEL PERSONAL INCOME ESTIMATION, MINNESOTA REGIONS 1-11 AND STATE, 1960-1982

Region	Average Absolute Difference[a]	Mean Average Difference[b]	Standard Deviation[c]	Theil Coefficient[d]
1	12.11%	11.05%	8.44	0.06
2	3.47	- 1.03	4.35	0.03
3	6.44	5.42	5.17	0.04
4	5.57	- 0.12	6.94	0.04
5	10.34	10.34	6.49	0.06
6	4.63	3.91	4.40	0.02
7	14.12	14.12	7.16	0.07
8	4.09	- 3.07	3.89	0.03
9	22.01	22.01	10.19	0.09
10	6.97	6.71	5.02	0.04
11	7.29	7.29	3.44	0.04
State	2.71	1.04	3.20	0.02

[a]Average absolute difference is the sum of the absolute values of the percent difference of I-O estimates and historic data divided by the number of observations.

[b]Mean average difference is the sum of the percent difference of the I-O estimate and historic data divided by the number of observations.

[c]Standard deviation is for the difference of the I-O estimate and historic data.

[d]Theil's coefficient is calculated using the formula:

$$U_1 = \frac{\sqrt{\frac{1}{T}\Sigma(Y^s - Y^a)^2}}{\sqrt{\frac{1}{T}\Sigma(Y^s)^2} + \sqrt{\frac{1}{T}\Sigma(Y^a)^2}}$$

where: T = time period
Y^s = simulated value of Y
Y^a = actual value of Y

located within the area, as is Minneapolis-St. Paul in Region 8. Residents of other regions make expenditures, presumably in major trade centers, for those goods and services not available (perceived or actual) in their communities. Minneapolis-St. Paul also serves as a headquarters for many Midwest-based companies, is a major manufacturing area, and serves the Upper Midwest as a wholesale and retail trade center.

Regions 1, 5, and 7 were slightly overestimated (in the 10 to 15 percent range) with only Region 9 being overstated by more than 20 percent (22.0). All four regions overestimated were along Minnesota's western border. A possible explanation for overstating the economic base is that these regions are experiencing leakages of dollars across the border to North Dakota, South Dakota, or Iowa, in addition to the Minneapolis-St. Paul major trade center. The remaining regions (Regions 3, 6, 10, 11) in Minnesota were estimated quite accurately.[77] Only Regions 1, 7, and 9 had an absolute average error greater than 11 percent indicating the model estimates personal income very well. Statistical tests on results from all 11 regions indicate the model accurately replicates the Minnesota economy. State level estimates of personal income showed a very small overestimation for the 1960-1982 time period (mean average difference = 1.04 percent). Average absolute difference of state-level personal income estimates from the model and the Department of Commerce was 2.7 percent. This indicates the model was quite accurate for the historical time period.

Although the input-output model invariably underestimates or overstates personal income, the adapted version does appear to "track" consistently with the Department of Commerce data. The results of the principle ex post forecasting error statistic, Theil's inequality coefficient, indicate that the adapted model predicts quite well.[78] In spite of the slight downward bias in

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[77]The mean of the average differences for the four regions is 5.83 percent.

[78]The average Theil U_1 coefficients for the 11 regions and the state were 0.05 and 0.02 respectively. This coefficient is a summary measure, bounded to the interval of 0 and 1. A value of 0 for U_1 indicates perfect prediction, while a value of 1 corresponds to perfect inequality (i.e., between the actual and predicted values). For further discussion on the Theil coefficient, see Leuthold, Raymond M., "On the Use of Theil's Inequality Coefficients," American Journal of Agricultural Economics, Vol. 57, No. 2, 1975, pp. 344-346; and Pindyck, Robert S. and Daniel L. Rubinfeld, Econometric Models and Economic Forecasts, Second Edition, McGraw-Hill, New York, 1981.

the historical comparison, this evaluation does not negate the model for use in impact analysis in the region with the Minneapolis-St. Paul major trade center.

Analyzing the transition from historic data to corresponding model-projected values gives another indication of model performance. Employment and population data were available for evaluating model performance. Employment data for historic and projected time periods were allocated to the economic sectors. The model calculates projected employment by sector, giving values to be compared to the historic employment of each sector. The 1960 to 1982 employment by sector trends compare very well with the 1983 to 2005 projection of employment by sector. Sector employment values tended to show some variations for the 1982 to 1983 period, but regional totals of the projected values were quite close to historic employment levels (Table 24, and Appendix B, Tables 111-121). These data indicate the model captures the economic trends quite well with respect to employment and avoids the problem of unrealistic increases or decreases in employment at the point of transition from historic to model-projected employments.

Conclusions and Implications

The conceptualization, design, development, and application of an integrated socioeconomic impact assessment model is clearly a formidable undertaking. The value of such modeling efforts is increased to the extent that they are applicable to other settings and to the extent that they provide, through the provision of timely and accurate information, useful inputs to the decision-making process. This report has attempted to address such issues by examining the adaptability and validity of one such modeling system.

TABLE 24. HISTORIC AND MODEL-PROJECTED EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 1, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment					Model-Projected Employment					
	1960	1970	1980	1981	1982	1983	1985	1990	1995	2000	2005
(1) & (2) Agriculture	9,388	7,430	7,116	7,190	7,264	7,149	7,074	6,924	6,813	6,727	6,659
(3) Metal Mining	--	--	--	--	--	--	--	--	--	--	--
(4) Coal Mining	--	--	--	--	--	--	--	--	--	--	--
(5) Pet/NG Exp/Ext	--	--	--	--	--	--	--	--	--	--	--
(6) Nonmetallic Mining	--	--	--	--	--	--	--	--	--	--	--
(7) Construction	798	625	856	780	697	778	789	814	834	851	865
(8) Lumber & Assoc Prod	354	676	1,562	1,514	1,487	1,616	1,667	1,795	1,923	2,052	2,180
(9) Ag Proc & Misc Mfg	2,859	5,293	5,901	6,009	5,814	5,984	6,131	6,438	6,679	6,874	7,035
(10) Pet Refining	--	--	--	--	--	--	--	--	--	--	--
(11) Metal Processing	--	--	--	--	--	--	--	--	--	--	--
(12) Transportation	500	639	599	610	593	606	617	641	661	677	692
(13) Comm & Pub Utilities	568	466	659	672	653	664	670	683	694	702	709
(14) Elec Generation	--	--	--	--	--	--	--	--	--	--	--
(15) Retail	3,143	4,251	5,533	5,660	5,628	5,710	5,908	6,356	6,746	7,088	7,390
(16) Fin, Ins, Real Estate	449	647	981	1,043	1,060	1,051	1,097	1,204	1,301	1,388	1,468
(17) Bus & Pers Services	489	791	1,132	1,199	1,216	1,200	1,274	1,458	1,642	1,825	2,008
(18) Prof & Soc Services	2,107	3,320	4,868	5,153	5,229	5,355	5,645	6,347	7,017	7,658	8,272
(19) Government	3,474	4,988	5,989	6,136	6,002	6,116	6,260	6,575	6,837	7,059	7,249
(20) Households	--	--	--	--	--	--	--	--	--	--	--
Project[a]	--	--	--	--	--	--	--	--	--	--	--
TOTAL	24,129	29,126	35,196	35,966	35,643	36,230	37,133	39,235	41,147	42,902	44,529

[a]Project employment refers to direct employment associated with a site-specific single- or multiple-project development. Because no developments were included in either the historic or projected economic base Region 1, there was no project employment.

In general, the results suggest that the model examined is adaptable to both sparsely populated rural areas and urban centers and appears to provide reliable projections of economic and demographic change. In contemplating future applications of this modeling system, however, potential users should carefully examine the assumptions inherent in the model's data base. In particular, the projected baseline sales to final demand for each region of interest and the specific development projects applicable to those regions should be carefully reviewed in light of recent events. While the assumptions concerning these factors currently incorporated in the model reflect the most recent information available to the authors, the dynamic nature of resource development in general and of energy markets in particular requires frequent review of assumptions concerning such activities. Should revisions in these assumptions prove desirable for some regions, the model's structure provides for easy alteration of the appropriate data files.

In summary, models such as the one described here are not a substitute for detailed understanding of local conditions, trends, and associated causal forces but rather offer a mechanism for operationalizing such knowledge. Thus, they have the potential to serve as powerful and flexible tools for planners and decision makers.

APPENDIX A

Procedures and Data Sources Used In The Economic Module

Essentially, the procedures and data sources used in the economic module apply to its central feature--the input-output model. This model tabulates and describes the linkages or interdependencies between various industrial groups or sectors within an economy. The input-output model assumes that the level of economic activity in a region is dependent upon its existing basic industries. These industries, which earn income from outside the region, often are termed the region's export base.

The general methods used in estimating and projecting economic activity from the input-output model are as follows:

1. Final Demand Vectors: Data collection of sales for final demand by the region's basic economic sectors;
2. Derivation of Interdependence Coefficients: Indicates the direct, indirect, and induced requirements of the economy's sectors;
3. Estimation of Gross Business Volumes: Multiplication of final demand vectors by interdependence coefficients;
4. Productivity Ratios: Division of gross business volumes by sectoral employment;
5. Baseline Activity Projections: Historic final demand vectors and productivity ratios are projected by regression techniques with results indexed to 1980 base year dollars.

The purpose of this appendix is to discuss these various procedures and present the data sources used in adapting the NEDAM model to Minnesota. The discussion begins with an overview of the procedures used in expanding the input-output model for Minnesota. Following this, the section is divided into the various economic sectors with each containing relevant data sources and a discussion of how the final demand vectors were determined.

Input-Output Model--Interdependence Coefficients

The North Dakota input-output technical and interdependence coefficients used in NEDAM were derived from actual expenditures data collected in 1965 for business firms, households, and units of government in southwestern North Dakota.[1] Energy-related sector coefficients were determined from survey data collected in 1976.[2] Three economic sectors were added to the model for Minnesota: metal mining, lumber and associated products, and metal processing. Sector delineation and associated Standard Industrial Classification (SIC) codes are presented in Table 3 of the text.

Similarities between the economic base of North Dakota and Minnesota allowed the transfer of input-output interdependence coefficients to Minnesota. Expanding the North Dakota model (17 economic sectors) to represent the Minnesota economy (20 economic sectors) was accomplished by obtaining technical and interdependence coefficients from a recent economic analysis of northwestern Colorado.[3] As in North Dakota, these coefficients were derived from actual expenditures data collected in 1974. Similarities between the metal mining, lumber, and metal processing industries in Minnesota and northwestern Colorado justified the use of these coefficients for Minnesota.

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[1]Sand, L. D., "Analysis of Effects of Income Changes In Intersectoral and Intercommunity Economic Structure," Unpublished M.S. Thesis, Department of Agricultural Economics, North Dakota State University, Fargo, 1968; Bartch, B. L., "Analysis of Intersectoral and Intercommunity Structure in Southwestern North Dakota," Unpublished M.S. Thesis, Department of Agricultural Economics, North Dakota State University, Fargo, 1968; and Senechal, D. M., "Analysis of Validity of North Dakota Input-Output Models," Unpublished M.S. Thesis, Department of Agricultural Economics, North Dakota State University, Fargo, 1971.

[2]Hertsgaard, T. A., Randal C. Coon, F. Larry Leistritz, and Norman L. Dalsted, Developing Economic Impact Projection Models for the Fort Union Coal Region, EPA-908/4-77-009, Environmental Protection Agency, Denver, Colorado, June 1977.

[3]Gray, S. L., J. R. McKean, and J. C. Weber, The Economy of Northwestern Colorado: Description and Analysis, Technical Report No. 25, Colorado Water Resources Research Institute, Colorado State University, Fort Collins, 1981.

The North Dakota input-output interdependence coefficients, originally for a 13-sector model, were calculated using the following formula:

$$([I - A]_{13 \times 13})^{-1}$$

where: $A_{13 \times 13}$ = Technical coefficients table for 13 sectors;

I = Identity matrix (a matrix consisting of all zeros with the exception of ones in the diagonal).

Expenditure data from a survey of the energy-related industries yielded technical coefficients for four additional economic sectors. These 17-sector interdependence coefficients were calculated as follows:

$$\left[([I - A]_{13 \times 13})^{-1}\right]^{-1} = [I - A]_{13 \times 13}$$

$$I - [I - A]_{13 \times 13} = A_{13 \times 13}$$

The original 13-sector technical coefficients table ($A_{13 \times 13}$) was expanded to $A_{13 \times 17}$ by adding zeros to the matrix.

$$[A]_{13 \times 17} + [A]_{4 \times 17} = [A]_{17 \times 17}$$

where: $[A]_{4 \times 17}$ = Energy sectors technical coefficients table;

$[A]_{17 \times 17}$ = 17-sector technical coefficients table.

Thus, $I - [A]_{17 \times 17} = [I - A]_{17 \times 17}$

and $\left[[I - A]_{17 \times 17}\right]^{-1}$ = Interdependence coefficients for 17 sectors.

Similar methods were used to expand the North Dakota 17-sector input-ouput model to 20 economic sectors for Minnesota. The technical coefficients for Minnesota's 20-sector economy are presented in Table 4 of the text. Inverting the 20 X 20 technical coefficents matrix for Minnesota yielded the interdependence coefficients (Table 5 of the text).

Indexing

In order to reflect the <u>real</u> economic growth or decline of various sectors over time, the effects of economy-wide inflation must be controlled.

Inflation was removed from final demand vectors by utilizing a price index. The Implicit Price Index (IMP) was selected for this indexing (deflating) approach and used to calculate 1980 base dollar values. The use of the IMP as a deflator assumes that a single index was applicable for all sectors of the economy for a given year. The method is rather simple--dividing current year dollars by their respective IMP resulted in final demand vector values in 1980 base year dollars. Implicit price indices for 1960 to 1982 are presented in Appendix A, Table 1.[4]

Removing inflation from the final demand vectors also reflects real change in productivity ratios. Gross business volumes estimated from 1980 base final demand vectors were subsequently used in calculating productivity ratios. Thus, all economic baseline data in the economic model are expressed in terms of 1980 dollars.

Regression Techniques

Projecting final demand vectors and productivity ratios was done with regression analysis. A great number of regression analysis techniques exist to fit a projection equation (line) from the existing data. A data set can be fit with a straight line (linear regression) or with a curved line (log, quadratic, etc.). Linear regression is more acceptable for economic-demographic model projections as curvilinear regression equations often show very rapid changes in certain portions of their curves. Curvilinear regression equations tend to make projecting models act rather erratic.

The data in the Minnesota extension of NEDAM did not always yield acceptable linear regression equations for model projections (i.e., in some cases the R^2 values were very low). To obtain more acceptable linear

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[4]U.S. Department of Commerce, Survey of Current Business, U.S. Government Printing Office, Washington, D.C., various issues.

APPENDIX TABLE 1. GROSS NATIONAL PRODUCT IMPLICIT PRICE DEFLATORS FOR 1967 AND 1980 BASE

Year	GNP Implicit Price Deflators	
	1967 = 100	1980 = 100
1960	86.9	38.74
1961	87.7	39.10
1962	89.3	39.81
1963	90.7	40.44
1964	92.0	41.02
1965	94.1	41.95
1966	97.1	43.29
1967	100.0	44.58
1968	104.4	46.54
1969	109.8	48.95
1970	115.7	51.58
1971	121.4	54.12
1972	126.5	56.40
1973	133.7	59.61
1974	145.4	64.82
1975	158.8	70.80
1976	167.1	74.50
1977	176.9	78.87
1978	189.8	84.62
1979	205.9	91.80
1980	224.3	100.00
1981	247.3	110.23
1982	262.0	116.80

Source: U.S. Department of Commerce, Survey of Current Business, U.S. Government Printing Office, Washington, D.C., several issues.

regression equations, a regression technique called robust regression was used. Robust regression is a technique where observations near the regression line are weighted higher than those lying a substantial distance away from the line (for a complete description of robust regression, see Leistritz, et al., North Dakota Economic-Demographic Assessment Model (NEDAM): Technical Description, 1982). In addition to robust regression, a robust regression technique with an intercept adjustment was utilized.

Final Demand Vectors

Final demand vectors are sales for final demand by various sectors of the economy. Sectors included as final demand vectors in input-output analysis are referred to as "basic sectors" because they constitute the economic base of the area. The activities that constitute the "basic sectors" in the Minnesota economy include the production of livestock, crops, mining, lumber, and manufacturing within the area, as well as expenditures by the federal government and tourists in the area.

Final demand vectors were calculated for the period 1960 through 1982 at the regional level for Minnesota. Eleven economic regions were used for calculating the economic base in Minnesota (Figure 1 of the text). Basic sector final demand vectors were deflated using the IMP and projected to the year 2005 using linear regression techniques.

Data used in estimating the final demand vectors for the basic sectors in Minnesota were obtained from a wide variety of secondary sources and compiled at county and regional levels. The sources of data and methodology are described below for the basic economic sectors.

Agriculture, Livestock (Sector 1)

The agriculture, livestock final demand vector consists of total receipts from sale of livestock and livestock products. Livestock production data were published each year from 1960 to 1982 at the county level for Minnesota.[5] State estimates of livestock income also were available for the same period.[6] Annual livestock sales for Minnesota were allocated to counties

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[5]Minnesota Agricultural Statistics Service, Minnesota Agricultural Statistics, U.S. Department of Agriculture, Statistical Reporting Service Cooperating with Minnesota Department of Agriculture, St. Paul, annual reports, 1961-1983.

[6]Ibid.

according to their portion of total state livestock production for each year during the time period. Minnesota's regional final demand vectors were obtained by adding livestock sales receipts for counties in each of the 11 regions.

Agriculture, Crops (Sector 2)

Total receipts for crops and government agricultural payments comprise the agriculture, crops final demand vector. Crop production data were published annually for Minnesota at the county level for 1960 through 1982.[7] Crop sales and government payments for 1960 to 1982 also were available for Minnesota.[8] Annual county share of state value of production for major commodities was used to allocate Minnesota's crop sales plus government payments to counties. The total crops receipts and government payments for each county in the region were added to obtain final demand vectors for each of Minnesota's 11 regions.

Metal Mining (Sector 3)

The metal mining final demand vector consists of value of sales of raw metals exported from the producing region. Iron ore is the major metal mined in Minnesota.[9] Production by county and value of metals mined were available for 1960-1981.[10] Data were not available for 1982 so a trend estimate was calculated. Metals not processed in Minnesota were assumed to be exported as a raw material. The values of metal exports were determined, and county values were aggregated to the regional level.

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[7]Ibid.

[8]Ibid.

[9]Bureau of Mines, Minerals Yearbook, Area Reports: Domestic, Volume II, United States Department of the Interior, U.S. Government Printing Office, Washington, D.C., 1981.

[10]Bureau of Mines, Minerals Yearbook, Area Reports: Domestic, Volume II, United States Department of the Interior, U.S. Government Printing Office, Washington, D.C., 1960-1981.

Contract Construction (Sector 7)

The construction industry generates sales to final demand primarily in the form of highway construction funded by federal government revenues. The amount of federal expenditures for highway construction was available only at the state level for Minnesota between 1960 and 1967.[11] The procedure for reporting these data changed in 1967, and actual federal expenditures for Minnesota were available at county and state level from 1968 to 1980.[12] Federal government outlays for construction in the respective regions for 1960 to 1967 were estimated by allocating state totals on the basis of regional shares reported for 1968 to 1980. Federal expenditures for Minnesota were available for 1981 and 1982[13] and then allocated to regions on the basis of regional shares reported for 1976 to 1980.

Lumber and Associated Products (Sector 8)

Total receipts from nonlocal sales of lumber and associated products constituted the final demand vector for Sector 8. State value of lumber and forest products was available for 1963 to 1982.[14] Value of lumber and associated products for the earlier years was estimated based on information provided by industry officials.[15] Data were not available to allocate the state

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[11]U.S. Treasury Department, Annual Report of the Secretary of the Treasury on the State of the Finances, U.S. Government Printing Office, Washington, D.C., 1960-1967.

[12]Office of Economic Opportunity, Federal Outlays in Minnesota, National Technical Information Service, U.S. Department of Commerce, Washington, D.C., 1968-1980.

[13]Bureau of the Census, Federal Expenditures by State for Fiscal Years 1981, 1982, U.S. Department of Commerce, U.S. Government Printing Office, Washington, D.C., 1981, 1982.

[14]Minnesota Forest Industries, Inc., Forest Industries Facts and Figures, Minnesota Forest Industries Information Committee, Duluth, 1963-1981; and Forest Industries Council, Minnesota Forest Productivity Report, 1979, Forest Productivity Project, Washington, D.C., 1979.

[15]Doug Ford, Telephone Interview, Forest Economist, Minnesota Department of Natural Resources, St. Paul, January 1984.

value of forest products to the regions, so employment in the industry was used.[16] Approximately 90 percent of the lumber cut and lumber products manufactured were assumed to be sold outside the producing region.

Agricultural Processing and Miscellaneous Manufacturing (Sector 9)

Gross output of the agricultural processing and miscellaneous manufacturing sector consists principally of the value of manufacturing, although wholesaling activities also are included in this sector. State- or county-level data were not readily available for this sector. Estimates of total value added by manufacturing and wholesale trade were available at the county level for 1958, 1963, 1967, 1972, and 1977 for Minnesota.[17] Linear extrapolation was used to estimate values for the missing years, and trend projections were used for the 1978 to 1982 period. Data were not available on exports of manufactured products or wholesale trade outside the local region. Estimates of manufactured products and wholesale trade exported were made based on manufacturing and population within each respective region. County data were summed to the regional level, and region value of exports constituted the agricultural processing and miscellaneous manufacturing final demand vector.

Retail Trade (Sector 15)

The retail trade final demand vector consists of three-fourths of the dollar volume of tourism expenditures in the area. The other one-fourth is

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[16]Bureau of the Census, County Business Patterns Minnesota, United States Department of Commerce, U.S. Government Printing Office, Washington, D.C., 1964-1981.

[17]Bureau of the Census, Census of Manufacturing, Minnesota, U.S. Department of Commerce, U.S. Government Printing Office, Washington, D.C., 1958, 1963, 1967, 1972, and 1977; and Bureau of the Census, Census of Wholesale Trade, Minnesota, U.S. Department of Commerce, U.S. Government Printing Office, Washington, D.C., 1958, 1963, 1967, 1972, and 1977.

assumed to be the business and personal service final demand vector. State-level tourism estimates were available for 1971 to 1981.[18] Minnesota's tourism expenditures were available for 1974-1976, 1980, and 1981 at the county level.[19] Trend estimates were obtained to backcast the 1971 value to 1960. County share of state tourism for 1974-1976, 1980, and 1981 was used to allocate tourism expenditures in Minnesota to the individual counties for 1960 to 1982. County tourism estimates were added to the regional level and three-fourths of that value yielded the retail trade final demand vector.

Business and Personal Services (Sector 17)

The final demand vector for business and personal services is simply the remaining tourism expenditures (25 percent) after allocation to retail trade.

Households (Sector 20)

The federal government generates basic income to the household sector through payrolls and transfer payments. Federal aid to states and individuals was published annually for Minnesota for 1960 to 1967.[20] Defense expenditures, veterans benefits, Old Age and Survivor's Insurance payments, Workman's Compensation, and the federal payroll also were included as basic income.[21] The household sector final demand vectors for Minnesota were calculated by adding total grants (less highway construction), defense

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[18]Department of Energy, Planning, and Development, Tourism Division, 1981 Minnesota Tourist-Travel Indicators, Minnesota Tourism Division, St. Paul, 1981.

[19]Ibid; Department of Economic Development, Gross Sales in Minnesota, Research Division, Minnesota Department of Economic Development, St. Paul, 1977; and Department of Economic Development, 1976 Lodging Receipts, Research Division, Department of Economic Development, St. Paul, 1976.

[20]U.S. Treasury Department, 1960-1968, op. cit.

[21]Bureau of Economic Analysis, Personal Income by Place of Residence, Wyoming, U.S. Department of Commerce, U.S. Government Printing Office, Washington, D.C., 1958-1967.

expenditures (except for construction), veterans benefits, Old Age and Survivor's Insurance, Workman's Compensation, and federal payrolls.

Total federal expenditures were available on a county basis for 1968 to 1980 for Minnesota,[22] but only state level expenditures were available for 1981 and 1982.[23] The final demand vector for 1968 to 1980 was calculated as follows: farm payments (included as income in Sector 2), construction outlays, and loans were subtracted from the total federal expenditures to obtain final demand vectors at county and state levels. The regional percentage of the state expenditures during the period 1968 to 1980 was used to allocate the household final demand vector to the regions for 1960 to 1967, and 1981 and 1982.

Employment

Minnesota's employment data were available at the state level for 1960 to 1982 by economic sector.[24] State employment data were disaggregated to the counties by creating allocators from County Business Patterns.[25] County employment was summed to the regional level to yield regional employment by sector for 1960 to 1982.

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[22]U.S. Department of Commerce, 1968-1980, op. cit.

[23]U.S. Department of Commerce, 1981 and 1982, op. cit.

[24]Minnesota Department of Economic Security, Minnesota Nonagricultural Wage and Salary Employment Hours and Earnings, Research and Statistical Services Office, in cooperation with the U.S. Department of Labor, Bureau of Labor Statistics, St. Paul, April 1983; Minnesota Department of Economic Security, Minnesota Nonagricultural Wage and Salary Employment, Research and Statistical Services Office, St. Paul, 1950-1983; and U.S. Department of Commerce, Census of Agriculture, Minnesota, Bureau of the Census, U.S. Government Printing Office, Washington, D.C., 1959, 1960, 1969, 1974, and 1978.

[25]Bureau of the Census, County Business Patterns, Minnesota, U.S. Department of Commerce, U.S. Government Printing Office, Washington, D.C., 1960-1981.

APPENDIX B

TABLES FOR REGIONS 2-11 AND MINNESOTA

APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980

Region	County Number	County Name	County Population 1960	County Population 1970	County Population 1980	City Number	City Name	City Population 1960	City Population 1970	City Population 1980
1	1	Kittson	8,343	6,853	6,672					
						1	Hallock	1,527	1,477	1,405
						2	Karlstad	720	727	934
	2	Marshall	14,262	13,060	13,027					
						3	Argyle	789	739	741
						4	Stephen	858	904	898
						5	Warren	2,007	1,999	2,105
	3	Pennington	12,468	13,266	15,258					
						6	Thief River Falls	7,151	8,618	9,105
	4	Polk	36,182	34,435	34,844					
						7	Crookston	8,546	8,312	8,628
						8	East Grand Forks	6,998	7,607	8,537
						9	Erskine	614	571	585
						10	Fertile	968	955	869
						11	Fosston	1,704	1,684	1,599
						12	McIntosh	785	753	681
	5	Red Lake	5,830	5,388	5,471					
						13	Oklee	529	536	536
						14	Red Lake Falls	1,520	1,740	1,732
	6	Roseau	12,154	11,569	12,574					
						15	Greenbush	706	787	817
						16	Roseau	2,146	2,552	2,272
						17	Warroad	1,309	1,086	1,216
2	7	Aitkin	12,162	11,403	13,404					
						18	Aitkin	1,829	1,553	1,770
						19	Hill City	429	357	533
	8	Beltrami	23,425	26,373	30,982					
						20	Bemidji	9,958	11,490	10,949
						21	Blackduck	765	595	653
						22	Lower Red Lake	NA	2,675	2,855

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

Region	County Number	County Name	County Population 1960	County Population 1970	County Population 1980	City Number	City Name	City Population 1960	City Population 1970	City Population 1980
2	9	Cass	16,720	17,323	21,050					
						23	Cass Lake	1,586	1,317	1,001
						24	East Gull Lake	311	440	586
						25	Lake Shore	264	410	583
						26	Pine River	775	803	881
						27	Walker	1,180	1,073	970
	10	Clearwater	8,864	8,013	8,761					
						28	Bagley	1,385	1,314	1,321
						29	Clearbrook	650	599	579
	11	Crow Wing	32,134	34,826	41,722					
						30	Baxter	1,037	1,556	2,625
						31	Brainerd	12,898	11,667	11,489
						32	Crosby	2,629	2,241	2,218
						33	Crosslake	165	358	1,064
						34	Deerwood	527	448	580
						35	Emily	351	386	588
						36	Ironton	724	562	537
						37	Nisswa	742	1,011	1,407
						38	Pequot Lakes	461	499	681
						39	West Crow Wing	1,361	2,425	3,655
	12	Hubbard	9,962	10,583	14,098					
						40	Park Rapids	3,047	2,772	2,976
	13	Itasca	38,006	35,530	43,069					
						41	Bovey	1,086	858	813
						42	Bowstring Lake	NA	863	970
						43	Coleraine	1,346	1,086	1,116
						44	Deer Lake	NA	1,317	2,733
						45	Deer River	992	815	907
						46	Grand Rapids	7,265	7,247	7,934

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

Region	County Number	County Name	County Population 1960	County Population 1970	County Population 1980	City Number	City Name	City Population 1960	City Population 1970	City Population 1980
2	13	Itasca (continued)				47	Keewatin	1,651	1,382	1,443
						48	La Prairie	243	413	536
						49	Marble	879	682	757
						50	Nashwauk	1,712	1,341	1,419
						51	Northeast Itasca	NA	1,130	1,176
	14	Koochiching	18,190	17,131	17,571					
						52	International Falls	6,778	6,439	5,611
						53	Littlefork	805	824	918
						54	Northome	291	351	312
						55	Northwest Koochiching	NA	600	639
						56	Rainy Lake	--	--	4,793
						57	South International Falls	2,479	2,116	2,806
	15	Lake of the Woods	4,304	3,987	3,764					
						58	Baudette	1,597	1,547	1,170
						59	Rainy River	NA	2,036	2,226
	16	Wadena	12,199	12,412	14,192					
						60	Menahga	799	835	980
						61	Sebeka	823	668	774
						62	Staples[a]	--	98	264
						63	Verndale	606	570	504
						64	Wadena	4,381	4,640	4,699

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

Region	County Number	County Name	County Population 1960	County Population 1970	County Population 1980	City Number	City Name	City Population 1960	City Population 1970	City Population 1980
3	17	Carlton	27,932	28,072	29,936					
						65	Carlton	862	884	862
						66	Cloquet	9,013	8,699	11,142
						67	Moose Lake	1,514	1,400	1,408
						68	North Carlton	NA	1,794	1,362
						69	Scanlon	1,126	1,132	1,050
	18	Cook	3,377	3,423	4,092					
						70	Grand Marais	1,301	1,301	1,289
						71	West Cook	NA	1,642	1,404
	19	Lake	13,702	13,351	13,043					
						72	Silver Bay	3,723	3,504	2,917
						73	Two Harbors	4,695	4,437	4,039
	20	Pine	17,004	16,821	19,871					
						74	Hinckley	851	885	963
						75	Pine City	1,972	2,143	2,489
						76	Rock Creek	728	815	890
						77	Sandstone	1,552	1,641	1,594
	21	St. Louis	231,588	220,693	222,229					
						78	Aurora	2,799	2,531	2,670
						79	Babbitt	2,587	3,076	2,435
						80	Birch Lake	NA	640	699
						81	Biwabik	1,836	1,483	1,428
						82	Buhl	1,526	1,303	1,284
						83	Chisholm	7,144	5,913	5,930
						84	Cook	527	687	800
						85	Duluth	106,884	100,578	92,811
						86	Ely	5,438	4,904	4,820
						87	Ely Lake	--	--	1,172
						88	Eveleth	5,721	4,721	5,042

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

	County					City				
			Population					Population		
Region	Number	Name	1960	1970	1980	Number	Name	1960	1970	1980
3	21	St. Louis (continued)				89	Floodwood	677	650	648
						90	Gilbert	2,591	2,287	2,721
						91	Heikkila Lake	NA	994	1,616
						92	Hermantown	5,765	6,737	6,759
						93	Hibbing	17,731	16,104	21,193
						94	Hoyt Lakes	3,186	3,634	3,186
						95	Mountain Iron	1,808	1,698	4,134
						96	Northwest St. Louis	NA	798	571
						97	Pike Lake	426	406	640
						98	Proctor	2,963	3,123	3,180
						99	Sand Lake	NA	861	1,401
						100	Towner	878	699	640
						101	Virginia	14,034	12,450	11,056
4	22	Becker	23,959	24,372	29,336					
						102	Detroit Lakes	5,633	5,797	7,106
						103	Frazee	1,083	1,015	1,284
						104	Lake Park	730	658	716
	23	Clay	39,080	46,608	49,327					
						105	Barnesville	1,632	1,782	2,207
						106	Dilworth	2,102	2,321	2,585
						107	Glyndon	489	674	882
						108	Hawley	1,270	1,371	1,634
						109	Moorhead	22,934	29,687	29,998
						110	Ulen	481	486	514
	24	Mahnomen	6,341	5,638	5,535					
						111	Mahnomen	1,462	1,313	1,283

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

	County					City				
			Population					Population		
Region	Number	Name	1960	1970	1980	Number	Name	1960	1970	1980
4	25	Norman	11,253	10,008	9,379					
						112	Ada	2,064	2,076	1,971
						113	Halstad	639	598	690
						114	Twin Valley	841	868	907
5	26	Douglas	21,313	22,910	27,839					
						115	Alexandria	6,713	6,973	7,608
						116	Evansville	411	553	571
						117	Osakis[b]	1,396	1,306	1,355
	27	Grant	8,870	7,462	7,171					
						118	Elbow Lake	1,521	1,484	1,358
						119	Herman	764	619	600
						120	Hoffman	605	627	631
	28	Otter Tail	48,960	46,097	51,937					
						121	Battle Lake	733	772	708
						122	Fergus Falls	13,733	12,443	12,519
						123	Henning	980	850	832
						124	New York Mills	828	791	972
						125	Parkers Prairie	884	882	917
						126	Pelican Rapids	1,693	1,835	1,867
						127	Perham	2,019	1,933	2,086
	29	Traverse	7,503	6,254	5,542					
						128	Browns Valley	1,033	906	887
						129	Wheaton	2,102	2,029	1,969
	30	Wilkin	10,650	9,389	8,454					
						130	Breckenridge	4,335	4,200	3,909
6	31	Benton	17,287	20,841	25,187					
						131	Foley	1,112	1,271	1,606
						132	St. Cloud[c]	3,209	4,180	4,645
						133	Sartell[d]	216	264	1,227
						134	Sauk Rapids	4,038	5,051	5,793

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

Region	County Number	County Name	County Population 1960	County Population 1970	County Population 1980	City Number	City Name	City Population 1960	City Population 1970	City Population 1980
6	32	Kanabec	9,007	9,775	12,161					
						135	Mora	2,329	2,582	2,890
	33	Mille Lacs	14,560	15,703	18,430					
						136	Isle	529	551	573
						137	Milaca	1,821	1,940	2,104
						138	Onamia	645	670	691
						139	Princeton[e]	2,353	2,531	3,146
	34	Morrison	26,641	26,949	29,311					
						140	Little Falls	7,551	7,467	7,250
						141	Pierz	816	893	1,018
						142	Randall	516	536	527
						143	Royalton	580	534	660
	35	Sherburne	12,861	18,344	29,908					
						144	Becker	279	365	601
						145	Big Lake	610	1,015	2,210
						146	Elk River	1,763	2,252	6,785
						147	St. Cloud[c]	3,166	3,918	4,421
						148	Zimmerman	302	495	1,074
	36	Stearns	80,345	95,400	108,161					
						149	Albany	1,375	1,599	1,569
						150	Avon	443	725	804
						151	Belgrade	666	713	805
						152	Brooten	661	615	647
						153	Cold Spring	1,760	2,006	2,294
						154	Eden Valley[f]	270	287	291
						155	Freeport	615	593	563
						156	Holdingford	526	551	635
						157	Kimball Prairie	535	567	651
						158	Melrose	2,135	2,273	2,409

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

Region	County Number	County Name	County Population 1960	County Population 1970	County Population 1980	City Number	City Name	City Population 1960	City Population 1970	City Population 1980
6	36	Stearns (continued)				159	Paynesville	1,754	1,920	2,140
						160	Richmond	751	866	867
						161	Rockville	357	302	597
						162	St. Cloud[c]	27,440	31,593	33,500
						163	St. Joseph	1,487	1,786	2,994
						164	Sartell[d]	575	1,059	2,200
						165	Sauk Centre	3,573	3,750	3,709
						166	Waite Park	2,016	2,824	3,496
	37	Todd	23,119	22,114	24,991					
						167	Bertha	562	512	510
						168	Browerville	744	665	693
						169	Clarissa	569	599	663
						170	Eagle Bend	611	557	593
						171	Long Prairie	2,414	2,416	2,859
						172	Staples[a]	2,706	2,657	2,623
7	38	Big Stone	8,954	7,941	7,716					
						173	Clinton	565	608	622
						174	Graceville	823	735	780
						175	Ortonville	2,674	2,665	2,550
	39	Chippewa	16,320	15,109	14,941					
						176	Clara City	1,358	1,491	1,574
						177	Granite Falls[g]	563	643	785
						178	Montevideo	5,693	5,661	5,845
	40	Kandiyohi	29,987	30,548	36,763					
						179	Atwater	899	956	1,128
						180	New London	721	736	812
						181	Prinsburg	462	448	557
						182	Raymond	608	589	723
						183	Spicer	589	586	909
						184	Willmar	10,417	12,869	15,895

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

Region	County Number	County Name	County Population 1960	County Population 1970	County Population 1980	City Number	City Name	City Population 1960	City Population 1970	City Population 1980
7	41	Lac Qui Parle	13,330	11,164	10,592					
						185	Dawson	1,766	1,699	1,901
						186	Madison	2,380	2,242	2,212
	42	Pope	11,914	11,107	11,657					
						187	Glenwood	2,631	2,584	2,523
						188	Starbuck	1,099	1,138	1,224
	43	Renville	23,249	21,139	20,401					
						189	Bird Island	1,384	1,309	1,372
						190	Buffalo Lake	707	758	782
						191	Danube	494	497	590
						192	Fairfax	1,489	1,432	1,405
						193	Franklin	548	557	512
						194	Hector	1,297	1,178	1,252
						195	Morton	624	591	549
						196	Olivia	2,355	2,553	2,802
						197	Renville	1,373	1,252	1,493
						198	Sacred Heart	696	707	666
	44	Stevens	11,262	11,218	11,322					
						199	Chokio	498	455	559
						200	Hancock	942	806	877
						201	Morris	4,199	5,366	5,367
	45	Swift	14,936	13,177	12,920					
						202	Appleton	2,172	1,789	1,842
						203	Benson	3,678	3,484	3,656
						204	Kerkhoven	645	641	761

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

Region	County Number	County Name	County Population 1960	County Population 1970	County Population 1980	City Number	City Name	City Population 1960	City Population 1970	City Population 1980
8	46	Anoka	85,916	154,712	195,998					
						205	Andover	--	--	9,387
						206	Anoka	10,562	13,293	15,634
						207	Blaine[h]	7,565	20,568	28,558
						208	Centerville	338	534	734
						209	Circle Pines	2,789	3,902	3,321
						210	Columbia Heights	17,533	23,997	20,029
						211	Coon Rapids	14,931	30,505	35,826
						212	East Bethel	1,408	2,586	6,626
						213	Fridley	15,173	29,233	30,228
						214	Ham Lake	1,423	3,327	7,832
						215	Hilltop	607	1,015	817
						216	Lexington	1,457	2,165	2,150
						217	Lino Lakes	2,329	3,692	4,966
						218	Ramsey	1,179	2,536	10,093
						219	St. Francis	--	897	1,184
						220	Spring Lake Park[i]	3,184	6,319	6,368
	47	Carver	21,358	28,331	37,046					
						221	Carver	467	669	642
						222	Chanhassen[j]	244	4,879	6,359
						223	Chaska	2,501	4,352	8,346
						224	Cologne	454	518	545
						225	Norwood	945	1,058	1,219
						226	Victoria	425	850	1,425
						227	Waconia	2,048	2,445	2,638
						228	Watertown	1,046	1,390	1,818
						229	Young America	477	611	1,237

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

Region	County Number	County Name	County Population 1960	County Population 1970	County Population 1980	City Number	City Name	City Population 1960	City Population 1970	City Population 1980
8	48	Chisago	13,419	17,492	25,717					
						230	Branch	516	880	1,866
						231	Chisago City	772	1,068	1,634
						232	Harris	552	559	678
						233	Lindstrom	835	1,260	1,972
						234	North Branch	949	1,106	1,597
						235	Rush City	1,108	1,130	1,198
						236	Stacy	211	278	996
						237	Taylors Falls	546	587	623
						238	Wyoming	435	695	1,559
	49	Dakota	78,303	139,808	194,279					
						239	Apple Valley	--	8,502	21,818
						240	Burnsville	--	19,940	35,674
						241	Eagan	3,382	10,398	20,700
						242	Farmington	2,300	3,104	4,370
						243	Hastings[k]	8,965	12,195	12,827
						244	Inver Grove Heights	--	12,148	17,171
						245	Lakeville	924	7,556	14,790
						246	Mendota Heights	5,028	6,565	7,288
						247	Rosemount	1,068	1,337	5,083
						248	South St. Paul	22,032	25,016	21,235
						249	West St. Paul	13,101	18,802	18,527
	50	Hennepin	842,854	960,080	941,411					
						250	Bloomington	50,498	81,970	81,831
						251	Brooklyn Center	24,356	35,173	31,230
						252	Brooklyn Park	10,197	26,230	43,332
						253	Champlin	1,271	2,275	9,006
						254	Corcoran	1,237	1,656	4,252
						255	Crystal	24,283	30,925	25,543

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

Region	County Number	County Name	County Population 1960	County Population 1970	County Population 1980	City Number	City Name	City Population 1960	City Population 1970	City Population 1980
8	50	Hennepin (continued)				256	Dayton[l]	456	517	4,070
						257	Deephaven	3,286	3,853	3,716
						258	Eden Prairie	--	6,938	16,263
						259	Edina	28,501	44,046	46,073
						260	Excelsior	2,020	2,563	2,523
						261	Golden Valley	14,559	24,246	22,775
						262	Greenfield	639	977	1,391
						263	Greenwood	520	587	653
						264	Hanover[m]	85	96	248
						265	Hopkins	11,370	13,428	15,336
						266	Independence	1,446	1,993	2,640
						267	Long Lake	996	1,506	1,747
						268	Maple Grove	2,213	6,275	20,525
						269	Maple Plain	754	1,169	1,421
						270	Medina	1,472	2,396	2,623
						271	Minneapolis	482,872	434,400	370,951
						272	Minnetonka	25,037	25,776	38,683
						273	Minnetonka Beach	544	586	575
						274	Minnetrista	--	2,878	3,236
						275	Mound	5,440	7,572	9,280
						276	New Hope	3,552	23,180	23,087
						277	Orono	5,643	6,787	6,845
						278	Osseo	2,104	2,908	2,974
						279	Plymouth	9,576	18,077	31,615
						280	Richfield	42,523	47,231	37,851
						281	Robbinsdale	16,381	16,845	14,422
						282	Rockford[m]	43	162	380
						283	Rogers	378	544	652
						284	St. Anthony[n]	4,744	6,886	5,619

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

Region	County Number	County Name	County Population 1960	County Population 1970	County Population 1980	City Number	City Name	City Population 1960	City Population 1970	City Population 1980
8	50	Hennepin (continued)				285	St. Bonifacius	576	685	857
						286	St. Louis Park	43,310	48,883	42,931
						287	Shorewood	3,197	4,223	4,643
						288	Spring Park	668	1,087	1,465
						289	Tonka Bay	1,204	1,397	1,354
						290	Wayzata	3,219	3,700	3,621
						291	Woodland	449	544	526
	51	Isanti	13,530	16,560	23,600					
						292	Braham	728	744	1,015
						293	Cambridge	2,728	2,720	3,170
						294	Isanti	521	679	858
	52	McLeod	24,401	27,662	29,657					
						295	Brownton	698	688	697
						296	Glencoe	3,216	4,217	4,396
						297	Hutchinson	6,207	8,031	9,244
						298	Lester Prairie	966	1,162	1,229
						299	Silver Lake	646	694	698
						300	Stewart	676	666	616
						301	Winsted	1,163	1,266	1,522
	53	Meeker	18,887	18,387	20,594					
						302	Cosmos	487	570	571
						303	Dassel	863	1,058	1,066
						304	Eden Valley[f]	523	489	472
						305	Grove City	466	531	596
						306	Litchfield	5,078	5,262	5,904
						307	Watkins	744	785	757

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

Region	County Number	County Name	County Population 1960	County Population 1970	County Population 1980	City Number	City Name	City Population 1960	City Population 1970	City Population 1980
8	54	Ramsey	422,525	476,255	459,784					
						308	Arden Hills	3,930	5,149	8,012
						309	Falcon Heights	5,927	5,530	5,291
						310	Lauderdale	1,676	2,530	1,985
						311	Little Canada	3,512	3,481	7,102
						312	Maplewood	18,519	25,186	26,990
						313	Mounds View	6,416	10,599	12,593
						314	New Brighton	6,448	19,507	23,269
						315	North Oaks	803	2,002	2,846
						316	North St. Paul	8,520	11,950	11,921
						317	Roseville	23,997	34,438	35,820
						318	St. Anthony[n]	340	2,353	2,362
						319	St. Paul	313,411	309,866	270,230
						320	Shoreview	7,157	10,978	17,300
						321	Spring Lake Park[l]	76	98	109
						322	Vadnais Heights	2,459	3,411	5,111
						323	White Bear Lake[o]	12,849	23,313	22,538
	55	Rice	38,988	41,582	46,087					
						324	Faribault	16,926	16,595	16,241
						325	Lonsdale	541	622	1,160
						326	Morristown [p]	616	659	639
						327	North Field[p]	8,707	10,235	12,562
	56	Scott	21,909	32,423	43,784					
						328	Belle Plaine	1,931	2,328	2,754
						329	Jordan	1,479	1,836	2,663
						330	New Prague[q]	1,614	1,731	1,898
						331	Prior Lake	848	1,114	7,284
						332	Savage	1,094	3,611	3,954
						333	Shakopee	5,201	6,876	9,941

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

Region	County Number	County Name	County Population 1960	County Population 1970	County Population 1980	City Number	City Name	City Population 1960	City Population 1970	City Population 1980
8	57	Washington	52,432	83,003	113,571					
						334	Afton	158	248	2,550
						335	Bayport	3,205	2,987	2,932
						336	Birchwood Village	598	926	1,059
						337	Cottage Grove	--	13,419	18,994
						338	Dellwood	310	524	751
						339	Forest Lake	2,347	3,207	4,596
						340	Hugo	538	751	3,771
						341	Lake Elmo	550	3,565	5,296
						342	Lakeland	598	962	1,812
						343	Lake St. Croix Beach	716	1,111	1,176
						344	Landfall	437	671	679
						345	Mahtomedi	2,127	2,640	3,851
						346	Marine on St. Croix	454	513	543
						347	Newport	2,349	2,922	3,323
						348	Oakdale	--	7,795	12,123
						349	Oak Park Heights	332	1,238	2,591
						350	St. Paul Park	3,267	5,587	4,864
						351	Stillwater	8,310	10,191	12,290
						352	Willernie	664	697	654
						353	Woodbury	--	6,184	10,297
	58	Wright	29,935	38,933	58,681					
						354	Albertville	279	451	564
						355	Annandale	984	1,234	1,568
						356	Buffalo	4,560	3,275	2,322
						357	Cokato	1,356	1,735	2,056
						358	Delano	1,612	1,851	2,480

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

Region	County Number	County Name	County Population 1960	County Population 1970	County Population 1980	City Number	City Name	City Population 1960	City Population 1970	City Population 1980
8	58	Wright (continued)				359	Hanover[m]	178	269	399
						360	Howard Lake	1,007	1,162	1,240
						361	Maple Lake	1,018	1,124	1,132
						362	Monticello	1,477	1,636	2,830
						363	Montrose	360	379	762
						364	Rockford[m]	490	568	2,028
						365	St. Michael	707	1,021	1,519
9	59	Cottonwood	16,166	14,887	14,854					
						366	Mountain Lake	1,943	1,986	2,277
						367	Westbrook	1,012	990	978
						368	Windom	3,691	3,952	4,666
	60	Jackson	15,501	14,352	13,690					
						369	Heron Lake	852	777	783
						370	Jackson	3,370	3,550	3,797
						371	Lakefield	1,789	1,820	1,845
	61	Lincoln	9,651	8,143	8,207					
						372	Hendricks	797	712	737
						373	Ivanhoe	719	738	761
						374	Lake Benton	905	759	869
						375	Tyler	1,138	1,069	1,353
	62	Lyon	22,655	24,273	25,207					
						376	Balaton	723	649	752
						377	Cottonwood	717	794	924
						378	Marshall	6,681	9,886	11,161
						379	Minneota	1,297	1,320	1,470
						380	Tracy	2,862	2,516	2,478
	63	Murray	14,743	12,508	11,507					
						381	Fulda	1,202	1,226	1,308
						382	Slayton	2,487	2,351	2,420

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

	County					City				
			Population					Population		
Region	Number	Name	1960	1970	1980	Number	Name	1960	1970	1980
9	64	Nobles	23,365	23,208	21,840					
						383	Adrian	1,215	1,350	1,336
						384	Brewster	500	563	559
						385	Ellsworth	634	588	629
	65	Pipestone	13,605	12,791	11,690					
						386	Edgerton	1,019	1,119	1,123
						387	Jasper[f]	850	754	731
						388	Pipestone	5,324	5,328	4,887
	66	Redwood	21,718	20,024	19,341					
						389	Lamberton	1,141	962	1,032
						390	Morgan	975	972	975
						391	Redwood Falls	4,285	4,774	5,210
						392	Sanborn	521	505	518
						393	Wabasso	789	738	745
						394	Walnut Grove	886	756	753
	67	Rock	11,864	11,346	10,703					
						395	Hills	516	571	598
						396	Luverne	4,249	4,703	4,568
	68	Yellow Medicine	15,523	14,523	13,653					
						397	Canby	2,146	2,147	2,143
						398	Clarkfield	1,100	1,084	1,171
						399	Granite Falls[g]	2,165	2,582	2,666
10	69	Blue Earth	44,385	52,322	52,314					
						400	Amboy	629	571	606
						401	Eagle Lake	506	839	1,470
						402	Good Thunder	468	489	560
						403	Lake Crystal	1,652	1,807	2,078
						404	Madison Lake	477	587	592

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

	County					City				
			Population					Population		
Region	Number	Name	1960	1970	1980	Number	Name	1960	1970	1980
10	69	Blue Earth (continued)				405	Mankato[s]	23,797	30,895	28,651
						406	Mapleton	1,107	1,307	1,516
						407	St. Clair	373	488	655
	70	Brown	27,676	28,887	28,645					
						408	Comfrey[t]	616	525	548
						409	New Ulm	11,114	13,051	13,755
						410	Sleepy Eye	3,492	3,461	3,581
						411	Springfield	2,701	2,530	2,303
	71	Faribault	23,685	20,896	19,714					
						412	Blue Earth	4,200	3,965	4,132
						413	Elmore	1,078	910	882
						414	Kiester	741	681	670
						415	Minnesota Lake	697	711	744
						416	Wells	2,897	2,791	2,777
						417	Winnebago	2,088	1,791	1,869
	72	Le Sueur	19,906	21,332	23,434					
						418	Cleveland	389	492	699
						419	Kasota	649	732	739
						420	Le Center	1,597	1,890	1,967
						421	Le Sueur	3,310	3,745	3,763
						422	Montgomery	2,118	2,281	2,349
						423	New Prague[q]	919	949	1,054
						424	Waterville	1,623	1,539	1,717
	73	Martin	26,986	24,316	24,687					
						425	Ceylon	554	487	543
						426	Fairmont	9,745	10,751	11,506
						427	Sherburn	1,227	1,190	1,275
						428	Trimont	942	835	805
						429	Truman	1,256	1,137	1,392
						430	Welcome	733	694	855

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

Region	County Number	County Name	County Population 1960	County Population 1970	County Population 1980	City Number	City Name	City Population 1960	City Population 1970	City Population 1980
10	74	Nicollet	23,196	24,518	26,929					
						431	Lafayette	516	498	507
						432	Nicollet	493	618	709
						433	North Mankato	5,927	7,347	9,145
						434	St. Peter	8,484	8,339	9,056
	75	Sibley	16,228	15,845	15,448					
						435	Arlington	1,601	1,823	1,779
						436	Gaylord	1,631	1,720	1,933
						437	Gibbon	896	877	787
						438	Henderson	728	730	739
						439	Winthrop	1,381	1,391	1,376
	76	Waseca	16,041	16,663	18,448					
						440	Janesville	1,426	1,557	1,897
						441	New Richland	1,046	1,113	1,263
						442	Waseca	5,898	6,789	8,219
	77	Watonwan	14,460	13,298	12,361					
						443	Butterfield	601	619	634
						444	Medelia	2,190	2,316	2,130
						445	St. James	4,174	4,027	4,346
11	78	Dodge	13,259	13,037	14,773					
						446	Claremont	466	520	591
						447	Dodge Center	1,441	1,603	1,816
						448	Hayfield	889	939	1,243
						449	Kasson	1,732	1,883	2,827
						450	Mantorville	498	479	705
						451	West Concord	810	718	762

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

Region	County Number	County Name	County Population 1960	County Population 1970	County Population 1980	City Number	City Name	City Population 1960	City Population 1970	City Population 1980
11	79	Fillmore	23,768	21,916	21,930					
						452	Chatfield[u]	1,240	1,162	1,160
						453	Harmony	1,214	1,130	1,133
						454	Lanesboro	1,063	850	923
						455	Mable	815	888	861
						456	Preston	1,491	1,413	1,478
						457	Rushford	1,335	1,318	1,478
						458	Rushford Village	581	601	688
						459	Spring Valley	2,628	2,572	2,616
	80	Freeborn	37,891	38,064	36,329					
						460	Albert Lea	17,108	19,418	19,200
						461	Alden	694	713	687
						462	Clarks Grove	353	480	620
						463	Glenville	643	740	851
	81	Goodhue	33,035	34,804	38,749					
						464	Cannon Falls	2,055	2,072	2,653
						465	Goodhue	566	539	657
						466	Kenyon	1,624	1,575	1,529
						467	Lake City[v]	--	--	470
						468	Pine Island[w]	1,308	1,640	1,986
						469	Red Wing	10,528	10,441	13,736
						470	Wanamingo	540	574	717
						471	Zumbrata	1,830	1,929	2,129
	82	Houston	16,588	17,556	18,382					
						472	Caledonia	2,563	2,619	2,691
						473	Hokah	685	697	686
						474	Houston	1,082	1,090	1,057
						475	La Crescent	2,624	3,296	3,674
						476	Spring Grove	1,342	1,290	1,275

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

Region	County Number	County Name	County Population 1960	County Population 1970	County Population 1980	City Number	City Name	City Population 1960	City Population 1970	City Population 1980
11	83	Mower	48,498	44,919	40,390					
						477	Adams	806	771	797
						478	Austin	27,908	26,210	23,020
						479	Brownsdale	622	625	691
						480	Grand Meadow	837	869	965
						481	LeRoy	971	870	930
						482	Lyle	607	522	576
	84	Olmsted	65,532	84,104	92,006					
						483	Byron	660	1,419	1,715
						484	Chatfield[u]	601	723	895
						485	Eyota	558	639	1,244
						486	Oronoco	--	564	574
						487	Rochester	40,663	53,766	57,890
						488	Stewartville	1,670	2,802	3,925
	85	Steele	25,029	26,931	30,328					
						489	Blooming Prairie	1,778	1,804	1,969
						490	Ellendale	501	569	555
						491	Medford	567	690	775
						492	Owatonna	13,409	15,341	18,632
	86	Wabasha	17,007	17,224	19,335					
						493	Elgin	521	580	667
						494	Lake City[v]	3,494	3,594	4,505
						495	Mezeppa	444	498	680
						496	Plainview	1,833	2,093	2,416
						497	Wabasha	2,500	2,371	2,372

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

Region	County Number	County Name	County Population 1960	County Population 1970	County Population 1980	City Number	City Name	City Population 1960	City Population 1970	City Population 1980
11	87	Winona	40,937	44,409	46,256					
						498	Goodview	1,348	1,829	2,567
						499	Lewiston	890	1,000	1,226
						500	Rollingstone	392	450	528
						501	St. Charles	1,882	1,942	2,184
						502	Stockton	242	346	517
						503	Winona	24,895	26,438	25,075
		North Dakota				504	Cavalier	1,423	1,381	1,505
						505	Fairmont	503	412	480
						506	Fargo	46,662	53,365	61,308
						507	Grafton	5,885	5,946	5,293
						508	Grand Forks	34,451	39,008	43,765
						509	Hillsboro	1,278	1,309	1,600
						510	Kindred	580	495	568
						511	Mayville	2,168	2,554	2,255
						512	Pembina	625	741	673
						513	Wahpeton	5,876	7,076	9,064
						514	West Fargo	3,421	5,161	10,099
						515	Wyndmere	644	516	550
		South Dakota				516	Big Stone City	718	631	672
						517	Brookings	10,558	13,717	14,951
						518	Clear Lake	1,173	1,157	1,310
						519	Dell Rapids	1,863	1,991	2,389
						520	Madison	5,420	6,315	6,210
						521	Milbank	3,500	3,727	4,120

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MINNESOTA ECONOMIC-DEMOGRAPHIC MODEL AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

Region	County Number	County Name	County Population 1960	County Population 1970	County Population 1980	City Number	City Name	City Population 1960	City Population 1970	City Population 1980
		South Dakota (continued)				522	Sisseton	3,218	3,094	2,789
						523	Sioux Falls	65,466	72,488	81,343
						524	Watertown	14,077	13,388	15,649
						525	Wilmot	545	518	507
		Iowa				526	Armstrong	958	1,061	1,153
						527	Charles City	9,964	9,268	8,778
						528	Clear Lake	6,158	6,430	7,458
						529	Estherville	7,927	8,108	7,518
						530	Lake Mills	1,758	2,124	2,281
						531	Mason City	30,642	30,491	30,144
						532	Northwood	1,768	1,950	2,193
						533	Osage	3,753	3,815	3,718
						534	Rock Rapids	2,780	2,632	2,693
						535	Spencer	8,864	10,278	11,726
		Wisconsin				536	Arcadia	2,084	2,159	2,109
						537	Hudson	4,325	5,049	5,434
						538	La Crosse	45,575	51,153	48,347
						539	Menomonie	8,624	11,275	12,769
						540	New Richmond	3,316	3,707	4,306
						541	Onalaska	3,161	4,909	9,249
						542	River Falls	4,578	7,238	9,036
						543	Superior	33,563	33,237	29,571
						544	Westby	1,544	1,568	1,797

[a]Census population for Staples is reported in Wadena County (Region 2) and Todd County (Region 6). The population for Staples was aggregated for calculations within the economic-demographic model.

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Appendix Table 1 Footnotes Continued

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[b]Census population for Osakis is reported in Douglas County (Region 5) and Todd County (Region 6). Since a very small number of people were listed in Todd County, the total population was determined for Osakis and reported in Douglas County.

[c]Census population for St. Cloud is reported in Benton County (Region 6), Sherburne County (Region 6), and Stearns County (Region 6). The population for St. Cloud was aggregated for calculations within the economic-demographic model.

[d]Census population for Sartell is reported in Benton County (Region 6) and Stearns County (Region 6). The population for Sartell was aggregated for calculations within the economic-demographic model.

[e]Census population for Princeton was reported in Mille Lacs County (Region 6) and Sherburne County (Region 6). Since a very small number of people were listed in Sherburne County, the total population was determined for Princeton and reported in Mille Lacs County.

[f]Census population for Eden Valley was reported in Stearns County (Region 6) and Meeker County (Region 8). The population for Eden Valley was aggregated for calculations within the economic-demographic model.

[g]Census population for Granite Falls were reported in Chippewa County (Region 7) and Yellow Medicine County (Region 9). The population for Granite Falls was aggregated for calculations within the economic-demographic model.

[h]Census population for Blaine was reported in Anoka County (Region 8) and Ramsey County (Region 8). Since a very small number of people were listed in Ramsey County, the total was determined for Blaine and reported in Anoka County.

[i]Census population for Spring Lake Park was reported in Anoka County (Region 8) and Ramsey County (Region 8). The population for Spring Lake Park was aggregated for calculations within the economic-demographic model.

[j]Census population for Chanhassen was reported in Carver County (Region 8) and Hennepin (Region 8). Since a very small number of people were listed in Hennepin County, the total was determined for Chanhassen and reported in Carver County.

[k]Census population for Hastings was reported in Dakota County (Region 8) and Washington County (Region 8). Since a very small number of people were listed in Washington County, the total was determined for Hastings and reported in Dakota County.

[l]Census population for Dayton was reported in Hennepin County (Region 8) and Wright County (Region 8). Since a very small number of people were listed in Wright County, the total was determined for Dayton and reported in Hennepin County.

[m]Census populations for Hanover and Rockford were reported in Hennepin County (Region 8) and Wright County (Region 8). The populations for Hanover and Rockford were aggregated for calculations within the economic-demographic model.

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Appendix Table 1 Footnotes Continued

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[n]Census population for St. Anthony was reported in Hennepin County (Region 8) and Ramsey County (Region 8). The population for St. Anthony was aggregated for calculations within the economic-demographic model.
[o]Census population for White Bear Lake was reported in Ramsey County (Region 8) and Washington County (Region 8). Since a very small number of people were listed in Washington County, the total population was determined for White Bear Lake and reported in Ramsey County.
[p]Census population for Northfield was reported in Rice County (Region 8) and Dakota County (Region 8). Since a very small number of people were listed in Dakota County, the total population was determined for Northfield and reported in Rice County.
[q]Census population for New Prague was reported in Scott County (Region 8) and Le Sueur County (Region 10). The population for New Prague was aggregated for calculations within the economic-demographic model.
[r]Census population for Jasper was reported in Pipestone County (Region 9) and Rock County (Region 9). Since a very small number of people were listed in Rock County, the total population was determined for Jasper and reported in Pipestone County.
[s]Census population for Mankato was reported in Blue Earth County (Region 10) and Nicollet County (Region 10). Since a very small number of people were listed in Nicollet County, the total population was determined for Mankato and reported in Blue Earth County.
[t]Census population for Comfrey was reported in Brown County (Region 10) and Cottonwood County (Region 9). Since a very small number of people were listed in Cottonwood County, the total population was determined for Comfrey and reported in Brown County.
[u]Census population for Chatfield was reported in Fillmore County (Region 11) and Olmstad County (Region 11). The population for Chatfield was aggregated for calculations within the economic-demographic model.
[v]Census population for Lake City was reported in Goodhue County (Region 11) and Wabasha County (Region 11). The population for Lake City was aggregated for calculations within the economic-demographic model.
[w]Census population for Pine Island was reported in Goodhue County (Region 11) and Olmstad County (Region 11). Since a very small number of people were listed in Olmstad County, the total population was determined for Pine Island and reported in Goodhue County.

APPENDIX TABLE 2. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MINNESOTA REGION 2, 1960-1982, MILLION DOLLARS (1980 = BASE DOLLARS)

	Sector								
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(15) Retail Trade	(17) Bus & Pers Service	(20) Households
1960	113.1	11.1	299.9	6.2	241.4	18.3	100.9	33.6	107.9
1961	113.3	8.7	258.1	6.4	251.2	17.6	104.1	34.8	111.8
1962	109.0	8.8	230.1	5.5	258.2	17.1	106.3	35.4	128.1
1963	101.9	10.4	220.1	5.9	265.8	16.6	108.6	36.1	126.4
1964	105.6	11.5	222.8	7.8	286.7	21.9	110.7	36.8	129.4
1965	107.5	8.8	202.6	9.3	304.6	26.9	112.0	37.4	139.9
1966	110.0	9.2	220.6	8.8	318.5	31.4	112.3	37.4	175.8
1967	105.9	8.5	171.2	8.3	319.4	42.8	118.7	39.7	197.8
1968	103.8	8.8	179.4	6.2	315.6	55.9	116.7	38.9	173.6
1969	102.6	7.4	178.5	9.6	309.3	67.2	127.3	42.5	209.2
1970	100.8	16.1	180.9	2.1	301.1	77.9	130.5	43.4	200.1
1971	100.9	9.4	158.4	5.7	301.2	83.7	131.6	43.8	217.5
1972	99.5	9.0	153.0	2.8	321.5	78.5	131.9	44.0	228.5
1973	130.3	18.6	184.9	5.9	340.4	107.9	143.3	47.8	260.7
1974	108.1	18.7	208.1	20.1	356.1	132.1	152.3	50.8	268.3
1975	99.2	14.3	176.1	9.6	274.3	195.2	154.1	51.4	280.5
1976	109.0	18.0	209.3	12.5	325.0	193.2	161.9	54.0	306.4
1977	110.6	20.9	147.3	6.5	334.1	208.7	164.8	54.9	330.2
1978	120.8	20.7	206.8	16.9	390.8	176.1	170.4	56.8	327.7
1979	131.2	22.2	180.2	21.7	419.9	187.3	180.2	60.0	329.1
1980	131.7	50.5	126.6	9.6	345.1	251.1	181.9	60.6	339.4
1981	112.7	27.9	169.0	10.6	306.0	265.1	179.8	60.0	309.7
1982	117.4	21.1	171.5	10.5	280.1	320.8	184.9	61.6	278.9

APPENDIX TABLE 3. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MINNESOTA REGION 3, 1960-1982, MILLION DOLLARS (1980 = BASE DOLLARS)

	Sector								
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(15) Retail Trade	(17) Bus & Pers Service	(20) Households
1960	61.2	2.6	905.3	18.8	132.7	791.7	68.9	23.0	175.5
1961	60.4	2.3	771.6	19.2	138.1	802.3	71.1	23.8	181.6
1962	56.0	3.0	731.7	16.6	142.2	805.3	72.6	24.1	208.2
1963	52.2	3.0	778.7	17.8	146.1	810.1	74.2	24.7	205.2
1964	54.4	3.4	863.5	23.4	157.7	815.7	75.8	25.4	210.4
1965	57.0	2.4	880.1	28.1	167.6	814.5	76.8	25.5	227.4
1966	64.4	2.3	921.0	26.6	175.1	806.0	76.7	25.6	285.7
1967	62.4	2.9	873.3	24.5	175.6	802.4	81.2	27.1	321.7
1968	60.2	2.6	911.5	26.4	173.6	788.1	79.7	26.6	362.7
1969	57.2	2.2	986.3	63.5	170.2	768.1	87.0	29.0	349.3
1970	55.1	2.9	927.1	27.7	165.6	747.2	89.2	29.7	366.6
1971	54.5	2.6	853.5	15.7	165.6	727.1	90.0	29.9	377.5
1972	53.7	2.8	914.0	17.9	176.8	706.2	90.2	30.1	375.2
1973	69.6	4.7	1,127.3	12.4	187.2	758.8	98.0	32.7	440.9
1974	59.9	3.7	1,257.0	22.8	195.8	782.3	104.1	34.7	425.2
1975	55.4	3.8	1,257.9	90.8	150.8	817.9	105.4	35.2	442.8
1976	60.7	4.2	1,318.0	40.1	178.8	839.2	110.7	36.9	480.9
1977	61.4	3.7	844.9	14.1	183.7	861.7	112.7	37.5	516.3
1978	65.5	3.4	1,716.0	22.8	215.0	841.8	116.5	38.9	484.5
1979	71.4	4.1	1,961.1	29.3	230.9	924.3	123.2	41.1	492.8
1980	72.3	6.7	1,560.2	18.3	189.8	950.9	124.4	41.5	490.9
1981	62.1	7.1	1,701.8	19.9	168.3	947.3	123.0	41.0	468.0
1982	60.4	5.7	1,726.5	19.7	154.0	1,059.1	126.5	42.1	421.5

APPENDIX TABLE 4. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MINNESOTA REGION 4, 1960-1982, MILLION DOLLARS (1980 = BASE DOLLARS)

	Sector								
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(15) Retail Trade	(17) Bus & Pers Service	(20) Households
1960	80.8	60.4	--	3.9	--	102.7	21.9	7.2	46.7
1961	80.8	59.3	--	4.1	--	106.4	22.5	7.4	48.3
1962	81.1	51.7	--	3.5	--	108.8	23.1	7.8	55.3
1963	75.9	69.5	--	3.7	--	111.3	23.5	7.9	54.6
1964	80.0	81.2	--	4.9	--	114.6	24.1	8.0	55.8
1965	82.7	92.5	--	6.0	--	116.6	24.3	8.1	60.5
1966	88.9	75.1	--	5.5	--	117.6	24.3	8.1	76.0
1967	84.6	88.2	--	5.2	--	118.4	25.8	8.5	85.5
1968	81.7	88.7	--	14.4	--	131.5	25.4	8.4	77.6
1969	77.8	93.2	--	6.3	--	142.2	27.6	9.2	91.1
1970	75.6	79.5	--	8.3	--	151.0	28.3	9.5	85.1
1971	75.0	94.6	--	1.7	--	159.5	28.5	9.4	91.5
1972	75.0	85.8	--	1.4	--	167.9	28.5	9.6	101.1
1973	98.5	190.9	--	3.4	--	198.1	31.0	10.4	101.5
1974	81.1	208.7	--	1.5	--	218.3	33.0	11.0	102.0
1975	72.6	86.4	--	3.4	--	232.9	33.3	11.2	120.8
1976	80.7	169.5	--	3.1	--	252.9	35.2	11.7	140.1
1977	73.2	162.3	--	1.8	--	268.5	35.8	11.9	139.6
1978	77.6	198.7	--	3.4	--	267.8	37.0	12.3	157.8
1979	87.9	188.9	--	8.1	--	295.3	39.1	13.0	144.4
1980	87.4	199.6	--	20.9	--	292.3	39.4	13.1	151.0
1981	72.9	230.3	--	6.4	--	288.2	39.0	13.0	139.1
1982	71.6	207.0	--	6.4	--	317.3	40.2	13.4	125.3

APPENDIX TABLE 5. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MINNESOTA REGION 5, 1960-1982, MILLION DOLLARS (1980 = BASE DOLLARS

	Sector								
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(15) Retail Trade	(17) Bus & Pers Service	(20) Households
1960	179.4	76.9	--	3.4	--	53.9	32.5	10.8	48.3
1961	181.8	78.8	--	3.3	--	53.2	33.5	11.3	49.9
1962	178.8	55.3	--	3.0	--	52.0	34.2	11.3	57.3
1963	166.2	83.6	--	3.2	--	50.9	34.9	11.6	56.4
1964	170.6	84.6	--	4.1	--	54.9	35.6	11.9	57.8
1965	180.9	97.5	--	5.0	--	57.9	36.0	11.9	62.7
1966	193.6	84.5	--	4.6	--	60.5	36.0	12.0	78.5
1967	186.6	96.0	--	4.5	--	63.0	38.1	12.8	88.4
1968	183.3	93.7	--	12.9	--	70.7	37.6	12.5	88.3
1969	182.6	92.1	--	7.6	--	77.0	40.9	13.7	94.0
1970	175.8	86.7	--	1.2	--	82.2	42.1	14.0	99.7
1971	169.6	99.2	--	0.7	--	87.2	42.3	14.0	103.5
1972	174.6	82.8	--	3.7	--	92.2	42.4	14.2	114.2
1973	232.2	225.5	--	2.3	--	105.0	46.1	15.4	114.6
1974	197.8	297.3	--	4.0	--	112.9	48.9	16.4	109.7
1975	198.2	167.4	--	6.8	--	118.2	49.6	16.5	118.8
1976	205.4	119.9	--	20.7	--	126.6	52.1	17.3	127.7
1977	191.7	196.9	--	2.9	--	133.0	53.0	17.6	137.9
1978	200.2	179.5	--	1.9	--	132.6	54.8	18.3	135.5
1979	214.2	200.4	--	1.5	--	146.2	58.0	19.3	142.4
1980	223.1	233.2	--	2.2	--	144.7	58.5	19.5	161.3
1981	193.3	219.5	--	4.7	--	142.7	57.8	19.2	133.4
1982	189.0	203.9	--	4.6	--	157.1	59.5	19.9	120.2

APPENDIX TABLE 6. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MINNESOTA REGION 6, 1960-1982, MILLION DOLLARS (1980 = BASE DOLLARS)

	Sector								
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(15) Retail Trade	(17) Bus & Pers Service	(20) Households
1960	303.3	34.1	--	8.5	84.4	201.1	31.2	10.3	102.5
1961	309.7	41.7	--	8.7	88.0	203.3	31.5	10.7	105.9
1962	305.2	43.5	--	7.5	90.4	203.7	32.9	11.1	121.3
1963	289.1	43.3	--	8.2	93.0	204.5	33.6	11.1	119.7
1964	301.8	36.8	--	10.5	100.4	231.4	34.4	11.5	122.6
1965	315.9	36.9	--	12.9	106.6	254.8	34.6	11.4	132.8
1966	336.3	48.3	--	12.0	111.6	275.1	34.7	11.6	166.6
1967	330.2	42.4	--	11.0	111.7	296.8	36.8	12.3	187.5
1968	336.7	49.2	--	4.3	110.4	336.1	36.1	12.0	179.4
1969	339.3	42.1	--	3.1	108.3	368.7	39.4	13.1	202.7
1970	335.6	54.1	--	4.5	105.3	396.9	40.3	13.4	191.5
1971	335.9	46.6	--	5.2	105.3	421.7	40.7	13.5	207.9
1972	339.0	50.9	--	6.0	112.4	442.4	40.8	13.7	237.9
1973	447.6	105.4	--	35.7	119.1	506.8	44.3	14.8	264.2
1974	389.5	109.1	--	16.8	124.7	548.0	47.1	15.7	251.3
1975	416.5	66.8	--	21.9	96.0	592.1	47.6	15.8	262.4
1976	429.7	56.9	--	22.4	113.7	626.6	50.1	16.6	285.1
1977	427.8	73.5	--	25.0	116.9	658.8	51.0	17.0	300.4
1978	449.5	71.5	--	11.3	136.8	645.8	52.7	17.6	289.9
1979	497.1	73.6	--	11.3	146.9	709.7	55.7	18.5	290.3
1980	514.7	94.1	--	10.9	120.8	725.4	56.3	18.8	314.5
1981	454.5	112.2	--	12.8	107.0	721.5	55.6	18.5	280.7
1982	446.6	99.1	--	12.7	98.0	804.5	57.2	19.1	252.8

APPENDIX TABLE 7. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MINNESOTA REGION 7, 1960-1982, MILLION DOLLARS (1980 = BASE DOLLARS)

	Sector								
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(15) Retail Trade	(17) Bus & Pers Service	(20) Households
1960	234.4	163.1	--	2.8	--	102.5	14.5	4.9	63.5
1961	243.5	164.2	--	3.1	--	99.5	14.8	4.9	65.7
1962	240.9	167.0	--	2.5	--	95.5	15.1	5.0	75.1
1963	226.0	207.2	--	2.7	--	91.7	15.6	5.2	74.2
1964	222.8	182.6	--	3.7	--	99.7	15.8	5.4	76.1
1965	241.2	209.3	--	4.3	--	106.3	16.0	5.2	82.2
1966	256.2	220.8	--	4.2	--	111.8	15.9	5.3	103.3
1967	235.1	222.3	--	3.8	--	116.9	17.0	5.6	116.2
1968	230.6	217.9	--	1.5	--	127.6	16.8	5.6	115.6
1969	233.5	241.5	--	2.0	--	136.1	18.2	6.1	135.4
1970	221.2	247.4	--	1.6	--	143.3	18.6	6.2	137.1
1971	219.3	233.2	--	2.8	--	150.0	18.8	6.3	136.2
1972	232.4	232.8	--	0.9	--	156.7	18.8	6.2	136.7
1973	325.4	486.8	--	1.3	--	172.8	20.5	6.9	154.3
1974	265.8	532.6	--	2.0	--	181.3	21.8	7.3	150.0
1975	257.8	368.4	--	8.2	--	186.4	22.0	7.3	155.5
1976	243.6	232.6	--	6.3	--	196.8	23.1	7.7	165.5
1977	225.8	394.1	--	7.9	--	204.3	23.6	7.9	187.4
1978	259.4	408.8	--	5.9	--	203.7	24.3	8.2	175.5
1979	271.4	412.5	--	9.8	--	224.6	25.7	8.6	182.8
1980	278.4	468.8	--	14.0	--	222.3	26.0	8.7	199.0
1981	237.0	459.0	--	7.2	--	219.2	25.7	8.5	172.5
1982	234.2	420.2	--	7.1	--	241.4	26.5	8.8	155.3

APPENDIX TABLE 8. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MINNESOTA REGION 8, 1960-1982, MILLION DOLLARS (1980 = BASE DOLLARS)

	Sector								
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(15) Retail Trade	(17) Bus & Pers Service	(20) Households
1960	407.1	93.4	--	87.8	542.8	8,605.8	407.1	135.8	1,602.7
1961	412.3	112.8	--	88.5	564.7	9,071.4	419.9	139.9	1,658.1
1962	398.4	112.3	--	77.1	581.3	9,444.1	428.3	142.7	1,900.0
1963	369.4	107.8	--	83.1	598.2	9,823.7	437.4	145.9	1,873.9
1964	378.1	113.4	--	108.0	645.3	10,498.0	446.9	149.0	1,919.6
1965	389.3	115.9	--	130.9	685.1	11,061.0	452.2	150.7	2,077.2
1966	408.2	135.1	--	122.9	716.6	11,489.3	452.8	150.8	2,608.7
1967	394.1	125.4	--	114.0	718.7	11,933.6	479.1	159.7	2,935.6
1968	392.8	126.8	--	121.8	710.4	12,278.0	470.3	156.9	4,039.1
1969	387.5	127.1	--	117.7	696.0	12,479.3	513.8	171.2	4,278.7
1970	375.1	166.1	--	140.8	677.2	12,610.5	526.6	175.5	3,597.9
1971	373.4	138.6	--	103.7	677.6	12,733.9	530.9	177.0	3,373.1
1972	386.5	163.5	--	80.7	723.2	12,863.3	532.3	177.5	3,426.6
1973	515.2	260.5	--	133.7	765.6	14,132.2	578.1	192.8	3,649.9
1974	447.7	294.2	--	121.9	801.0	14,772.8	614.3	204.7	3,440.5
1975	407.5	221.8	--	154.9	617.2	15,214.0	621.2	207.1	3,794.6
1976	417.4	183.9	--	133.2	731.3	16,093.0	653.0	217.7	4,120.9
1977	403.2	200.5	--	234.9	751.6	16,684.5	664.9	221.6	4,297.5
1978	440.4	225.5	--	153.7	879.3	16,509.7	687.2	229.0	4,232.9
1979	472.0	241.4	--	191.2	944.9	18,230.0	726.5	242.2	4,237.1
1980	488.9	234.8	--	130.0	776.4	18,201.3	733.6	244.5	4,535.7
1981	430.6	283.8	--	132.5	688.4	18,025.1	725.4	241.8	4,063.4
1982	423.8	215.4	--	131.7	630.2	19,974.1	746.1	248.7	3,659.8

APPENDIX TABLE 9. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MINNESOTA REGION 9, 1960-1982, MILLION DOLLARS (1980 = BASE DOLLARS)

	Sector								
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(15) Retail Trade	(17) Bus & Pers Service	(20) Households
1960	368.1	199.5	--	6.7	--	42.1	16.0	5.4	74.9
1961	381.1	215.9	--	6.6	--	44.5	16.6	5.6	77.2
1962	382.8	212.8	--	5.8	--	46.7	17.1	5.8	88.7
1963	363.5	272.5	--	6.2	--	48.7	17.3	5.7	87.3
1964	362.0	261.6	--	8.0	--	71.7	17.8	5.9	89.5
1965	391.2	233.8	--	9.8	--	93.2	17.9	6.0	96.8
1966	449.3	260.6	--	9.2	--	112.5	18.0	6.0	121.7
1967	414.8	317.9	--	8.5	--	131.0	19.1	6.3	136.8
1968	410.6	297.8	--	12.0	--	145.3	19.1	6.2	141.0
1969	423.1	351.8	--	7.6	--	156.7	20.4	6.7	159.8
1970	408.5	398.2	--	9.5	--	166.5	20.9	7.0	154.5
1971	405.2	337.4	--	16.4	--	175.5	21.1	7.0	158.7
1972	442.0	447.0	--	13.8	--	184.8	21.1	7.1	176.8
1973	630.6	633.5	--	10.9	--	188.2	22.8	7.5	177.8
1974	503.9	728.5	--	4.2	--	185.6	24.4	8.2	179.3
1975	490.0	451.1	--	9.3	--	181.4	24.6	8.2	186.9
1976	478.1	362.7	--	2.7	--	183.2	25.9	8.6	192.2
1977	435.3	494.1	--	7.5	--	183.2	26.4	8.7	222.3
1978	499.2	589.6	--	8.9	--	182.7	27.2	9.1	191.3
1979	510.2	521.9	--	7.5	--	201.5	28.8	9.6	214.9
1980	505.6	592.0	--	13.3	--	199.5	29.0	9.7	233.5
1981	418.9	588.7	--	6.7	--	196.7	28.8	9.6	199.7
1982	414.5	523.0	--	6.6	--	216.5	29.5	9.8	179.8

APPENDIX TABLE 10. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MINNESOTA REGION 10, 1960-1982, MILLION DOLLARS (1980 = BASE DOLLARS)

	Sector								
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(15) Retail Trade	(17) Bus & Pers Service	(20) Households
1960	332.7	192.3	--	9.8	--	232.8	19.1	6.5	107.4
1961	339.4	237.9	--	10.0	--	284.4	19.7	6.6	111.3
1962	326.3	246.7	--	8.5	--	294.6	20.1	6.8	127.4
1963	312.8	254.5	--	9.4	--	304.9	20.5	6.9	125.6
1964	311.3	314.7	--	12.2	--	348.6	21.0	7.1	128.7
1965	341.1	263.6	--	14.8	--	387.8	21.2	7.2	139.2
1966	363.8	314.6	--	13.9	--	421.3	21.3	7.2	174.9
1967	328.2	313.1	--	12.8	--	453.3	22.4	7.4	196.7
1968	314.4	300.0	--	12.2	--	434.3	21.5	7.1	188.4
1969	326.3	317.5	--	4.7	--	507.9	23.9	8.0	264.4
1970	310.8	399.4	--	3.9	--	526.9	24.8	8.3	229.2
1971	308.9	320.0	--	12.4	--	545.1	24.9	8.3	242.4
1972	335.1	406.4	--	19.9	--	564.2	25.0	8.3	255.3
1973	480.8	627.6	--	20.3	--	653.9	27.2	9.1	253.3
1974	399.7	733.1	--	17.4	--	711.7	28.8	9.6	249.6
1975	364.0	481.9	--	54.2	--	752.7	29.1	9.7	253.2
1976	334.2	533.2	--	32.8	--	811.3	30.6	10.2	267.1
1977	340.9	483.5	--	12.6	--	857.1	31.2	10.4	298.8
1978	385.0	575.8	--	12.5	--	854.8	32.3	10.8	275.0
1979	385.6	495.9	--	5.0	--	942.6	34.1	11.3	299.7
1980	414.0	522.8	--	3.9	--	932.9	34.4	11.5	339.1
1981	356.2	460.1	--	10.8	--	919.9	34.0	11.3	280.1
1982	349.7	442.6	--	10.7	--	1,012.8	35.0	11.6	252.3

APPENDIX TABLE 11. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MINNESOTA REGION 11, 1960-1982, MILLION DOLLARS (1980 = BASE DOLLARS)

	Sector								
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(15) Retail Trade	(17) Bus & Pers Service	(20) Households
1960	510.6	129.3	10.3	17.0	144.8	853.1	111.8	37.2	155.9
1961	520.7	172.6	11.8	17.4	150.6	885.7	115.3	38.4	161.4
1962	503.1	174.6	7.8	15.1	155.0	909.3	117.6	39.2	184.9
1963	475.0	183.7	11.1	16.3	159.5	934.0	120.2	40.1	182.2
1964	481.2	152.6	9.0	21.2	172.1	1,023.4	122.6	41.0	186.7
1965	500.6	208.6	12.2	25.5	182.8	1,100.6	124.2	41.5	202.1
1966	540.5	218.5	12.0	24.0	191.0	1,163.5	124.3	41.3	253.9
1967	517.7	210.0	6.7	22.2	191.6	1,228.4	131.4	43.7	285.6
1968	520.8	196.6	2.4	23.4	189.3	1,262.1	129.1	43.0	306.8
1969	536.1	227.4	0.4	37.8	185.7	1,281.5	141.0	47.0	313.6
1970	514.7	280.1	--	54.9	180.7	1,294.1	144.4	48.0	292.0
1971	514.4	230.6	--	30.3	180.7	1,304.9	145.6	48.6	319.7
1972	545.6	287.9	--	23.8	192.9	1,314.5	146.1	48.8	328.4
1973	750.7	437.3	--	5.7	204.2	1,436.2	158.7	52.8	372.8
1974	631.4	512.8	--	8.2	213.7	1,499.2	168.6	56.2	380.3
1975	602.1	350.7	--	24.0	164.5	1,562.3	170.5	56.8	403.7
1976	603.8	378.1	--	19.1	195.0	1,627.5	179.2	59.7	434.9
1977	608.6	321.5	--	13.8	200.5	1,683.4	182.5	60.9	469.0
1978	672.2	347.6	--	9.2	234.5	1,659.5	188.6	62.9	434.8
1979	720.3	348.5	--	96.4	252.0	1,825.9	199.3	66.4	465.5
1980	744.4	340.8	--	18.1	207.0	1,846.6	201.3	67.1	477.9
1981	651.5	413.0	--	22.0	183.6	1,831.4	199.0	66.3	432.8
1982	641.9	318.6	--	21.9	168.1	2,033.7	204.7	68.2	389.8

APPENDIX TABLE 12. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MINNESOTA, 1960-1982, MILLION DOLLARS (1980 = BASE DOLLARS)

	Sector								
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(15) Retail Trade	(17) Bus & Pers Service	(20) Households
1960	2,684.3	1,107.4	1,215.5	167.5	1,206.5	11,007.2	832.7	277.7	2,532.0
1961	2,735.5	1,221.7	1,041.4	169.1	1,255.2	11,573.7	858.6	286.4	2,619.4
1962	2,673.4	1,210.5	969.6	147.5	1,291.4	11,984.2	876.9	292.4	3,001.8
1963	2,518.5	1,356.1	1,009.9	158.8	1,329.1	12,405.3	895.6	298.5	2,960.2
1964	2,558.5	1,422.5	1,095.3	206.5	1,433.7	13,293.0	914.9	305.2	3,032.7
1965	2,700.1	1,471.3	1,094.9	250.3	1,522.8	14,036.7	925.4	308.2	3,281.5
1966	2,910.1	1,529.5	1,153.6	234.7	1,592.5	14,609.4	926.3	308.8	4,121.3
1967	2,754.4	1,590.2	1,051.1	217.8	1,597.1	15,213.3	980.5	326.8	4,637.7
1968	2,731.0	1,512.5	1,093.3	232.3	1,578.4	15,719.4	963.7	321.0	5,775.5
1969	2,753.4	1,656.0	1,165.3	262.3	1,546.9	16,036.0	1,051.1	350.4	6,198.6
1970	2,660.1	1,854.2	1,108.0	259.6	1,505.0	16,258.4	1,077.5	359.1	5,451.3
1971	2,644.9	1,698.6	1,011.8	201.6	1,505.5	16,449.7	1,086.3	362.0	5,335.2
1972	2,770.9	1,945.4	1,067.0	172.9	1,606.9	16,643.3	1,089.2	363.5	5,487.4
1973	3,795.3	3,324.8	1,312.2	237.4	1,701.6	18,354.1	1,183.0	394.6	5,906.9
1974	3,177.9	3,875.2	1,465.1	220.5	1,780.0	19,251.8	1,257.2	419.0	5,672.2
1975	3,053.2	2,535.9	1,434.0	387.6	1,371.5	19,993.8	1,271.5	423.9	6,133.2
1976	3,062.6	2,387.4	1,527.2	295.4	1,625.0	21,095.7	1,336.5	445.4	6,639.5
1977	2,967.7	2,691.4	992.3	329.5	1,670.2	21,900.1	1,360.8	453.5	7,018.3
1978	3,263.5	3,028.6	1,922.8	248.6	1,954.1	21,616.4	1,406.6	469.0	6,829.2
1979	3,468.8	3,998.5	2,141.3	384.0	2,099.8	23,846.6	1,486.9	495.4	6,926.7
1980	3,563.9	3,058.0	1,686.8	243.4	1,725.3	23,942.3	1,501.1	500.5	7,388.8
1981	3,075.8	3,266.5	1,870.8	235.4	1,529.8	23,738.5	1,484.5	494.7	6,599.9
1982	3,031.3	2,837.8	1,898.0	233.8	1,400.4	26,351.3	1,527.0	509.0	5,944.5

APPENDIX TABLE 13. REGRESSION EQUATIONS[a] FOR PROJECTING FINAL DEMAND VECTORS FOR THE 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 2, THOUSAND DOLLARS (1980 = BASE DOLLARS)

Sector	Equation
(1) Ag, Livestock	Y = -700,827.7 + 414.653(X)
(2) Ag, Crops	Y = -1,419,141 + 733.119(X)
(3) Metal Mining	Y = 7,284,823 - 3,598.75(X)
(4) Coal Mining	Y = 0[b]
(5) Pet/NG Exp/Ext	Y = 0[b]
(6) Nonmetallic Mining	Y = 0[b]
(7) Construction	Y = -346,713.1 + 180.185(X)
(8) Lumber & Assoc Prod	Y = -9,595,156 + 5,000.28(X)
(9) Ag Proc & Misc Mfg	Y = -25,134,050 + 12,828.4(X)
(10) Pet Refining	Y = 0[b]
(11) Metal Processing	Y = 0[b]
(12) Transportation	Y = 0[b]
(13) Comm & Pub Util	Y = 0[b]
(14) Electric Generation	Y = 0[b]
(15) Retail Trade	Y = -8,049,589 + 4,155.37(X)
(16) Fin, Ins, Real Estate	Y = 0[b]
(17) Bus & Pers Service	Y = -2,686,972 + 1,387.03(X)
(18) Prof & Soc Service	Y = 0[b]
(19) Government	Y = 0[b]
(20) Households	Y = -24,065,660 + 12,304.4(X)

[a]Robust regression with an intercept adjustment technique.
[b]An economic sector having no sales for final demand.

APPENDIX TABLE 14. REGRESSION EQUATIONS[a] FOR PROJECTING FINAL DEMAND VECTORS FOR THE 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 3, THOUSAND DOLLARS (1980 = BASE DOLLARS)

Sector	Equation
(1) Ag, Livestock	Y = -626,298.7 + 348.931(X)
(2) Ag, Crops	Y = -182,799.4 + 95.5575(X)
(3) Metal Mining	Y = -88,629,150 + 45,579(X)
(4) Coal Mining	Y = 0[b]
(5) Pet/NG Exp/Ext	Y = 0[b]
(6) Nonmetallic Mining	Y = 0[b]
(7) Construction	Y = 26,395.09 - 3.58157(X)
(8) Lumber & Assoc Prod	Y = -5,278,138 + 2,750.55(X)
(9) Ag Proc & Misc Mfg	Y = -2,498,256 + 1,758.72(X)
(10) Pet Refining	Y = 0[b]
(11) Metal Processing	Y = 0[b]
(12) Transportation	Y = 0[b]
(13) Comm & Pub Util	Y = 0[b]
(14) Electric Generation	Y = 0[b]
(15) Retail Trade	Y = -5,506,576 + 2,842.61(X)
(16) Fin, Ins, Real Estate	Y = 0[b]
(17) Bus & Pers Service	Y = -1,834,881 + 947.206(X)
(18) Prof & Soc Service	Y = 0[b]
(19) Government	Y = 0[b]
(20) Households	Y = -34,849,200 + 17,824(X)

[a]Robust regression with an intercept adjustment technique.
[b]An economic sector having no sales for final demand.

APPENDIX TABLE 15. REGRESSION EQUATIONS[a] FOR PROJECTING FINAL DEMAND VECTORS FOR THE 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 4, THOUSAND DOLLARS (1980 = BASE DOLLARS)

Sector	Equation
(1) Ag, Livestock	Y = 607,429.2 - 267.607(X)
(2) Ag, Crops	Y = -15,313,530 + 7,837.37(X)
(3) Metal Mining	Y = 0[b]
(4) Coal Mining	Y = 0[b]
(5) Pet/NG Exp/Ext	Y = 0[b]
(6) Nonmetallic Mining	Y = 0[b]
(7) Construction	Y = -19,378.18 + 15.4571(X)
(8) Lumber & Assoc Prod	Y = 0[b]
(9) Ag Proc & Misc Mfg	Y = -21,106,620 + 10,805.6(X)
(10) Pet Refining	Y = 0[b]
(11) Metal Processing	Y = 0[b]
(12) Transportation	Y = 0[b]
(13) Comm & Pub Util	Y = 0[b]
(14) Electric Generation	Y = 0[b]
(15) Retail Trade	Y = -1,748,608 + 902.646(X)
(16) Fin, Ins, Real Estate	Y = 0[b]
(17) Bus & Pers Service	Y = -582,935.8 + 300.91(X)
(18) Prof & Soc Service	Y = 0[b]
(19) Government	Y = 0[b]
(20) Households	Y = -10,314,520 + 5,276.62(X)

[a]Robust regression with an intercept adjustment technique.
[b]An economic sector having no sales for final demand.

APPENDIX TABLE 16. REGRESSION EQUATIONS[a] FOR PROJECTING FINAL DEMAND VECTORS FOR THE 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 5, THOUSAND DOLLARS (1980 = BASE DOLLARS)

Sector	Equation
(1) Ag, Livestock	Y = -2,489,111 + 1,358.36(X)
(2) Ag, Crops	Y = -14,285,860 + 7,321.92(X)
(3) Metal Mining	Y = 0[b]
(4) Coal Mining	Y = 0[b]
(5) Pet/NG Exp/Ext	Y = 0[b]
(6) Nonmetallic Mining	Y = 0[b]
(7) Construction	Y = 55,737.7 - 26.2011(X)
(8) Lumber & Assoc Prod	Y = 0[b]
(9) Ag Proc & Misc Mfg	Y = -10,573,260 + 5,412.13(X)
(10) Pet Refining	Y = 0[b]
(11) Metal Processing	Y = 0[b]
(12) Transportation	Y = 0[b]
(13) Comm & Pub Util	Y = 0[b]
(14) Electric Generation	Y = 0[b]
(15) Retail Trade	Y = -2,591,027 + 1,337.52(X)
(16) Fin, Ins, Real Estate	Y = 0[b]
(17) Bus & Pers Service	Y = -866,049.1 + 447.038(X)
(18) Prof & Soc Service	Y = 0[b]
(19) Government	Y = 0[b]
(20) Households	Y = -10,335,520 + 5,287.14(X)

[a]Robust regression with an intercept adjustment technique.
[b]An economic sector having no sales for final demand.

APPENDIX TABLE 17. REGRESSION EQUATIONS[a] FOR PROJECTING FINAL DEMAND VECTORS FOR THE 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 6, THOUSAND DOLLARS (1980 = BASE DOLLARS)

Sector	Equation
(1) Ag, Livestock	Y = -16,631,770 + 8,633.88(X)
(2) Ag, Crops	Y = -4,526,053 + 2,336.12(X)
(3) Metal Mining	Y = 0[b]
(4) Coal Mining	Y = 0[b]
(5) Pet/NG Exp/Ext	Y = 0[b]
(6) Nonmetallic Mining	Y = 0[b]
(7) Construction	Y = -446,521.6 + 231.527(X)
(8) Lumber & Assoc Prod	Y = -3,360,863 + 1,751.37(X)
(9) Ag Proc & Misc Mfg	Y = -58,993,120 + 30,158.3(X)
(10) Pet Refining	Y = 0[b]
(11) Metal Processing	Y = 0[b]
(12) Transportation	Y = 0[b]
(13) Comm & Pub Util	Y = 0[b]
(14) Electric Generation	Y = 0[b]
(15) Retail Trade	Y = -2,497,261 + 1,289.06(X)
(16) Fin, Ins, Real Estate	Y = 0[b]
(17) Bus & Pers Service	Y = -830,734.1 + 428.841(X)
(18) Prof & Soc Service	Y = 0[b]
(19) Government	Y = 0[b]
(20) Households	Y = -21,939,980 + 11,217.9(X)

[a]Robust regression with an intercept adjustment technique.
[b]An economic sector having no sales for final demand.

APPENDIX TABLE 18. REGRESSION EQUATIONS[a] FOR PROJECTING FINAL DEMAND VECTORS FOR THE 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 7, THOUSAND DOLLARS (1980 = BASE DOLLARS)

Sector	Equation
(1) Ag, Livestock	Y = -1,474,813 + 870.611(X)
(2) Ag, Crops	Y = -28,107,950 + 14,415.6(X)
(3) Metal Mining	Y = 0[b]
(4) Coal Mining	Y = 0[b]
(5) Pet/NG Exp/Ext	Y = 0[b]
(6) Nonmetallic Mining	Y = 0[b]
(7) Construction	Y = -457,458.6 + 235.685(X)
(8) Lumber & Assoc Prod	Y = 0[b]
(9) Ag Proc & Misc Mfg	Y = -15,324,550 + 7,850.67(X)
(10) Pet Refining	Y = 0[b]
(11) Metal Processing	Y = 0[b]
(12) Transportation	Y = 0[b]
(13) Comm & Pub Util	Y = 0[b]
(14) Electric Generation	Y = 0[b]
(15) Retail Trade	Y = -1,153,987 + 595.686(X)
(16) Fin, Ins, Real Estate	Y = 0[b]
(17) Bus & Pers Service	Y = -385,465.1 + 198.956(X)
(18) Prof & Soc Service	Y = 0[b]
(19) Government	Y = 0[b]
(20) Households	Y = -13,169,520 + 6,736.56(X)

[a]Robust regression with an intercept adjustment technique.
[b]An economic sector having no sales for final demand.

APPENDIX TABLE 19. REGRESSION EQUATIONS[a] FOR PROJECTING FINAL DEMAND VECTORS FOR THE 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 8, THOUSAND DOLLARS (1980 = BASE DOLLARS)

Sector	Equation
(1) Ag, Livestock	Y = -4,331,335 + 2,412.47(X)
(2) Ag, Crops	Y = -13,636,000 + 7,006.9(X)
(3) Metal Mining	Y = 0[b]
(4) Coal Mining	Y = 0[b]
(5) Pet/NG Exp/Ext	Y = 0[b]
(6) Nonmetallic Mining	Y = 0[b]
(7) Construction	Y = -5,003,133 + 2,591.89(X)
(8) Lumber & Assoc Prod	Y = -21,578,590 + 11,245.3(X)
(9) Ag Proc & Misc Mfg	Y = -878,697,000 + 453,019(X)
(10) Pet Refining	Y = 0[b]
(11) Metal Processing	Y = 0[b]
(12) Transportation	Y = 0[b]
(13) Comm & Pub Util	Y = 0[b]
(14) Electric Generation	Y = 0[b]
(15) Retail Trade	Y = -32,477,200 + 5,588.35(X)
(16) Fin, Ins, Real Estate	Y = 0[b]
(17) Bus & Pers Service	Y = -10,825,520 + 5,588.35(X)
(18) Prof & Soc Service	Y = 0[b]
(19) Government	Y = 0[b]
(20) Households	Y = -292,889,100 + 149,912(X)

[a]Robust regression with an intercept adjustment technique.
[b]An economic sector having no sales for final demand.

APPENDIX TABLE 20. REGRESSION EQUATIONS[a] FOR PROJECTING FINAL DEMAND VECTORS FOR THE 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 9, THOUSAND DOLLARS (1980 = BASE DOLLARS)

Sector	Equation
(1) Ag, Livestock	Y = -14,233,090 + 7,410.11(X)
(2) Ag, Crops	Y = -35,517,200 + 18,215.6(X)
(3) Metal Mining	Y = 0[b]
(4) Coal Mining	Y = 0[b]
(5) Pet/NG Exp/Ext	Y = 0[b]
(6) Nonmetallic Mining	Y = 0[b]
(7) Construction	Y = -49,942.88 + 29.6868(X)
(8) Lumber & Assoc Prod	Y = 0[b]
(9) Ag Proc & Misc Mfg	Y = -15,620,330 + 7,988.17(X)
(10) Pet Refining	Y = 0[b]
(11) Metal Processing	Y = 0[b]
(12) Transportation	Y = 0[b]
(13) Comm & Pub Util	Y = 0[b]
(14) Electric Generation	Y = 0[b]
(15) Retail Trade	Y = -1,282,121 + 661.899(X)
(16) Fin, Ins, Real Estate	Y = 0[b]
(17) Bus & Pers Service	Y = -425,610.8 + 219.743(X)
(18) Prof & Soc Service	Y = 0[b]
(19) Government	Y = 0[b]
(20) Households	Y = -15,574,790 + 7,965.23(X)

[a]Robust regression with an intercept adjustment technique.
[b]An economic sector having no sales for final demand.

APPENDIX TABLE 21. REGRESSION EQUATIONS[a] FOR PROJECTING FINAL DEMAND VECTORS FOR THE 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 10, THOUSAND DOLLARS (1980 = BASE DOLLARS)

Sector	Equation
(1) Ag, Livestock	Y = -4,307,466 + 2,362.83(X)
(2) Ag, Crops	Y = -29,258,620 + 15,009.5(X)
(3) Metal Mining	Y = 0[b]
(4) Coal Mining	Y = 0[b]
(5) Pet/NG Exp/Ext	Y = 0[b]
(6) Nonmetallic Mining	Y = 0[b]
(7) Construction	Y = 44,652.41 - 18.2664(X)
(8) Lumber & Assoc Prod	Y = 0[b]
(9) Ag Proc & Misc Mfg	Y = -70,305,710 + 35,972.2(X)
(10) Pet Refining	Y = 0[b]
(11) Metal Processing	Y = 0[b]
(12) Transportation	Y = 0[b]
(13) Comm & Pub Util	Y = 0[b]
(14) Electric Generation	Y = 0[b]
(15) Retail Trade	Y = -1,522,071 + 785.734(X)
(16) Fin, Ins, Real Estate	Y = 0[b]
(17) Bus & Pers Service	Y = -494,595.6 + 255.458(X)
(18) Prof & Soc Service	Y = 0[b]
(19) Government	Y = 0[b]
(20) Households	Y = -20,943,420 + 10,718.8(X)

[a]Robust regression with an intercept adjustment technique.
[b]An economic sector having no sales for final demand.

APPENDIX TABLE 22. REGRESSION EQUATIONS[a] FOR PROJECTING FINAL DEMAND VECTORS FOR THE 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 11, THOUSAND DOLLARS (1980 = BASE DOLLARS)

Sector	Equation
(1) Ag, Livestock	Y = -16,133,150 + 8,486.84(X)
(2) Ag, Crops	Y = -21,828,340 + 11,199.3(X)
(3) Metal Mining	Y = 0[b]
(4) Coal Mining	Y = 0[b]
(5) Pet/NG Exp/Ext	Y = 0[b]
(6) Nonmetallic Mining	Y = 0[b]
(7) Construction	Y = 129,854.6 - 55.1176(X)
(8) Lumber & Assoc Prod	Y = -5,749,575 + 2,996.37(X)
(9) Ag Proc & Misc Mfg	Y = -95,744,530 + 49,292.5(X)
(10) Pet Refining	Y = 0[b]
(11) Metal Processing	Y = 0[b]
(12) Transportation	Y = 0[b]
(13) Comm & Pub Util	Y = 0[b]
(14) Electric Generation	Y = 0[b]
(15) Retail Trade	Y = -8,903,303 + 4,596.15(X)
(16) Fin, Ins, Real Estate	Y = 0[b]
(17) Bus & Pers Service	Y = -2,964,323 + 1,530.3(X)
(18) Prof & Soc Service	Y = 0[b]
(19) Government	Y = 0[b]
(20) Households	Y = -33,116,300 + 16,935.8(X)

[a]Robust regression with an intercept adjustment technique.
[b]An economic sector having no sales for final demand.

APPENDIX TABLE 23. REGRESSION EQUATIONS[a] FOR PROJECTING FINAL DEMAND VECTORS FOR THE 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA, THOUSAND DOLLARS (1980 = BASE DOLLARS)

Sector	Equation
(1) Ag, Livestock	Y = -57,709,700 + 30,758.9(X)
(2) Ag, Crops	Y = -187,571,800 + 96,227.1(X)
(3) Metal Mining	Y = -82,158,220 + 42,391.1(X)
(4) Coal Mining	Y = 0[b]
(5) Pet/NG Exp/Ext	Y = 0[b]
(6) Nonmetallic Mining	Y = 0[b]
(7) Construction	Y = -8,971,384 + 4,648.62(X)
(8) Lumber & Assoc Prod	Y = -47,947,410 + 24,987(X)
(9) Ag Proc & Misc Mfg	Y = -1,216,310,000 + 626,445(X)
(10) Pet Refining	Y = 0[b]
(11) Metal Processing	Y = 0[b]
(12) Transportation	Y = 0[b]
(13) Comm & Pub Util	Y = 0[b]
(14) Electric Generation	Y = 0[b]
(15) Retail Trade	Y = -66,467,860 + 34,312(X)
(16) Fin, Ins, Real Estate	Y = 0[b]
(17) Bus & Pers Service	Y = -22,149,140 + 11,433.9(X)
(18) Prof & Soc Service	Y = 0[b]
(19) Government	Y = 0[b]
(20) Households	Y = -487,549,400 + 249,467(X)

[a]Robust regression with an intercept adjustment technique.
[b]An economic sector having no sales for final demand.

APPENDIX TABLE 24. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MINNESOTA REGION 2, SELECTED YEARS 1983 TO 2005, MILLION DOLLARS (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1) Ag, Livestock	121.0	121.8	123.9	126.0	128.1	130.1
(2) Ag, Crops	33.9	35.4	39.0	42.7	46.4	50.0
(3) Metal Mining	152.1	144.9	126.9	108.9	90.9	72.9
(7) Construction	10.4	10.8	11.7	12.6	13.5	14.4
(8) Lumber & Assoc Prod	315.4	325.4	350.4	375.4	400.4	425.4
(9) Ag Proc & Misc Mfg	291.8	317.5	381.6	445.8	509.9	574.1
(15) Retail Trade	186.4	194.7	215.4	236.2	257.0	277.8
(17) Bus & Pers Service	62.1	64.9	71.8	78.8	85.7	92.6
(20) Households	321.7	346.3	407.8	469.3	530.8	592.4

APPENDIX TABLE 25. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MINNESOTA REGION 3, SELECTED YEARS 1983 TO 2005, MILLION DOLLARS (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1) Ag, Livestock	65.3	66.0	67.7	69.5	71.2	73.0
(2) Ag, Crops	6.6	6.8	7.3	7.7	8.2	8.7
(3) Metal Mining	1,708.4	1,799.6	2,027.5	2,255.4	2,483.3	2,711.2
(7) Construction	19.3	19.3	19.3	19.3	19.2	19.2
(8) Lumber & Assoc Prod	173.5	179.0	192.7	206.5	220.2	234.0
(9) Ag Proc & Misc Mfg	987.5	991.0	999.8	1,008.6	1,017.4	1,026.2
(15) Retail Trade	127.5	133.2	147.4	161.6	175.8	190.0
(17) Bus & Pers Service	42.5	44.4	49.1	53.8	58.6	63.3
(20) Households	478.0	513.6	602.7	691.9	781.0	870.1

APPENDIX TABLE 26. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MINNESOTA REGION 4, SELECTED YEARS 1983 TO 2005, MILLION DOLLARS (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1) Ag, Livestock	77.0	76.5	75.2	73.8	72.5	71.1
(2) Ag, Crops	220.1	235.8	275.0	314.2	353.4	392.6
(3) Metal Mining	--	--	--	--	--	--
(7) Construction	11.3	11.3	11.4	11.4	11.5	11.6
(8) Lumber & Assoc Prod	--	--	--	--	--	--
(9) Ag Proc & Misc Mfg	310.1	331.7	385.7	439.7	493.8	547.8
(15) Retail Trade	40.4	42.2	46.8	51.3	55.8	60.3
(17) Bus & Pers Service	13.5	14.1	15.6	17.1	18.6	20.1
(20) Households	143.7	154.3	180.7	207.1	233.4	259.8

APPENDIX TABLE 27. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MINNESOTA REGION 5, SELECTED YEARS 1983 TO 2005, MILLION DOLLARS (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1) Ag, Livestock	203.2	205.9	212.7	219.5	226.3	233.0
(2) Ag, Crops	226.2	240.8	277.4	314.0	350.7	387.3
(3) Metal Mining	--	--	--	--	--	--
(7) Construction	3.8	3.8	3.6	3.5	3.4	3.2
(8) Lumber & Assoc Prod	--	--	--	--	--	--
(9) Ag Proc & Misc Mfg	153.6	164.4	191.5	218.5	245.6	272.6
(15) Retail Trade	59.9	62.6	69.3	76.0	82.7	89.4
(17) Bus & Pers Service	20.0	20.9	23.1	25.3	27.6	29.8
(20) Households	143.6	154.2	180.6	207.0	233.5	259.9

APPENDIX TABLE 28. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MINNESOTA REGION 6, SELECTED YEARS 1983 TO 2005, MILLION DOLLARS (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1) Ag, Livestock	480.6	497.8	541.0	584.2	627.4	670.5
(2) Ag, Crops	104.1	108.8	120.5	132.2	143.9	155.5
(3) Metal Mining	--	--	--	--	--	--
(7) Construction	12.4	12.8	14.0	15.1	16.3	17.5
(8) Lumber & Assoc Prod	110.4	113.9	122.6	131.4	140.1	148.9
(9) Ag Proc & Misc Mfg	780.6	840.9	991.7	1,142.5	1,293.3	1,444.1
(15) Retail Trade	57.7	60.2	66.7	73.1	79.6	86.0
(17) Bus & Pers Service	19.2	20.1	22.2	24.4	26.5	28.7
(20) Households	293.9	316.3	372.4	428.5	484.6	540.7

APPENDIX TABLE 29. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MINNESOTA REGION 7, SELECTED YEARS 1983 TO 2005, MILLION DOLLARS (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1) Ag, Livestock	250.7	252.5	256.8	261.2	265.5	269.9
(2) Ag, Crops	463.8	492.6	564.7	636.8	708.8	780.9
(3) Metal Mining	--	--	--	--	--	--
(7) Construction	9.7	10.1	11.3	12.5	13.7	14.9
(8) Lumber & Assoc Prod	--	--	--	--	--	--
(9) Ag Proc & Misc Mfg	235.5	251.2	290.4	329.7	368.9	408.2
(15) Retail Trade	26.7	27.9	30.8	33.8	36.8	39.8
(17) Bus & Pers Service	8.9	9.3	10.3	11.3	12.2	13.2
(20) Households	182.3	195.8	229.5	263.2	296.9	330.5

APPENDIX TABLE 30. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MINNESOTA REGION 8, SELECTED YEARS 1983 TO 2005, MILLION DOLLARS (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1) Ag, Livestock	450.2	455.0	467.1	479.1	491.2	503.3
(2) Ag, Crops	251.7	265.7	300.7	335.8	370.8	405.8
(3) Metal Mining	--	--	--	--	--	--
(7) Construction	134.0	139.2	152.1	165.1	178.1	191.0
(8) Lumber & Assoc Prod	709.6	732.1	788.3	844.5	900.8	957.0
(9) Ag Proc & Misc Mfg	19,186.7	20,092.7	22,357.8	24,622.9	26,888.0	29,153.1
(15) Retail Trade	751.8	785.4	869.2	953.0	1,036.8	1,120.7
(17) Bus & Pers Service	250.6	261.8	289.7	317.7	345.6	373.5
(20) Households	4,236.5	4,536.3	5,285.9	6,035.4	6,785.0	7,534.5

APPENDIX TABLE 31. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MINNESOTA REGION 9, SELECTED YEARS 1983 TO 2005, MILLION DOLLARS (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1) Ag, Livestock	453.7	468.6	505.6	542.7	579.7	616.8
(2) Ag, Crops	586.1	622.6	713.6	804.7	895.8	986.9
(3) Metal Mining	--	--	--	--	--	--
(7) Construction	8.9	9.0	9.1	9.3	9.4	9.5
(8) Lumber & Assoc Prod	--	--	--	--	--	--
(9) Ag Proc & Misc Mfg	212.2	228.2	268.1	308.1	348.0	388.0
(15) Retail Trade	29.8	31.1	34.4	37.7	41.0	44.3
(17) Bus & Pers Service	9.9	10.4	11.5	12.6	13.7	14.8
(20) Households	212.3	228.2	268.1	307.9	347.7	387.5

APPENDIX TABLE 32. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MINNESOTA REGION 10, SELECTED YEARS 1983 TO 2005, MILLION DOLLARS (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1) Ag, Livestock	375.7	380.4	392.2	404.0	415.8	427.6
(2) Ag, Crops	490.2	520.2	595.3	670.3	745.4	820.4
(3) Metal Mining	--	--	--	--	--	--
(7) Construction	8.5	8.5	8.4	8.3	8.2	8.1
(8) Lumber & Assoc Prod	--	--	--	--	--	--
(9) Ag Proc & Misc Mfg	991.2	1,063.1	1,243.0	1,422.9	1,602.7	1,782.6
(15) Retail Trade	35.3	36.8	40.8	44.7	48.6	52.5
(17) Bus & Pers Service	11.7	12.2	13.5	14.8	16.1	17.3
(20) Households	301.2	322.7	376.3	429.9	483.5	537.1

APPENDIX TABLE 33. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MINNESOTA REGION 11, SELECTED YEARS 1983 TO 2005, MILLION DOLLARS (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1) Ag, Livestock	687.8	704.7	747.2	789.6	832.0	874.5
(2) Ag, Crops	368.7	391.1	447.1	503.1	559.1	615.1
(3) Metal Mining	--	--	--	--	--	--
(7) Construction	20.6	20.5	20.2	20.0	19.7	19.4
(8) Lumber & Assoc Prod	189.2	195.2	210.2	225.2	240.2	255.2
(9) Ag Proc & Misc Mfg	1,953.2	2,051.8	2,298.3	2,544.7	2,791.2	3,037.6
(15) Retail Trade	206.3	215.5	238.4	261.4	284.4	307.4
(17) Bus & Pers Service	68.7	71.8	79.4	87.1	94.7	102.4
(20) Households	450.5	484.3	569.0	653.7	738.4	823.0

APPENDIX TABLE 34. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MINNESOTA, SELECTED YEARS 1983 TO 2005, MILLION DOLLARS (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1) Ag, Livestock	3,254.4	3,316.0	3,469.8	3,623.5	3,777.3	3,931.1
(2) Ag, Crops	3,150.3	3,342.8	3,823.9	4,305.0	4,786.2	5,267.3
(3) Metal Mining	1,860.9	1,945.7	2,157.7	2,369.6	2,581.6	2,793.5
(7) Construction	242.2	251.5	274.7	298.0	321.2	344.5
(8) Lumber & Assoc Prod	1,576.8	1,626.8	1,751.7	1,876.7	2,001.6	2,126.5
(9) Ag Proc & Misc Mfg	25,304.0	26,556.9	29,689.1	32,821.3	35,953.6	39,085.8
(15) Retail Trade	1,538.5	1,607.1	1,778.7	1,950.3	2,121.8	2,293.4
(17) Bus & Pers Service	512.8	535.7	592.9	650.1	707.2	764.4
(20) Households	6,894.2	7,393.1	8,640.5	9,887.8	11,135.1	12,382.5

APPENDIX TABLE 35. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 2, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS)

	Sector										
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	172,881	82,489	339,877	150	--	4,443	61,418	255,980	21,817	--	3,030
1961	172,664	79,409	292,505	129	--	4,340	61,310	264,257	120,169	--	2,630
1962	168,190	77,801	260,772	115	--	4,295	61,227	270,241	117,307	--	2,361
1963	159,751	76,484	249,439	110	--	4,243	61,469	277,538	112,731	--	2,268
1964	166,463	83,133	252,499	111	--	4,488	66,307	298,788	125,237	--	2,304
1965	170,422	84,592	229,607	101	--	4,618	69,900	316,106	135,308	--	2,117
1966	177,599	90,320	250,006	110	--	4,988	74,845	330,874	146,921	--	2,299
1967	175,716	95,617	194,021	86	--	4,971	75,407	329,848	164,623	--	1,821
1968	173,888	102,897	203,314	90	--	4,842	71,559	326,324	185,140	--	1,898
1969	177,884	109,504	202,294	89	--	5,216	78,870	319,916	205,796	--	1,886
1970	177,702	124,906	205,014	90	--	5,041	70,975	311,714	224,206	--	1,906
1971	179,274	121,693	179,515	79	--	5,160	75,465	310,933	233,705	--	1,687
1972	177,687	117,868	173,395	77	--	5,146	74,433	331,259	224,742	--	1,645
1973	225,987	161,542	209,547	92	--	6,177	88,610	351,631	298,323	--	1,964
1974	206,749	169,848	235,840	104	--	6,804	106,641	368,424	329,760	--	2,197
1975	205,241	201,044	199,574	88	--	6,420	92,037	284,412	430,952	--	1,845
1976	221,881	209,858	237,200	105	--	7,107	103,925	337,007	437,477	--	2,193
1977	227,437	223,826	166,935	74	--	6,998	99,861	343,783	465,944	--	1,596
1978	237,344	208,339	234,366	103	--	7,648	116,153	403,479	418,368	--	2,201
1979	253,593	221,974	204,221	90	--	8,015	124,844	431,877	445,140	--	1,958
1980	265,578	292,838	143,476	63	--	7,823	111,538	354,101	557,893	--	1,401
1981	241,303	268,741	191,528	85	--	7,462	105,784	316,205	565,984	--	1,792
1982	254,848	298,275	194,361	86	--	7,555	104,408	290,100	662,724	--	1,804

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APPENDIX TABLE 35. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 2, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS) (CONTINUED)

	Sector									
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households	TOTAL
1960	31,171	72,688	--	484,008	94,054	97,222	53,780	64,174	672,263	2,611,444
1961	28,641	71,009	--	481,179	92,317	98,938	53,237	62,476	661,491	2,546,694
1962	27,023	71,013	--	487,407	92,991	100,606	53,989	62,496	672,002	2,529,830
1963	26,465	70,375	--	485,221	92,001	101,863	53,666	61,679	663,773	2,499,075
1964	27,400	73,605	--	505,304	96,401	106,702	56,343	64,440	693,171	2,622,689
1965	26,687	75,219	--	518,066	99,024	110,390	58,228	65,788	714,093	2,680,258
1966	28,699	81,907	--	559,079	108,690	115,575	63,868	72,178	793,429	2,901,382
1967	25,737	81,862	--	574,897	110,089	118,508	64,735	72,351	810,086	2,900,370
1968	26,057	80,104	--	560,885	107,381	116,327	62,789	70,659	780,417	2,874,570
1969	26,465	85,128	--	606,619	115,093	121,997	66,832	75,625	846,891	3,046,099
1970	26,504	84,911	--	611,649	115,256	122,096	66,279	75,659	841,711	3,065,611
1971	25,196	85,406	--	619,795	116,561	122,932	67,209	76,227	858,098	3,078,927
1972	25,338	87,026	--	627,723	118,666	126,309	69,031	77,470	876,287	3,114,094
1973	29,437	101,180	--	731,364	139,715	140,230	79,765	91,179	1,027,421	3,684,155
1974	31,740	106,269	--	766,069	146,020	147,470	83,205	95,375	1,070,536	3,873,050
1975	28,113	102,326	--	767,670	143,810	137,629	79,425	93,528	1,057,624	3,831,735
1976	32,220	113,138	--	832,946	158,070	151,531	88,152	102,989	1,162,719	4,198,512
1977	28,700	113,491	--	851,409	160,767	154,558	89,767	103,716	1,187,046	4,225,902
1978	34,104	121,213	--	882,884	168,559	166,007	95,502	109,563	1,240,994	4,446,818
1979	33,569	124,815	--	917,247	174,055	174,755	98,751	112,580	1,275,824	4,603,296
1980	29,138	123,247	--	946,686	177,403	168,025	97,197	113,581	1,293,451	4,683,426
1981	30,349	117,421	--	897,888	167,131	158,889	91,008	107,895	1,216,341	4,485,803
1982	30,343	116,963	--	906,479	167,203	157,576	89,300	107,881	1,200,603	4,590,503

APPENDIX TABLE 36. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 3, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS)

	Sector										
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	270,755	560,364	1,025,976	453	--	11,416	134,256	169,741	1,446,221	--	8,847
1961	269,337	565,438	874,454	386	--	11,029	131,823	169,963	1,462,132	--	7,554
1962	265,643	566,764	829,235	366	--	10,956	130,464	172,547	1,465,435	--	7,168
1963	263,236	568,967	882,501	389	--	11,178	133,472	178,334	1,472,626	--	7,626
1964	270,108	575,316	978,604	432	--	11,816	144,264	193,394	1,486,120	--	8,455
1965	275,029	575,367	997,417	440	--	12,170	152,168	204,061	1,486,845	--	8,621
1966	287,416	574,770	1,043,769	461	--	12,660	157,847	213,252	1,479,703	--	9,022
1967	286,024	572,874	989,711	437	--	12,602	157,230	211,887	1,473,178	--	8,559
1968	284,161	563,863	1,033,003	456	--	12,924	162,910	211,362	1,449,328	--	8,929
1969	279,526	550,460	1,117,773	493	--	14,123	201,820	210,854	1,414,674	--	9,652
1970	271,634	536,162	1,050,682	464	--	12,754	162,134	203,879	1,376,021	--	9,076
1971	265,651	521,891	967,271	427	--	12,038	146,749	200,994	1,339,480	--	8,362
1972	262,452	509,073	1,035,836	457	--	12,231	150,488	214,698	1,304,166	--	8,954
1973	302,381	556,060	1,277,568	564	--	13,826	163,675	233,580	1,412,604	--	11,029
1974	298,411	567,932	1,424,557	629	--	14,673	179,269	247,365	1,450,435	--	12,291
1975	302,176	590,079	1,425,577	629	--	16,860	250,623	201,874	1,510,636	--	12,277
1976	316,310	608,081	1,493,689	659	--	16,088	207,124	232,558	1,553,665	--	12,874
1977	311,709	617,858	957,525	422	--	13,833	168,879	218,969	1,585,207	--	8,288
1978	333,532	615,907	1,944,742	858	--	17,348	206,450	284,782	1,569,736	--	16,753
1979	364,373	676,080	2,222,514	981	--	19,211	229,560	310,476	1,722,861	--	19,138
1980	359,401	691,222	1,768,174	780	--	17,345	202,912	253,181	1,760,812	--	15,229
1981	347,635	685,901	1,928,649	851	--	17,620	204,589	236,980	1,749,825	--	16,591
1982	364,245	755,169	1,956,642	863	--	18,079	206,735	223,481	1,941,446	--	16,824

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APPENDIX TABLE 36. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 3, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS) (CONTINUED)

	Sector									
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households	TOTAL
1960	78,798	165,472	--	1,052,516	232,144	126,330	111,831	157,644	1,566,771	7,119,518
1961	70,073	158,162	--	1,031,650	225,064	125,192	108,283	151,131	1,518,003	6,879,668
1962	67,688	158,343	--	1,042,253	226,646	126,547	109,500	151,551	1,538,326	6,869,423
1963	70,992	161,835	--	1,056,993	230,346	128,994	111,397	154,561	1,562,134	6,995,565
1964	77,292	170,328	--	1,097,388	240,433	134,798	116,775	162,171	1,632,870	7,300,552
1965	78,907	174,440	--	1,121,198	245,967	138,072	120,069	165,943	1,677,679	7,434,376
1966	82,405	183,945	--	1,177,298	259,392	143,910	127,908	175,180	1,793,948	7,722,871
1967	79,486	184,331	--	1,193,806	261,463	146,190	129,468	175,868	1,822,350	7,705,460
1968	82,189	189,823	--	1,222,133	268,795	148,045	133,892	181,194	1,891,298	7,844,292
1969	87,244	194,410	--	1,242,204	272,486	151,292	135,717	184,718	1,915,864	7,983,293
1970	82,629	188,059	--	1,212,389	264,760	148,602	132,258	179,107	1,870,701	7,701,302
1971	77,349	181,804	--	1,183,858	257,317	146,018	128,921	173,413	1,825,429	7,436,956
1972	81,474	185,125	--	1,190,083	259,863	148,438	130,770	175,978	1,844,385	7,514,453
1973	97,826	213,718	--	1,353,726	297,877	166,360	150,322	203,154	2,125,661	8,579,921
1974	107,046	223,735	--	1,399,412	308,680	173,431	155,556	211,799	2,191,781	8,966,995
1975	107,233	228,818	--	1,447,003	317,500	171,731	158,475	217,323	2,260,024	9,218,822
1976	112,290	238,697	--	1,504,278	330,897	181,834	166,250	226,692	2,361,577	9,563,549
1977	80,671	210,225	--	1,410,413	302,669	172,704	152,163	201,755	2,174,297	8,587,570
1978	140,281	269,571	--	1,631,416	364,788	200,674	184,464	254,058	2,595,905	10,631,250
1979	158,728	296,629	--	1,776,201	399,169	217,643	201,227	279,152	2,826,310	11,720,233
1980	130,716	267,201	--	1,669,746	368,233	201,865	183,967	253,575	2,608,311	10,752,642
1981	139,361	271,797	--	1,673,706	371,138	199,881	184,731	257,527	2,621,963	10,908,724
1982	141,674	276,121	--	1,712,125	378,480	202,340	185,959	262,082	2,641,559	11,283,806

APPENDIX TABLE 37. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 4, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS)

	Sector										
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	127,348	166,524	--	--	--	2,219	26,449	--	237,942	--	--
1961	128,145	167,791	--	--	--	2,251	26,977	--	244,305	--	--
1962	128,899	161,371	--	--	--	2,242	26,588	--	247,745	--	--
1963	124,473	180,383	--	--	--	2,342	27,946	--	251,981	--	--
1964	131,139	196,987	--	--	--	2,521	30,771	--	262,063	--	--
1965	136,032	211,837	--	--	--	2,698	33,580	--	269,142	--	--
1966	143,388	196,331	--	--	--	2,711	33,580	--	272,267	--	--
1967	140,143	209,767	--	--	--	2,821	34,975	--	273,774	--	--
1968	138,928	217,569	--	--	--	3,112	44,546	--	294,829	--	--
1969	137,471	228,224	--	--	--	3,021	38,114	--	312,454	--	--
1970	135,175	217,997	--	--	--	2,993	39,013	--	324,129	--	--
1971	137,462	239,856	--	--	--	2,983	34,342	--	341,149	--	--
1972	139,032	235,950	--	--	--	3,021	34,726	--	354,747	--	--
1973	181,655	379,717	--	--	--	4,207	48,903	--	437,898	--	--
1974	166,056	405,471	--	--	--	4,263	48,463	--	466,035	--	--
1975	150,486	278,562	--	--	--	3,609	42,756	--	467,698	--	--
1976	171,996	386,070	--	--	--	4,487	52,696	--	521,435	--	--
1977	165,350	385,363	--	--	--	4,433	51,170	--	543,109	--	--
1978	174,749	426,951	--	--	--	4,874	57,721	--	551,135	--	--
1979	191,152	437,928	--	--	--	5,139	63,226	--	602,963	--	--
1980	191,717	447,829	--	--	--	5,617	77,904	--	599,737	--	--
1981	174,466	472,464	--	--	--	5,172	62,724	--	588,425	--	--
1982	175,848	465,059	--	--	--	5,108	61,401	--	634,052	--	--

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APPENDIX TABLE 37. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 4, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS) (CONTINUED)

	Sector									
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households	TOTAL
1960	4,006	27,490	--	236,583	46,259	24,879	20,793	28,598	312,372	1,261,460
1961	4,065	27,915	--	240,080	46,906	25,320	21,111	29,010	317,212	1,281,088
1962	4,085	28,271	--	241,493	47,199	25,777	21,469	29,283	323,116	1,287,535
1963	4,240	29,442	--	253,932	49,654	26,908	22,335	30,629	336,075	1,340,341
1964	4,508	31,292	--	270,556	53,026	28,332	23,742	32,640	357,148	1,424,727
1965	4,761	33,224	--	287,128	56,503	29,783	25,284	34,727	380,559	1,505,256
1966	4,810	34,024	--	289,318	57,227	29,917	26,160	35,402	394,812	1,519,944
1967	5,008	35,894	--	306,463	60,574	31,630	27,721	37,397	419,034	1,585,197
1968	5,155	36,363	--	310,161	61,355	31,847	27,821	37,801	419,887	1,629,377
1969	5,357	38,341	--	327,504	64,735	33,952	29,503	39,885	446,048	1,704,610
1970	5,257	37,226	--	317,570	62,498	33,368	28,457	38,565	429,855	1,672,097
1971	5,519	39,362	--	336,888	66,585	34,900	30,200	40,975	456,397	1,766,617
1972	5,615	40,288	--	341,989	67,831	35,513	31,021	41,839	469,382	1,800,948
1973	7,605	53,937	--	467,186	93,501	46,545	41,293	56,928	622,471	2,441,844
1974	7,815	55,482	--	484,117	96,607	48,468	42,332	58,604	638,174	2,521,886
1975	6,690	47,732	--	402,859	80,088	41,783	36,569	49,377	553,439	2,161,649
1976	8,211	59,136	--	505,276	101,287	50,672	45,519	61,905	688,675	2,657,361
1977	8,205	58,963	--	503,608	100,862	50,715	45,274	61,635	684,971	2,663,652
1978	8,879	64,483	--	551,808	110,852	55,006	49,798	67,624	754,124	2,877,997
1979	9,230	65,780	--	562,879	112,755	56,428	50,326	68,825	760,475	2,987,096
1980	9,504	67,896	--	579,981	116,282	57,855	51,995	70,958	786,148	3,063,424
1981	9,312	66,646	--	576,815	115,430	57,682	50,956	70,078	769,821	3,019,985
1982	9,289	65,461	--	566,177	112,964	57,119	49,608	68,623	748,217	3,018,918

APPENDIX TABLE 38. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 5, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS)

	Sector										
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	239,500	192,142	--	--	--	2,890	32,043	--	212,798	--	--
1961	242,623	194,787	--	--	--	2,929	32,425	--	213,384	--	--
1962	237,503	167,378	--	--	--	2,770	30,644	--	206,121	--	--
1963	224,294	192,617	--	--	--	2,856	32,084	--	201,555	--	--
1964	230,646	198,112	--	--	--	2,963	33,840	--	211,315	--	--
1965	245,048	218,361	--	--	--	3,215	37,197	--	224,759	--	--
1966	260,926	211,268	--	--	--	3,327	38,251	--	235,115	--	--
1967	254,724	223,035	--	--	--	3,426	39,719	--	237,834	--	--
1968	252,259	224,310	--	--	--	3,684	48,552	--	249,112	--	--
1969	253,038	226,579	--	--	--	3,591	43,894	--	259,723	--	--
1970	245,687	221,485	--	--	--	3,374	37,147	--	264,170	--	--
1971	240,381	236,039	--	--	--	3,447	37,826	--	271,491	--	--
1972	246,943	223,673	--	--	--	3,561	41,324	--	280,931	--	--
1973	330,324	410,646	--	--	--	5,085	56,367	--	359,399	--	--
1974	295,878	480,642	--	--	--	5,375	61,568	--	364,989	--	--
1975	288,095	342,664	--	--	--	4,657	55,403	--	353,974	--	--
1976	296,045	299,587	--	--	--	4,924	68,201	--	365,849	--	--
1977	286,857	382,509	--	--	--	4,904	55,997	--	381,654	--	--
1978	295,687	366,584	--	--	--	4,818	54,037	--	383,001	--	--
1979	317,578	404,043	--	--	--	5,204	57,918	--	418,506	--	--
1980	331,925	442,931	--	--	--	5,630	63,541	--	427,113	--	--
1981	292,638	414,199	--	--	--	5,182	60,244	--	403,199	--	--
1982	288,278	404,519	--	--	--	5,058	58,390	--	422,819	--	--

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APPENDIX TABLE 38. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 5, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS) (CONTINUED)

	Sector									
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households	TOTAL
1960	5,218	35,303	--	306,002	58,852	33,113	26,883	36,868	402,079	1,583,688
1961	5,296	35,901	--	311,465	59,817	33,980	27,346	37,478	409,056	1,606,485
1962	5,044	34,367	--	295,785	56,519	32,596	26,289	35,649	393,901	1,524,566
1963	5,166	35,477	--	309,648	59,136	34,045	27,111	36,991	406,371	1,567,343
1964	5,326	36,545	--	318,458	60,887	35,009	27,908	38,086	418,300	1,617,393
1965	5,724	39,394	--	342,593	65,941	36,953	30,158	41,169	452,188	1,742,695
1966	5,946	41,332	--	354,247	68,676	37,960	31,904	43,079	479,338	1,811,368
1967	6,125	43,079	--	370,544	71,731	39,959	33,344	44,896	501,803	1,870,219
1968	6,226	43,611	--	373,648	72,484	39,921	33,670	45,346	506,731	1,899,553
1969	6,325	44,485	--	382,523	73,776	41,615	34,350	46,188	517,221	1,933,304
1970	6,230	44,118	--	379,787	73,046	41,631	34,144	45,768	514,642	1,911,226
1971	6,373	45,357	--	391,503	75,466	42,615	35,132	47,143	529,818	1,962,590
1972	6,462	46,170	--	394,181	76,218	42,977	35,881	47,796	541,789	1,987,903
1973	9,149	64,671	--	563,739	110,924	57,948	49,990	68,365	751,822	2,838,423
1974	9,556	67,954	--	603,680	118,347	62,190	52,304	72,219	786,563	2,981,261
1975	8,285	58,717	--	510,459	99,140	54,348	45,277	61,410	682,076	2,564,502
1976	8,228	58,054	--	497,946	96,275	53,763	44,718	60,087	674,273	2,527,946
1977	8,893	63,802	--	556,353	108,253	59,028	49,369	66,851	744,799	2,769,266
1978	8,814	62,957	--	548,384	106,273	58,892	48,639	65,807	733,487	2,737,377
1979	9,541	68,022	--	593,095	115,131	63,325	52,503	71,200	791,454	2,967,518
1980	10,217	73,556	--	640,232	125,078	67,377	57,076	77,209	861,327	3,183,208
1981	9,344	66,647	--	586,012	113,415	62,716	51,295	69,864	773,085	2,907,835
1982	9,189	64,819	--	571,702	109,993	62,115	49,531	67,783	745,497	2,859,689

APPENDIX TABLE 39. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 6, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS)

	Sector										
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	420,005	292,525	--	--	--	5,347	63,685	85,387	538,005	--	42
1961	429,122	304,942	--	--	--	5,508	65,725	89,030	547,009	--	44
1962	425,109	305,878	--	--	--	5,553	65,961	91,458	546,182	--	45
1963	405,864	299,870	--	--	--	5,443	65,658	94,088	538,378	--	47
1964	426,406	315,483	--	--	--	5,795	71,048	101,575	591,865	--	50
1965	448,868	336,736	--	--	--	6,216	77,464	107,847	641,359	--	53
1966	480,665	371,369	--	--	--	6,783	83,620	112,906	691,768	--	56
1967	478,581	377,226	--	--	--	6,928	85,010	113,007	726,052	--	56
1968	493,578	412,356	--	--	--	7,018	80,538	111,692	798,705	--	55
1969	504,203	427,471	--	--	--	7,301	83,028	109,567	856,837	--	54
1970	505,352	457,121	--	--	--	7,499	85,724	106,532	905,241	--	53
1971	511,040	465,599	--	--	--	7,726	88,920	106,532	948,079	--	53
1972	521,343	485,878	--	--	--	8,137	94,901	113,715	988,070	--	56
1973	672,306	631,290	--	--	--	10,923	145,338	120,493	1,173,259	--	60
1974	609,254	638,778	--	--	--	10,105	123,574	126,159	1,211,657	--	62
1975	647,150	631,739	--	--	--	10,430	128,957	97,123	1,296,740	--	48
1976	671,219	649,499	--	--	--	10,913	135,392	115,030	1,364,392	--	57
1977	677,672	688,304	--	--	--	11,396	142,989	118,268	1,422,855	--	58
1978	700,796	686,151	--	--	--	11,090	129,956	138,401	1,412,342	--	68
1979	771,252	748,931	--	--	--	11,959	138,519	148,619	1,551,644	--	73
1980	798,018	788,681	--	--	--	12,379	142,083	122,213	1,592,570	--	60
1981	723,317	781,085	--	--	--	11,780	136,725	108,252	1,552,362	--	54
1982	726,652	816,685	--	--	--	11,953	136,995	99,147	1,688,797	--	49

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APPENDIX TABLE 39. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 6, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS) (CONTINUED)

	Sector									
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households	TOTAL
1960	11,205	66,715	--	516,060	107,071	60,484	52,246	67,347	739,828	3,025,947
1961	11,549	68,811	--	532,424	110,587	62,666	53,933	69,498	763,404	3,114,251
1962	11,720	70,432	--	544,650	113,086	64,267	55,445	71,076	786,126	3,156,985
1963	11,550	69,100	--	534,400	110,765	63,724	54,407	69,564	769,407	3,092,261
1964	12,269	72,882	--	561,182	116,607	67,183	57,266	73,236	808,234	3,281,079
1965	13,063	77,674	--	596,293	124,346	70,718	61,059	78,063	862,259	3,502,017
1966	14,197	85,984	--	659,005	138,138	76,682	67,975	86,680	965,465	3,841,291
1967	14,533	88,936	--	681,346	142,725	79,081	70,425	89,589	1,003,699	3,957,184
1968	15,020	91,688	--	705,283	147,938	80,721	72,219	92,664	1,030,071	4,139,545
1969	15,595	96,359	--	742,186	155,389	84,331	75,914	97,392	1,087,961	4,343,582
1970	15,881	97,940	--	759,136	158,616	85,631	76,702	99,178	1,100,193	4,460,793
1971	16,284	101,049	--	781,476	163,531	87,534	79,212	102,295	1,138,894	4,598,216
1972	17,118	107,061	--	824,957	173,239	92,202	84,307	108,347	1,213,789	4,833,114
1973	20,978	131,948	--	1,024,287	215,301	110,033	103,365	134,380	1,495,438	5,989,389
1974	20,533	128,231	--	999,780	209,515	109,672	100,155	130,389	1,444,007	5,861,865
1975	20,451	129,912	--	1,013,437	212,112	107,110	100,957	132,444	1,470,644	5,999,250
1976	21,687	136,933	--	1,062,066	222,715	113,930	106,711	139,148	1,549,085	6,298,772
1977	22,527	142,722	--	1,108,709	232,640	118,539	111,236	145,140	1,616,205	6,559,253
1978	22,961	143,279	--	1,109,757	232,947	121,631	111,876	145,410	1,614,379	6,581,034
1979	24,828	153,805	--	1,191,915	250,258	130,306	119,675	156,176	1,724,569	7,122,523
1980	25,084	158,965	--	1,241,153	260,203	131,295	123,609	162,343	1,798,238	7,356,886
1981	23,668	150,066	--	1,181,129	246,695	124,522	116,027	153,467	1,690,104	6,999,245
1982	23,994	151,130	--	1,194,293	248,911	125,042	115,715	154,640	1,687,114	7,181,107

APPENDIX TABLE 40. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 7, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS)

	Sector										
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	321,033	339,215	--	--	--	4,251	45,660	--	342,451	--	--
1961	331,714	342,126	--	--	--	4,339	46,741	--	342,734	--	--
1962	328,672	341,817	--	--	--	4,350	46,761	--	335,130	--	--
1963	313,069	377,390	--	--	--	4,480	48,800	--	326,453	--	--
1964	309,018	354,526	--	--	--	4,376	48,349	--	334,689	--	--
1965	335,000	395,391	--	--	--	4,810	53,383	--	361,293	--	--
1966	356,464	417,987	--	--	--	5,169	57,520	--	382,190	--	--
1967	333,047	415,003	--	--	--	5,101	57,230	--	379,802	--	--
1968	329,180	415,313	--	--	--	5,027	54,741	--	395,053	--	--
1969	337,629	448,334	--	--	--	5,402	59,738	--	416,222	--	--
1970	324,755	454,659	--	--	--	5,384	59,517	--	422,738	--	--
1971	322,643	442,750	--	--	--	5,346	59,857	--	431,018	--	--
1972	339,671	451,804	--	--	--	5,439	59,231	--	450,097	--	--
1973	476,055	776,833	--	--	--	8,196	89,215	--	573,185	--	--
1974	409,140	808,841	--	--	--	8,067	89,489	--	561,110	--	--
1975	388,349	629,898	--	--	--	7,119	83,204	--	539,299	--	--
1976	363,406	483,015	--	--	--	6,134	71,006	--	527,806	--	--
1977	357,434	657,886	--	--	--	7,323	86,692	--	557,668	--	--
1978	398,222	686,467	--	--	--	7,577	87,117	--	577,746	--	--
1979	417,755	709,090	--	--	--	8,000	94,395	--	622,048	--	--
1980	431,389	772,345	--	--	--	8,655	105,114	--	631,909	--	--
1981	378,006	742,516	--	--	--	7,859	91,603	--	599,949	--	--
1982	374,786	713,010	--	--	--	7,608	88,082	--	630,047	--	--

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APPENDIX TABLE 40. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 7, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS) (CONTINUED)

	Sector									
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households	TOTAL
1960	7,523	51,268	--	430,180	88,950	38,949	39,606	54,858	592,677	2,356,618
1961	7,662	52,235	--	437,819	90,538	39,530	40,399	55,888	604,618	2,396,341
1962	7,687	52,906	--	442,993	91,641	40,035	41,094	56,585	615,874	2,405,542
1963	7,869	54,568	--	462,956	95,523	41,920	42,366	58,606	635,139	2,469,135
1964	7,678	53,124	--	447,754	92,402	40,828	41,220	56,854	618,143	2,408,962
1965	8,404	58,225	--	491,464	101,627	44,206	45,218	62,432	678,097	2,639,548
1966	9,028	63,218	--	530,379	110,115	47,497	49,388	67,729	741,928	2,838,605
1967	8,922	63,221	--	530,777	110,052	47,781	49,550	67,635	745,760	2,813,876
1968	8,909	63,046	--	528,915	109,738	47,671	49,359	67,430	742,810	2,817,189
1969	9,538	68,188	--	572,314	118,766	51,650	53,563	72,910	807,252	3,021,504
1970	9,528	68,290	--	574,472	119,117	51,937	53,617	73,020	808,366	3,025,395
1971	9,432	67,442	--	565,802	117,303	51,292	52,895	71,988	797,439	2,995,198
1972	9,695	69,054	--	578,386	120,035	52,216	54,124	73,724	815,570	3,079,042
1973	14,370	102,138	--	876,259	182,117	77,487	79,775	110,534	1,199,185	4,565,344
1974	14,082	100,831	--	875,464	181,280	77,914	78,599	109,365	1,182,258	4,496,436
1975	12,289	87,725	--	746,325	154,653	67,010	68,523	94,192	1,031,960	3,910,538
1976	10,761	76,906	--	640,489	132,715	58,450	60,275	81,677	909,430	3,422,067
1977	12,642	91,800	--	781,483	161,940	70,472	72,047	98,455	1,087,767	4,043,605
1978	13,187	94,771	--	808,172	167,360	72,885	74,136	101,795	1,117,416	4,206,841
1979	13,805	98,914	--	841,448	174,251	75,889	77,269	106,073	1,164,527	4,403,457
1980	14,717	106,079	--	904,979	187,561	81,226	83,044	113,956	1,252,233	4,693,206
1981	13,619	97,963	--	842,838	174,125	76,057	76,411	105,443	1,151,496	4,357,877
1982	13,273	94,418	--	811,191	167,307	73,674	73,234	101,412	1,102,379	4,250,410

APPENDIX TABLE 41. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 8, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS)

	Sector										
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	2,311,266	5,913,543	--	--	--	73,916	871,657	549,151	15,331,504	--	271
1961	2,413,704	6,241,172	--	--	--	77,502	910,562	571,307	16,151,539	--	282
1962	2,485,352	6,483,845	--	--	--	80,884	944,221	588,101	16,802,887	--	291
1963	2,522,400	6,713,790	--	--	--	83,131	971,069	605,199	17,446,176	--	299
1964	2,668,442	7,163,484	--	--	--	88,726	1,048,451	652,850	18,629,880	--	323
1965	2,802,834	7,541,253	--	--	--	94,164	1,126,059	693,115	19,625,025	--	343
1966	2,945,493	7,862,162	--	--	--	100,117	1,197,570	724,984	20,407,298	--	358
1967	3,037,094	8,143,892	--	--	--	104,469	1,244,995	727,109	21,185,735	--	359
1968	3,174,963	8,397,467	--	--	--	113,210	1,372,927	718,711	21,829,996	--	355
1969	3,227,069	8,534,021	--	--	--	115,816	1,403,470	704,143	22,189,054	--	348
1970	3,195,860	8,639,156	--	--	--	113,538	1,375,803	685,123	22,388,731	--	339
1971	3,199,289	8,682,180	--	--	--	111,704	1,322,162	685,528	22,588,161	--	339
1972	3,246,028	8,800,400	--	--	--	112,593	1,317,525	731,661	22,828,132	--	362
1973	3,674,134	9,789,337	--	--	--	125,580	1,494,712	774,557	25,139,835	--	383
1974	3,707,847	10,211,337	--	--	--	127,990	1,505,655	810,371	26,215,414	--	401
1975	3,758,457	10,409,860	--	--	--	132,312	1,576,448	624,421	26,958,513	--	309
1976	3,963,209	10,954,100	--	--	--	139,467	1,646,099	739,856	28,506,149	--	366
1977	4,077,567	11,357,248	--	--	--	147,418	1,807,998	760,393	29,540,755	--	376
1978	4,089,799	11,285,871	--	--	--	144,541	1,722,237	889,588	29,262,756	--	440
1979	4,465,378	12,434,939	--	--	--	157,321	1,879,406	955,955	32,282,197	--	472
1980	4,493,695	12,420,446	--	--	--	156,501	1,827,769	785,484	32,247,119	--	388
1981	4,358,331	12,322,386	--	--	--	152,209	1,769,033	696,454	31,892,154	--	344
1982	4,690,484	13,498,542	--	--	--	161,455	1,842,909	637,573	35,251,280	--	315

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APPENDIX TABLE 41. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 8, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS) (CONTINUED)

	Sector									
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households	TOTAL
1960	153,023	957,488	--	7,607,352	1,579,514	804,639	709,584	967,963	10,389,515	48,220,324
1961	160,551	1,003,977	--	7,978,139	1,657,648	841,465	743,515	1,015,430	10,886,540	50,653,264
1962	167,785	1,058,105	--	8,388,527	1,746,712	879,756	787,137	1,070,664	11,547,872	53,032,068
1963	172,544	1,083,893	--	8,597,875	1,790,228	902,045	804,236	1,096,608	11,790,217	54,579,644
1964	183,405	1,147,619	--	9,093,535	1,896,544	951,695	850,290	1,161,088	12,453,439	57,989,704
1965	193,618	1,213,545	--	9,594,631	2,005,593	999,597	900,612	1,227,967	13,194,508	61,212,790
1966	205,281	1,307,808	--	10,288,895	2,159,884	1,060,841	980,077	1,324,498	14,407,833	64,973,024
1967	214,025	1,376,292	--	10,820,769	2,271,725	1,111,929	1,035,105	1,394,229	15,253,330	67,920,985
1968	228,435	1,518,304	--	11,841,690	2,501,880	1,192,258	1,161,093	1,540,215	17,231,921	72,823,332
1969	233,371	1,561,127	--	12,195,404	2,570,432	1,230,378	1,195,671	1,583,448	17,774,157	74,517,834
1970	228,913	1,502,542	--	11,813,228	2,479,425	1,200,461	1,137,567	1,523,887	16,856,707	73,141,195
1971	227,749	1,483,993	--	11,688,741	2,450,421	1,191,881	1,118,883	1,505,014	16,556,840	72,812,811
1972	231,337	1,505,041	--	11,844,199	2,485,024	1,211,070	1,135,935	1,526,153	16,791,836	73,767,220
1973	255,003	1,656,430	--	13,056,711	2,738,788	1,328,636	1,247,824	1,681,313	18,449,787	81,412,941
1974	261,923	1,685,244	--	13,329,938	2,789,218	1,365,684	1,262,290	1,709,921	18,626,008	83,609,143
1975	265,142	1,735,452	--	13,741,608	2,875,615	1,378,092	1,301,483	1,764,540	19,332,323	85,854,489
1976	282,322	1,845,239	--	14,570,773	3,053,300	1,469,546	1,387,143	1,874,268	20,575,009	91,006,748
1977	293,270	1,918,083	--	15,132,512	3,173,257	1,521,321	1,442,014	1,947,768	21,396,317	94,516,190
1978	294,037	1,910,109	--	15,062,885	3,155,986	1,537,619	1,437,479	1,937,139	21,258,061	93,988,443
1979	319,404	2,057,503	--	16,245,355	3,404,371	1,654,895	1,540,441	2,087,265	22,750,407	102,235,195
1980	317,104	2,072,026	--	16,388,622	3,432,564	1,647,035	1,554,837	2,106,364	23,075,499	102,525,328
1981	307,769	2,000,131	--	15,889,259	3,320,695	1,593,110	1,491,568	2,035,067	22,136,888	99,965,278
1982	326,873	2,098,062	--	16,730,797	3,494,621	1,662,546	1,547,262	2,137,539	22,949,656	107,029,796

APPENDIX TABLE 42. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 9, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS)

	Sector										
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	474,763	392,847	--	--	--	5,435	59,667	--	320,455	--	--
1961	492,399	417,517	--	--	--	5,685	62,190	--	334,851	--	--
1962	495,431	416,544	--	--	--	5,737	62,429	--	339,643	--	--
1963	477,070	475,419	--	--	--	6,002	66,195	--	341,646	--	--
1964	479,071	477,948	--	--	--	6,129	68,760	--	379,211	--	--
1965	516,845	473,255	--	--	--	6,415	72,551	--	429,225	--	--
1966	594,413	538,586	--	--	--	7,337	81,687	--	501,452	--	--
1967	561,838	600,021	--	--	--	7,630	85,573	--	523,784	--	--
1968	558,344	585,849	--	--	--	7,676	88,607	--	543,268	--	--
1969	581,043	657,640	--	--	--	8,205	91,652	--	579,737	--	--
1970	568,646	708,829	--	--	--	8,495	96,438	--	595,755	--	--
1971	562,214	647,174	--	--	--	8,339	99,561	--	600,051	--	--
1972	618,033	787,857	--	--	--	9,488	110,403	--	655,692	--	--
1973	860,931	1,068,075	--	--	--	12,305	136,166	--	799,809	--	--
1974	714,875	1,120,265	--	--	--	11,693	127,594	--	738,011	--	--
1975	676,527	809,368	--	--	--	9,835	110,352	--	678,452	--	--
1976	655,925	709,400	--	--	--	8,973	96,199	--	660,669	--	--
1977	616,668	836,944	--	--	--	9,840	111,322	--	658,705	--	--
1978	699,149	965,312	--	--	--	10,900	122,210	--	708,627	--	--
1979	712,485	908,569	--	--	--	10,743	119,534	--	737,771	--	--
1980	713,449	982,605	--	--	--	11,461	132,425	--	743,862	--	--
1981	605,469	942,044	--	--	--	10,295	115,739	--	687,221	--	--
1982	597,581	880,892	--	--	--	9,815	109,565	--	707,770	--	--

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APPENDIX TABLE 42. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 9, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS) (CONTINUED)

	Sector									
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households	TOTAL
1960	9,348	63,565	--	529,619	109,857	47,205	49,590	68,261	741,169	2,871,780
1961	9,791	66,608	--	556,141	115,341	49,540	51,945	71,589	776,362	3,009,955
1962	9,915	67,891	--	565,133	117,288	50,428	53,104	72,869	794,594	3,051,002
1963	10,315	71,132	--	600,575	124,418	53,357	55,562	76,706	831,627	3,190,019
1964	10,511	72,237	--	607,820	125,974	54,112	56,287	77,712	842,488	3,258,258
1965	11,002	75,148	--	625,365	130,004	55,556	58,512	80,539	875,665	3,410,078
1966	12,656	86,819	--	718,473	150,058	63,139	67,818	93,036	1,015,784	3,931,252
1967	13,166	91,493	--	764,470	159,423	67,301	71,537	98,249	1,073,175	4,117,656
1968	13,134	91,167	--	758,420	158,291	66,675	71,250	97,676	1,069,226	4,109,579
1969	14,227	99,551	--	832,214	173,682	73,218	77,953	106,877	1,170,724	4,466,719
1970	14,636	102,453	--	863,210	179,860	76,134	80,008	110,227	1,201,247	4,605,930
1971	14,128	98,627	--	823,162	171,647	72,708	77,031	105,618	1,157,048	4,437,300
1972	16,182	113,656	--	956,439	199,707	83,876	88,878	122,306	1,335,126	5,097,640
1973	21,183	146,943	--	1,245,424	260,280	107,838	114,526	159,097	1,715,656	6,648,222
1974	20,279	142,932	--	1,232,190	256,392	107,747	111,454	155,407	1,672,100	6,410,930
1975	17,007	119,260	--	1,002,273	208,912	88,385	93,337	128,247	1,401,751	5,343,698
1976	15,848	111,184	--	926,167	192,967	82,339	87,204	119,068	1,310,495	4,976,431
1977	17,025	121,735	--	1,027,799	213,974	90,995	95,790	130,945	1,442,369	5,374,105
1978	18,801	132,463	--	1,129,007	234,669	99,695	103,511	143,139	1,554,231	5,921,706
1979	18,671	131,806	--	1,112,512	231,478	98,592	103,261	141,821	1,552,026	5,879,263
1980	19,607	139,427	--	1,181,560	245,899	104,428	109,413	150,242	1,645,803	6,180,172
1981	17,835	126,960	--	1,087,668	225,491	96,841	99,293	137,138	1,493,091	5,645,073
1982	17,104	120,533	--	1,029,366	213,125	92,134	93,870	129,880	1,410,168	5,411,798

APPENDIX TABLE 43. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 10, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS)

	Sector										
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	470,530	495,793	--	--	--	6,586	74,698	--	632,454	--	--
1961	492,335	581,841	--	--	--	7,312	82,584	--	733,632	--	--
1962	480,229	593,337	--	--	--	7,376	82,870	--	745,960	--	--
1963	466,450	603,202	--	--	--	7,399	83,954	--	757,370	--	--
1964	478,008	696,852	--	--	--	8,181	94,580	--	842,476	--	--
1965	518,339	678,532	--	--	--	8,467	98,790	--	920,032	--	--
1966	558,474	765,851	--	--	--	9,401	108,829	--	1,001,032	--	--
1967	523,035	771,562	--	--	--	9,391	108,982	--	1,037,018	--	--
1968	501,059	739,230	--	--	--	8,995	104,344	--	993,529	--	--
1969	535,958	812,801	--	--	--	9,903	110,261	--	1,134,391	--	--
1970	524,909	907,558	--	--	--	10,232	112,852	--	1,170,339	--	--
1971	521,137	832,366	--	--	--	10,118	117,658	--	1,188,854	--	--
1972	564,239	949,890	--	--	--	11,356	136,634	--	1,251,730	--	--
1973	774,493	1,307,092	--	--	--	14,681	170,630	--	1,527,011	--	--
1974	695,615	1,427,804	--	--	--	14,988	173,432	--	1,598,002	--	--
1975	642,445	1,166,584	--	--	--	14,352	192,433	--	1,609,327	--	--
1976	621,995	1,249,040	--	--	--	14,261	176,841	--	1,702,715	--	--
1977	636,493	1,227,708	--	--	--	13,839	157,894	--	1,779,178	--	--
1978	694,941	1,343,797	--	--	--	14,695	166,073	--	1,814,389	--	--
1979	707,846	1,314,355	--	--	--	14,623	159,649	--	1,955,610	--	--
1980	745,012	1,349,676	--	--	--	15,184	165,655	--	1,960,978	--	--
1981	664,116	1,248,501	--	--	--	14,049	157,598	--	1,892,790	--	--
1982	670,890	1,286,393	--	--	--	14,297	158,926	--	2,046,798	--	--

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APPENDIX TABLE 43. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 10, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS) (CONTINUED)

	Sector									
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households	TOTAL
1960	11,555	78,236	--	645,269	134,478	57,798	60,192	83,136	901,515	3,652,231
1961	12,876	87,089	--	722,431	150,688	64,303	66,758	92,732	999,553	4,094,130
1962	13,049	89,053	--	738,535	154,138	65,842	68,476	94,785	1,026,744	4,160,390
1963	13,063	89,149	--	741,211	154,555	66,177	68,441	94,896	1,026,232	4,172,093
1964	14,346	97,942	--	820,000	171,003	72,942	74,972	104,504	1,123,934	4,599,734
1965	14,849	100,707	--	832,689	174,170	73,957	77,027	106,959	1,154,683	4,759,194
1966	16,521	113,353	--	937,042	196,546	82,579	87,177	120,557	1,308,863	5,306,223
1967	16,579	114,718	--	947,492	198,750	83,640	88,386	121,806	1,329,102	5,350,457
1968	15,884	109,901	--	907,753	190,405	80,138	84,672	116,690	1,273,270	5,125,867
1969	17,867	125,903	--	1,032,405	217,270	91,163	97,827	133,382	1,475,498	5,794,619
1970	18,479	129,096	--	1,074,379	225,252	95,051	99,558	137,418	1,498,640	6,003,754
1971	17,998	125,591	--	1,033,059	216,989	91,492	96,918	132,951	1,460,110	5,845,231
1972	19,815	138,515	--	1,146,323	240,804	100,855	106,930	147,111	1,610,481	6,424,671
1973	25,681	177,323	--	1,485,887	311,903	129,558	136,217	189,754	2,045,294	8,295,514
1974	26,346	182,681	--	1,547,968	324,143	135,436	139,904	196,000	2,101,139	8,563,444
1975	23,917	164,170	--	1,361,767	285,702	119,742	125,210	174,019	1,881,999	7,761,656
1976	24,722	170,518	--	1,421,948	298,192	125,368	130,080	181,139	1,955,880	8,072,688
1977	24,941	172,671	--	1,430,470	300,627	126,258	132,114	183,104	1,988,269	8,173,557
1978	26,413	181,856	--	1,519,102	318,630	133,932	138,780	193,606	2,085,309	8,631,511
1979	26,819	184,270	--	1,526,100	320,613	134,854	140,539	195,397	2,112,781	8,793,443
1980	27,789	192,523	--	1,591,493	334,744	140,358	147,618	204,227	2,221,566	9,096,810
1981	25,558	175,105	--	1,449,973	304,306	128,563	133,243	185,443	2,002,724	8,381,953
1982	26,204	177,313	--	1,468,618	308,070	130,425	133,896	187,575	2,009,484	8,618,882

APPENDIX TABLE 44. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 11, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS)

	Sector										
Year	(1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	816,296	906,758	11,673	5	--	13,008	149,808	146,898	1,815,529	--	172
1961	839,015	979,573	13,373	6	--	13,683	157,616	152,825	1,885,663	--	189
1962	824,202	990,846	8,840	4	--	13,775	158,012	157,119	1,918,087	--	154
1963	796,039	1,005,894	12,580	6	--	13,818	159,867	161,801	1,946,689	--	188
1964	819,231	1,032,829	10,200	5	--	14,442	170,007	174,467	2,101,580	--	173
1965	863,471	1,152,455	13,826	6	--	15,759	187,594	185,417	2,257,281	--	209
1966	928,096	1,221,284	13,600	6	--	16,844	198,900	193,705	2,393,582	--	212
1967	914,999	1,246,163	7,593	3	--	17,140	201,811	194,105	2,493,664	--	161
1968	925,215	1,255,027	2,720	1	--	17,411	205,780	191,609	2,552,557	--	118
1969	951,790	1,308,009	453	--	--	18,376	226,541	187,889	2,601,112	--	97
1970	931,759	1,365,007	--	--	--	19,025	245,723	182,814	2,618,736	--	90
1971	930,781	1,318,289	--	--	--	18,170	219,181	182,814	2,630,094	--	90
1972	975,480	1,399,749	--	--	--	18,790	221,548	195,157	2,674,554	--	96
1973	1,261,870	1,724,240	--	--	--	22,111	242,322	206,589	3,030,439	--	102
1974	1,137,607	1,801,347	--	--	--	22,221	248,199	216,200	3,085,076	--	107
1975	1,102,646	1,653,813	--	--	--	21,689	251,949	166,425	3,151,816	--	82
1976	1,122,974	1,728,292	--	--	--	22,487	258,874	197,281	3,273,290	--	98
1977	1,137,685	1,705,683	--	--	--	22,559	256,321	202,846	3,365,857	--	100
1978	1,211,048	1,743,528	--	--	--	22,939	256,656	237,244	3,364,789	--	117
1979	1,307,631	1,874,079	--	--	--	27,328	366,815	254,948	3,686,267	--	126
1980	1,337,148	1,887,218	--	--	--	25,144	284,599	209,422	3,732,444	--	104
1981	1,223,870	1,918,013	--	--	--	24,525	280,697	185,748	3,661,740	--	92
1982	1,240,867	1,941,189	--	--	--	24,778	280,099	170,067	3,991,082	--	84

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APPENDIX TABLE 44. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA REGION 11, 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS) (CONTINUED)

	Sector									
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households	TOTAL
1960	27,756	162,444	--	1,318,685	264,361	154,981	121,593	164,228	1,740,204	7,814,392
1961	29,172	170,959	--	1,392,463	279,399	162,789	128,012	173,220	1,833,246	8,211,196
1962	29,303	173,925	--	1,416,235	284,242	165,950	130,623	176,112	1,872,276	8,319,695
1963	29,660	174,586	--	1,423,375	285,296	167,911	130,869	176,572	1,873,571	8,358,712
1964	30,859	181,219	--	1,469,379	295,227	173,998	135,625	182,783	1,937,898	8,729,911
1965	33,478	196,666	--	1,595,574	322,088	186,223	147,351	198,975	2,108,098	9,464,453
1966	35,660	211,961	--	1,710,844	347,444	196,505	159,763	214,806	2,292,730	10,135,923
1967	36,084	217,682	--	1,759,257	356,621	202,450	164,234	220,405	2,361,972	10,394,339
1968	36,237	221,073	--	1,782,313	362,229	203,506	167,085	223,923	2,407,456	10,554,245
1969	37,220	228,795	--	1,856,297	375,287	212,123	172,628	231,867	2,492,339	10,900,803
1970	37,523	230,832	--	1,885,731	380,147	214,699	173,504	234,269	2,506,635	11,026,485
1971	37,116	229,061	--	1,864,226	375,961	213,476	172,664	232,171	2,496,016	10,920,097
1972	38,694	238,959	--	1,947,137	393,672	222,064	180,569	242,800	2,608,186	11,357,443
1973	45,728	285,229	--	2,335,141	474,244	258,408	216,221	292,308	3,134,642	13,529,572
1974	46,071	287,946	--	2,374,433	480,297	265,848	217,904	294,885	3,157,129	13,635,253
1975	43,745	276,409	--	2,271,584	457,971	251,376	208,234	282,290	3,039,340	13,179,355
1976	46,067	289,942	--	2,378,181	479,853	266,319	219,011	295,614	3,186,949	13,765,218
1977	46,668	293,942	--	2,399,453	484,588	269,668	222,356	299,054	3,236,328	13,943,091
1978	48,214	299,374	--	2,443,078	493,018	279,014	226,438	304,240	3,276,287	14,205,970
1979	52,887	327,435	--	2,658,942	537,545	301,251	246,992	331,809	3,575,703	15,549,737
1980	51,588	323,951	--	2,648,170	534,325	295,543	244,258	330,054	3,557,390	15,461,336
1981	49,792	313,760	--	2,589,204	520,660	287,402	235,447	320,489	3,435,627	15,047,045
1982	50,450	315,293	--	2,600,529	522,007	287,939	234,346	321,489	3,421,750	15,401,953

APPENDIX TABLE 45. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS)

Year	Sector (1) Ag, Lvstk	(2) Ag, Crops	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	5,755,053	9,541,758	1,377,525	608	--	131,924	1,550,068	1,268,263	21,086,070	--	12,393
1961	5,939,699	10,056,454	1,180,218	521	--	136,876	1,606,874	1,310,708	22,122,887	--	10,730
1962	5,968,486	10,296,475	1,098,847	485	--	140,355	1,640,173	1,344,516	22,816,073	--	10,051
1963	5,874,779	10,668,499	1,144,519	505	--	143,188	1,680,123	1,384,238	23,485,039	--	10,461
1964	6,111,429	11,338,655	1,241,303	548	--	152,249	1,812,238	1,493,409	25,073,417	--	11,341
1965	6,450,133	11,939,279	1,240,849	547	--	161,607	1,948,510	1,583,536	26,471,239	--	11,382
1966	6,877,196	12,481,147	1,307,374	577	--	172,279	2,070,790	1,656,352	27,635,638	--	11,986
1967	6,846,705	12,892,425	1,191,211	526	--	177,508	2,130,348	1,656,988	28,629,346	--	10,995
1968	6,985,121	13,156,824	1,239,036	547	--	187,028	2,270,694	1,639,723	29,531,209	--	11,394
1969	7,123,067	13,543,008	1,320,634	583	--	194,075	2,377,513	1,610,678	30,141,428	--	12,076
1970	7,017,897	13,846,697	1,255,696	554	--	191,365	2,326,108	1,566,042	30,474,697	--	11,501
1971	7,012,808	13,790,256	1,146,672	506	--	188,598	2,250,364	1,562,776	30,766,383	--	10,567
1972	7,234,860	14,241,094	1,209,230	534	--	193,207	2,284,869	1,667,526	31,225,440	--	11,153
1973	8,953,937	17,280,848	1,487,116	656	--	228,183	2,700,740	1,772,946	35,043,437	--	13,579
1974	8,419,880	18,220,520	1,660,397	733	--	231,764	2,731,941	1,858,257	36,339,798	--	15,101
1975	8,333,257	17,198,148	1,625,151	717	--	232,272	2,846,327	1,443,759	37,353,659	--	14,596
1976	8,590,796	17,774,390	1,730,775	764	--	239,994	2,879,324	1,703,877	39,285,049	--	15,627
1977	8,670,900	18,597,150	1,124,573	496	--	247,775	3,003,180	1,728,638	40,688,392	--	10,460
1978	9,019,876	18,908,444	2,179,108	961	--	252,140	2,988,636	2,052,336	40,438,324	--	19,628
1979	9,797,855	21,507,756	2,426,734	1,071	--	280,999	3,392,897	2,208,305	44,613,248	--	21,821
1980	9,864,098	20,579,906	1,911,650	843	--	271,193	3,180,191	1,811,608	44,679,213	--	17,225
1981	9,195,786	20,460,291	2,120,177	935	--	262,337	3,058,897	1,621,033	44,041,928	--	18,912
1982	9,565,239	21,651,982	2,151,003	949	--	271,400	3,115,318	1,491,186	48,465,452	--	19,111

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APPENDIX TABLE 45. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MINNESOTA 1960-1982, THOUSAND DOLLARS (1980 = BASE DOLLARS) (CONTINUED)

	Sector									
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households	TOTAL
1960	344,843	1,712,086	--	13,379,541	2,768,869	1,476,378	1,271,632	1,725,470	18,412,001	81,814,396
1961	344,794	1,773,029	--	13,926,118	2,879,297	1,533,791	1,319,300	1,789,530	19,110,435	85,041,159
1962	348,635	1,836,303	--	14,418,160	2,984,256	1,583,352	1,373,275	1,853,849	19,932,272	87,645,459
1963	357,037	1,870,114	--	14,707,494	3,042,839	1,617,709	1,395,427	1,887,897	20,238,240	89,508,001
1964	379,705	1,973,591	--	15,489,852	3,211,329	1,701,645	1,470,333	1,991,492	21,299,706	94,752,132
1965	397,107	2,084,271	--	16,330,471	3,393,876	1,784,438	1,556,014	2,103,958	22,548,668	100,005,763
1966	421,712	2,249,611	--	17,534,945	3,662,089	1,892,941	1,694,229	2,273,284	24,639,751	106,581,790
1967	426,336	2,338,243	--	18,272,142	3,811,520	1,967,971	1,767,950	2,364,060	25,785,233	110,269,378
1968	444,456	2,489,433	--	19,336,873	4,054,193	2,048,498	1,900,004	2,518,744	27,859,839	115,673,466
1969	460,051	2,584,769	--	20,124,569	4,207,983	2,132,076	1,974,794	2,615,660	29,022,189	119,445,015
1970	452,156	2,525,927	--	19,806,807	4,124,908	2,108,200	1,915,209	2,558,118	28,091,990	118,273,719
1971	444,535	2,504,550	--	19,662,958	4,091,039	2,098,475	1,897,261	2,535,984	27,816,276	117,779,868
1972	459,230	2,577,798	--	20,223,989	4,214,075	2,159,428	1,955,702	2,611,610	28,645,166	120,914,762
1973	537,196	2,999,505	--	23,684,632	4,939,618	2,482,281	2,272,312	3,056,182	33,324,314	140,777,304
1974	556,688	3,054,892	--	24,234,251	5,041,045	2,559,985	2,302,532	3,111,815	33,712,063	144,051,489
1975	542,769	3,015,393	--	23,805,978	4,949,114	2,474,342	2,269,080	3,065,593	33,454,909	142,624,882
1976	572,875	3,167,711	--	24,902,719	5,184,707	2,614,504	2,389,247	3,213,797	35,150,482	149,416,448
1977	554,247	3,256,512	--	25,775,201	5,360,164	2,696,282	2,467,120	3,310,800	36,345,859	153,837,584
1978	627,451	3,355,684	--	26,317,284	5,485,820	2,793,958	2,531,019	3,401,790	37,091,702	157,463,980
1979	692,128	3,678,606	--	28,962,139	6,039,473	3,053,871	2,763,839	3,736,791	40,476,655	173,653,976
1980	646,668	3,597,738	--	28,389,285	5,908,159	2,959,547	2,711,293	3,658,491	39,937,043	170,123,959
1981	638,832	3,467,298	--	27,462,282	5,703,025	2,856,750	2,593,765	3,528,188	38,213,745	165,243,976
1982	659,767	3,554,393	--	28,218,246	5,853,818	2,916,361	2,630,995	3,617,320	38,758,537	172,940,869

APPENDIX TABLE 46. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 2, 1960-1982

Year	Sector (1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber & Assoc Prod	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	9,480	4,536	--	--	--	1,195	7,324	4,300	--	--
1961	9,287	3,764	--	--	--	1,143	7,320	4,297	--	--
1962	9,095	3,619	--	--	--	1,156	7,551	4,433	--	--
1963	8,903	3,281	--	--	--	1,143	7,629	4,479	--	--
1964	8,710	3,440	--	--	--	1,175	7,423	4,358	--	--
1965	8,181	3,335	--	--	--	1,150	7,068	5,049	--	--
1966	7,651	3,515	--	--	--	2,923	7,715	5,102	--	--
1967	7,12	2,917	--	--	--	3,167	7,782	5,054	--	--
1968	6,591	3,038	--	--	--	2,269	7,551	6,411	--	--
1969	6,062	2,745	--	--	--	2,052	7,460	6,326	--	--
1970	5,928	2,758	--	--	--	1,938	7,369	6,150	--	--
1971	5,929	2,760	--	--	--	2,079	7,264	6,013	--	--
1972	5,861	2,368	--	--	--	1,642	7,086	6,348	--	--
1973	5,797	2,424	--	--	--	1,763	8,468	5,873	--	--
1974	5,728	2,396	--	--	--	1,438	9,611	4,552	--	--
1975	5,869	2,012	--	--	--	1,402	8,817	4,214	--	--
1976	6,015	2,350	--	--	--	1,641	9,529	5,718	--	--
1977	6,159	2,169	--	--	--	2,128	9,598	6,916	--	--
1978	6,299	1,987	--	--	--	2,588	10,518	5,203	--	--
1979	6,367	2,056	--	--	--	2,674	10,532	5,404	--	--
1980	6,586	1,312	--	--	--	1,904	10,797	5,675	--	--
1981	6,655	1,351	--	--	--	1,736	10,468	5,779	--	--
1982	6,723	834	--	--	--	1,550	10,281	5,591	--	--

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APPENDIX TABLE 46. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 2, 1960-1982 (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	855	1,354	--	6,443	876	970	2,733	8,480	--
1961	804	1,273	--	6,361	911	1,002	2,824	8,719	--
1962	805	1,274	--	6,498	935	1,037	2,923	9,199	--
1963	794	1,257	--	6,657	947	1,056	2,977	9,745	--
1964	813	1,286	--	7,031	972	1,122	3,163	10,359	--
1965	772	1,372	--	7,153	949	1,263	3,129	10,770	--
1966	970	1,265	--	7,427	1,053	1,490	3,163	11,443	--
1967	985	1,401	--	7,733	1,094	1,632	3,742	12,179	--
1968	1,201	1,230	--	8,058	1,025	1,606	4,007	12,143	--
1969	944	1,420	--	8,454	1,155	1,464	4,402	12,167	--
1970	932	1,401	--	8,683	1,191	1,539	4,627	12,729	--
1971	1,047	1,388	--	9,006	1,309	1,883	5,106	13,105	--
1972	1,039	1,470	--	9,618	1,397	1,894	5,598	13,312	--
1973	1,172	1,447	--	10,325	1,433	1,688	5,863	13,672	--
1974	1,277	1,478	--	10,422	1,508	1,796	6,355	13,735	--
1975	1,294	1,230	--	10,905	1,389	3,319	6,055	14,176	--
1976	1,486	1,325	--	11,790	1,475	2,267	8,490	15,213	--
1977	1,476	1,660	--	12,290	1,646	2,741	7,742	15,385	--
1978	1,662	1,489	--	13,126	1,661	2,474	8,766	15,755	--
1979	1,743	1,561	--	13,343	1,727	2,581	9,142	15,600	--
1980	1,248	1,587	--	13,921	1,918	3,078	9,204	15,786	--
1981	1,271	1,618	--	14,239	2,039	3,259	9,743	16,174	--
1982	1,236	1,572	--	14,158	2,073	3,306	9,885	15,822	--

APPENDIX TABLE 47. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 3, 1960-1982

Year	Sector (1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber & Assoc Prod	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	5,265	17,579	--	--	--	3,344	4,091	18,159	--	--
1961	5,158	14,588	--	--	--	3,198	4,089	18,149	--	--
1962	5,051	14,024	--	--	--	3,234	4,218	18,723	--	--
1963	4,944	12,716	--	--	--	3,198	4,262	18,916	--	--
1964	4,837	13,333	--	--	--	3,288	4,146	18,404	--	--
1965	4,472	14,492	--	--	--	5,063	4,081	19,922	--	--
1966	4,106	14,676	--	--	--	7,145	4,297	22,669	--	--
1967	3,741	14,877	--	--	--	6,283	3,406	22,093	--	--
1968	3,375	15,428	--	--	--	4,777	4,205	20,760	--	--
1969	3,010	15,159	--	--	--	4,583	3,884	22,148	--	--
1970	2,943	15,230	--	--	--	4,328	3,837	21,534	--	--
1971	2,871	14,878	--	--	--	4,394	3,918	20,960	--	--
1972	2,803	14,139	--	--	--	5,000	4,014	20,808	--	--
1973	2,733	14,778	--	--	--	4,968	4,229	18,662	--	--
1974	2,664	14,470	--	--	--	3,788	4,485	16,779	--	--
1975	2,799	14,374	--	--	--	5,373	3,439	16,167	--	--
1976	2,935	14,801	--	--	--	5,699	3,880	15,790	--	--
1977	3,071	12,441	--	--	--	6,115	3,525	15,246	--	--
1978	3,205	16,491	--	--	--	6,080	3,637	17,099	--	--
1979	3,240	17,062	--	--	--	6,280	3,642	17,759	--	--
1980	3,476	16,163	--	--	--	5,450	3,414	15,409	--	--
1981	3,512	16,649	--	--	--	4,969	3,310	15,691	--	--
1982	3,548	10,268	--	--	--	4,437	3,251	15,182	--	--

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APPENDIX TABLE 47. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 3, 1960-1982 (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	3,230	2,716	--	12,423	2,944	3,166	8,042	16,613	--
1961	3,037	2,554	--	12,264	3,060	3,270	8,308	17,082	--
1962	3,040	2,557	--	12,529	3,139	3,385	8,600	18,023	--
1963	2,998	2,521	--	12,835	3,182	3,448	8,760	19,091	--
1964	3,069	2,581	--	13,556	3,266	3,663	9,305	20,294	--
1965	3,163	2,497	--	14,163	3,205	3,714	9,024	21,101	--
1966	3,141	2,628	--	15,109	3,192	4,029	9,626	22,105	--
1967	2,833	2,782	--	15,619	3,348	4,037	10,087	23,547	--
1968	2,118	3,412	--	16,196	3,438	4,220	9,339	23,121	--
1969	2,261	3,282	--	17,181	3,530	4,144	10,826	23,517	--
1970	2,231	3,239	--	17,648	3,642	4,355	11,379	24,603	--
1971	2,370	3,382	--	17,613	3,544	4,710	12,372	25,843	--
1972	2,957	2,567	--	18,052	3,478	4,896	12,869	25,500	--
1973	2,983	3,400	--	18,643	3,433	4,964	13,681	26,045	--
1974	1,463	3,711	--	19,760	3,346	4,506	13,958	26,077	--
1975	1,551	3,619	--	20,392	3,376	5,036	14,807	25,759	--
1976	1,772	3,430	--	21,572	3,726	5,308	15,478	25,420	--
1977	1,882	3,720	--	22,284	3,735	5,470	16,053	25,319	--
1978	2,094	3,071	--	22,134	3,929	5,583	15,459	25,615	--
1979	2,196	3,221	--	22,500	4,086	5,822	16,122	25,364	--
1980	2,172	3,065	--	22,586	3,960	5,060	16,800	26,326	--
1981	2,212	3,124	--	23,102	4,208	5,356	17,783	26,974	--
1982	2,150	3,036	--	22,970	4,280	5,434	18,044	26,387	--

APPENDIX TABLE 48. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 4, 1960-1982

Year	Sector (1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber & Assoc Prod	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	6,138	--	--	--	--	1,162	--	2,161	--	--
1961	6,013	--	--	--	--	1,111	--	2,159	--	--
1962	5,889	--	--	--	--	1,124	--	2,228	--	--
1963	5,764	--	--	--	--	1,111	--	2,251	--	--
1964	5,639	--	--	--	--	1,143	--	2,190	--	--
1965	5,423	--	--	--	--	1,118	--	2,134	--	--
1966	5,208	--	--	--	--	896	--	2,327	--	--
1967	4,995	--	--	--	--	1,009	--	2,549	--	--
1968	4,780	--	--	--	--	1,098	--	2,495	--	--
1969	4,564	--	--	--	--	1,255	--	3,175	--	--
1970	4,463	--	--	--	--	1,186	--	3,087	--	--
1971	4,362	--	--	--	--	1,198	--	3,252	--	--
1972	4,264	--	--	--	--	1,130	--	3,548	--	--
1973	4,162	--	--	--	--	1,268	--	3,530	--	--
1974	4,062	--	--	--	--	1,098	--	4,512	--	--
1975	4,065	--	--	--	--	1,163	--	3,877	--	--
1976	4,070	--	--	--	--	1,384	--	4,085	--	--
1977	4,075	--	--	--	--	1,507	--	3,684	--	--
1978	4,077	--	--	--	--	1,763	--	3,949	--	--
1979	4,121	--	--	--	--	1,821	--	4,101	--	--
1980	4,085	--	--	--	--	1,286	--	3,932	--	--
1981	4,128	--	--	--	--	1,172	--	4,004	--	--
1982	4,170	--	--	--	--	1,047	--	3,874	--	--

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APPENDIX TABLE 48. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 4, 1960-1982 (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	878	414	--	3,387	449	582	1,550	3,710	--
1961	826	390	--	3,343	467	601	1,601	3,815	--
1962	827	390	--	3,416	479	623	1,657	4,025	--
1963	815	385	--	3,499	485	634	1,688	4,263	--
1964	835	394	--	3,696	498	674	1,793	4,532	--
1965	809	405	--	3,843	525	799	1,703	4,712	--
1966	952	444	--	4,040	555	674	2,020	5,095	--
1967	722	438	--	4,111	547	700	2,247	5,562	--
1968	984	411	--	4,426	566	781	2,379	5,572	--
1969	998	370	--	4,475	622	758	3,004	5,542	--
1970	985	365	--	4,597	642	797	3,158	5,798	--
1971	941	432	--	4,867	654	1,036	3,195	5,904	--
1972	1,078	486	--	4,665	650	1,105	3,379	5,968	--
1973	1,262	456	--	4,770	691	1,062	3,632	6,128	--
1974	1,108	412	--	5,221	672	1,082	3,380	6,085	--
1975	1,082	456	--	5,302	704	1,311	3,774	6,282	--
1976	1,292	454	--	6,224	885	1,471	4,105	6,691	--
1977	1,178	748	--	6,486	839	1,227	4,842	6,912	--
1978	1,221	795	--	6,490	868	1,537	4,198	7,116	--
1979	1,281	834	--	6,597	902	1,603	4,378	7,046	--
1980	1,190	668	--	6,382	979	1,656	5,921	7,206	--
1981	1,212	680	--	6,528	1,040	1,753	6,267	7,383	--
1982	1,178	661	--	6,491	1,058	1,779	6,359	7,222	--

APPENDIX TABLE 49. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 5, 1960-1982

Year	Sector (1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber & Assoc Prod	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	10,203	--	--	--	--	774	--	2,447	--	--
1961	9,995	--	--	--	--	740	--	2,446	--	--
1962	9,789	--	--	--	--	748	--	2,523	--	--
1963	9,581	--	--	--	--	740	--	2,549	--	--
1964	9,374	--	--	--	--	761	--	2,480	--	--
1965	9,096	--	--	--	--	724	--	2,839	--	--
1966	8,816	--	--	--	--	675	--	2,891	--	--
1967	8,539	--	--	--	--	825	--	2,951	--	--
1968	8,259	--	--	--	--	984	--	3,091	--	--
1969	7,981	--	--	--	--	1,124	--	2,831	--	--
1970	7,805	--	--	--	--	1,061	--	2,752	--	--
1971	7,608	--	--	--	--	1,034	--	3,475	--	--
1972	7,422	--	--	--	--	1,008	--	3,457	--	--
1973	7,236	--	--	--	--	830	--	3,603	--	--
1974	7,049	--	--	--	--	989	--	4,562	--	--
1975	7,028	--	--	--	--	966	--	4,233	--	--
1976	7,009	--	--	--	--	1,086	--	4,533	--	--
1977	6,987	--	--	--	--	1,181	--	4,592	--	--
1978	6,966	--	--	--	--	1,340	--	5,067	--	--
1979	7,041	--	--	--	--	1,385	--	5,263	--	--
1980	6,926	--	--	--	--	1,059	--	5,415	--	--
1981	6,998	--	--	--	--	965	--	5,514	--	--
1982	7,070	--	--	--	--	862	--	5,335	--	--

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APPENDIX TABLE 49. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 5, 1960-1982 (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	552	1,238	--	3,623	591	636	1,890	3,515	--
1961	519	1,164	--	3,577	614	657	1,952	3,614	--
1962	520	1,165	--	3,654	630	680	2,021	3,813	--
1963	513	1,149	--	3,744	639	693	2,058	4,039	--
1964	525	1,176	--	3,954	655	736	2,187	4,293	--
1965	589	1,268	--	4,010	660	658	2,312	4,464	--
1966	1,002	893	--	4,119	676	622	2,445	4,642	--
1967	1,019	955	--	4,301	795	691	2,528	4,815	--
1968	664	1,388	--	4,559	904	739	2,625	4,777	--
1969	705	1,324	--	4,841	904	743	2,960	4,902	--
1970	696	1,307	--	4,972	932	781	3,111	5,129	--
1971	706	1,333	--	5,325	876	1,124	3,327	5,378	--
1972	660	1,383	--	5,733	910	1,573	3,594	5,486	--
1973	732	1,506	--	5,727	996	1,241	3,647	5,596	--
1974	638	1,600	--	5,458	831	1,134	3,503	5,597	--
1975	621	1,368	--	5,810	876	1,149	3,503	5,756	--
1976	719	1,282	--	5,718	925	1,660	3,767	5,989	--
1977	1,120	917	--	6,099	970	1,159	3,765	6,086	--
1978	883	1,306	--	6,732	1,029	1,248	3,722	6,138	--
1979	926	1,369	--	6,843	1,070	1,302	3,882	6,078	--
1980	975	1,171	--	6,897	1,120	1,120	4,967	6,121	--
1981	993	1,194	--	7,054	1,190	1,186	5,257	6,272	--
1982	965	1,160	--	7,014	1,210	1,203	5,334	6,135	--

APPENDIX TABLE 50. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 6, 1960-1982

Year	Sector									
	(1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber & Assoc Prod	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	14,847	--	--	--	--	1,991	1,061	8,589	--	--
1961	14,545	--	--	--	--	1,904	1,060	8,585	--	--
1962	14,245	--	--	--	--	1,925	1,094	8,856	--	--
1963	13,943	--	--	--	--	1,904	1,105	8,947	--	--
1964	13,641	--	--	--	--	1,957	1,075	8,705	--	--
1965	13,289	--	--	--	--	2,032	1,060	9,291	--	--
1966	12,935	--	--	--	--	1,985	1,064	10,912	--	--
1967	12,583	--	--	--	--	1,872	1,289	10,700	--	--
1968	12,229	--	--	--	--	2,130	1,422	13,807	--	--
1969	11,877	--	--	--	--	2,291	1,573	13,627	--	--
1970	11,615	--	--	--	--	2,164	1,554	13,249	--	--
1971	11,572	--	--	--	--	2,363	1,080	13,983	--	--
1972	11,418	--	--	--	--	2,236	1,314	14,158	--	--
1973	11,267	--	--	--	--	2,691	1,791	14,340	--	--
1974	11,113	--	--	--	--	2,814	2,120	17,494	--	--
1975	11,222	--	--	--	--	2,855	1,822	15,798	--	--
1976	11,335	--	--	--	--	3,034	1,656	16,554	--	--
1977	11,444	--	--	--	--	3,585	1,649	18,090	--	--
1978	11,553	--	--	--	--	4,335	1,981	17,684	--	--
1979	11,678	--	--	--	--	4,477	1,984	18,367	--	--
1980	11,775	--	--	--	--	3,663	1,624	18,791	--	--
1981	11,898	--	--	--	--	3,339	1,575	19,135	--	--
1982	12,020	--	--	--	--	2,982	1,547	18,514	--	--

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APPENDIX TABLE 50. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 6, 1960-1982 (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	1,497	1,286	--	8,303	1,029	1,059	3,921	7,415	--
1961	1,407	1,209	--	8,197	1,070	1,094	4,051	7,624	--
1962	1,409	1,210	--	8,374	1,097	1,132	4,193	8,044	--
1963	1,389	1,193	--	8,579	1,112	1,153	4,271	8,521	--
1964	1,422	1,222	--	9,060	1,142	1,225	4,537	9,057	--
1965	1,568	1,337	--	9,567	1,184	1,254	4,915	9,417	--
1966	1,558	1,331	--	11,282	1,287	1,177	5,488	10,105	--
1967	1,494	1,334	--	11,297	1,399	1,215	5,985	10,791	--
1968	1,669	1,338	--	11,367	1,445	1,319	5,647	10,893	--
1969	1,965	1,415	--	11,497	1,588	1,597	6,105	11,877	--
1970	1,939	1,396	--	11,809	1,639	1,679	6,416	12,425	--
1971	1,795	1,542	--	13,245	1,766	1,941	7,656	13,375	--
1972	1,548	2,046	--	14,240	1,839	2,052	8,204	13,817	--
1973	1,692	2,106	--	14,865	1,884	2,105	8,399	14,288	--
1974	1,769	1,582	--	14,317	1,662	2,110	10,220	14,480	--
1975	1,553	1,852	--	14,847	1,760	2,014	10,478	14,959	--
1976	1,750	2,079	--	15,435	1,836	2,647	10,466	15,678	--
1977	2,174	2,265	--	16,777	1,942	2,492	11,429	16,322	--
1978	2,508	1,947	--	17,367	2,211	3,066	11,880	16,504	--
1979	2,630	2,041	--	17,654	2,299	3,197	12,390	16,342	--
1980	2,480	2,179	--	18,447	2,569	3,536	12,744	16,452	--
1981	2,527	2,221	--	18,868	2,730	3,743	13,489	16,857	--
1982	2,455	2,159	--	18,761	2,776	3,798	13,687	16,490	--

APPENDIX TABLE 51. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 7, 1960-1982

Year	Sector (1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber & Assoc Prod	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	13,342	--	--	--	--	1,501	--	3,683	--	--
1961	13,071	--	--	--	--	1,435	--	3,681	--	--
1962	12,800	--	--	--	--	1,451	--	3,798	--	--
1963	12,529	--	--	--	--	1,435	--	3,837	--	--
1964	12,258	--	--	--	--	1,476	--	3,733	--	--
1965	11,913	--	--	--	--	1,319	--	4,050	--	--
1966	11,569	--	--	--	--	1,484	--	4,070	--	--
1967	11,227	--	--	--	--	1,502	--	4,248	--	--
1968	10,883	--	--	--	--	1,590	--	5,236	--	--
1969	10,538	--	--	--	--	1,602	--	5,498	--	--
1970	10,305	--	--	--	--	1,513	--	5,346	--	--
1971	10,038	--	--	--	--	1,694	--	6,202	--	--
1972	9,787	--	--	--	--	1,545	--	6,869	--	--
1973	9,537	--	--	--	--	1,892	--	6,494	--	--
1974	9,287	--	--	--	--	1,864	--	8,282	--	--
1975	9,319	--	--	--	--	1,935	--	7,251	--	--
1976	9,353	--	--	--	--	2,107	--	8,276	--	--
1977	9,386	--	--	--	--	1,916	--	8,392	--	--
1978	9,416	--	--	--	--	2,155	--	7,971	--	--
1979	9,518	--	--	--	--	2,226	--	8,279	--	--
1980	9,482	--	--	--	--	1,992	--	9,491	--	--
1981	9,581	--	--	--	--	1,816	--	9,665	--	--
1982	9,680	--	--	--	--	1,622	--	9,351	--	--

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APPENDIX TABLE 51. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 7, 1960-1982 (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	735	1,038	--	5,423	808	671	2,053	5,234	--
1961	691	976	--	5,354	840	694	2,121	5,381	--
1962	691	977	--	5,470	861	718	2,195	5,678	--
1963	682	964	--	5,603	873	731	2,236	6,014	--
1964	698	987	--	5,918	896	777	2,375	6,393	--
1965	725	1,052	--	5,779	897	836	2,601	6,647	--
1966	657	1,055	--	6,089	973	906	2,818	7,011	--
1967	604	1,165	--	6,122	1,047	853	3,191	7,373	--
1968	725	1,134	--	6,224	1,087	747	3,760	7,292	--
1969	819	1,061	--	6,445	1,200	714	3,128	7,459	--
1970	808	1,047	--	6,620	1,238	751	3,288	7,804	--
1971	777	1,010	--	6,688	1,090	1,318	3,209	7,977	--
1972	795	1,085	--	6,773	1,145	1,431	3,538	8,118	--
1973	930	1,008	--	7,180	1,181	1,132	3,881	8,268	--
1974	705	864	--	7,274	1,245	1,524	3,589	8,244	--
1975	693	904	--	7,761	1,278	1,679	4,084	8,494	--
1976	939	916	--	7,995	1,322	1,901	4,242	8,983	--
1977	897	1,180	--	7,941	1,307	1,710	4,498	9,142	--
1978	1,228	949	--	8,501	1,358	2,172	4,861	9,342	--
1979	1,288	995	--	8,641	1,412	2,265	5,070	9,250	--
1980	1,007	984	--	8,122	1,523	1,870	5,104	9,403	--
1981	1,026	1,003	--	8,308	1,619	1,979	5,403	9,634	--
1982	997	974	--	8,260	1,646	2,008	5,482	9,424	--

APPENDIX TABLE 52. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 8, 1960-1982

Year	Sector (1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber & Assoc Prod	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	20,492	--	--	--	--	44,696	18,722	237,279	--	--
1961	20,075	--	--	--	--	42,747	18,712	237,148	--	--
1962	19,660	--	--	--	--	43,227	19,304	244,657	--	--
1963	19,243	--	--	--	--	42,742	19,503	247,176	--	--
1964	18,827	--	--	--	--	43,949	18,975	240,485	--	--
1965	18,249	--	--	--	--	46,432	21,519	268,161	--	--
1966	17,668	--	--	--	--	45,875	22,869	285,717	--	--
1967	17,089	--	--	--	--	45,500	21,667	305,919	--	--
1968	16,508	--	--	--	--	50,087	21,309	318,248	--	--
1969	15,930	--	--	--	--	54,746	23,288	331,952	--	--
1970	15,578	--	--	--	--	51,705	23,004	322,755	--	--
1971	15,073	--	--	--	--	51,752	22,210	307,771	--	--
1972	14,643	--	--	--	--	50,321	23,025	311,694	--	--
1973	14,216	--	--	--	--	52,443	25,100	328,001	--	--
1974	13,786	--	--	--	--	51,312	27,718	320,740	--	--
1975	14,036	--	--	--	--	48,877	25,195	304,926	--	--
1976	14,287	--	--	--	--	48,364	26,418	306,392	--	--
1977	14,530	--	--	--	--	49,704	26,804	317,471	--	--
1978	14,779	--	--	--	--	56,636	30,260	336,040	--	--
1979	14,939	--	--	--	--	58,502	30,299	349,025	--	--
1980	15,281	--	--	--	--	58,787	31,231	347,134	--	--
1981	15,441	--	--	--	--	53,590	30,279	353,482	--	--
1982	15,599	--	--	--	--	47,861	29,737	342,023	--	--

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APPENDIX TABLE 52. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 8, 1960-1982 (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	40,798	28,691	--	116,562	43,520	38,498	68,993	102,662	--
1961	38,358	26,976	--	115,068	45,241	39,769	71,270	105,557	--
1962	38,400	27,005	--	117,553	46,405	41,168	73,777	111,371	--
1963	37,866	26,630	--	120,433	47,042	41,931	75,146	117,975	--
1964	38,767	27,263	--	127,191	48,281	44,543	79,826	125,407	--
1965	38,209	27,406	--	130,383	48,080	46,125	82,878	130,392	--
1966	38,890	28,801	--	138,331	49,204	48,693	87,395	139,046	--
1967	41,239	28,935	--	144,089	51,163	52,595	91,146	147,823	--
1968	42,476	28,494	--	152,467	52,990	55,438	89,796	150,008	--
1969	42,397	30,126	--	158,689	55,648	59,980	102,793	157,569	--
1970	41,830	29,724	--	162,998	57,408	63,044	108,044	164,847	--
1971	42,908	30,066	--	169,251	61,088	64,694	115,737	173,524	--
1972	43,092	29,395	--	176,475	62,325	68,958	119,656	177,260	--
1973	43,284	30,123	--	184,034	65,318	72,387	123,490	180,012	--
1974	45,041	30,696	--	187,455	65,451	74,826	127,159	180,419	--
1975	44,081	29,089	--	185,834	67,249	75,605	131,542	186,309	--
1976	42,431	29,183	--	191,878	68,884	78,704	135,227	187,022	--
1977	41,757	28,654	--	203,251	72,409	84,575	145,826	193,400	--
1978	41,288	29,444	--	216,600	75,121	89,899	157,116	197,137	--
1979	43,299	30,877	--	220,177	78,119	93,755	163,856	195,203	--
1980	44,989	32,673	--	226,001	82,091	101,124	170,590	202,679	--
1981	45,833	33,306	--	231,158	87,237	107,041	180,571	207,666	--
1982	44,539	32,366	--	229,845	88,713	108,608	183,215	203,145	--

APPENDIX TABLE 53. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 9, 1960-1982

Year	Sector (1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber & Assoc Prod	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	17,290	--	--	--	--	2,068	--	5,730	--	--
1961	16,938	--	--	--	--	1,978	--	5,726	--	--
1962	16,588	--	--	--	--	2,000	--	5,908	--	--
1963	16,236	--	--	--	--	1,978	--	5,969	--	--
1964	15,885	--	--	--	--	2,034	--	5,807	--	--
1965	15,484	--	--	--	--	1,986	--	6,943	--	--
1966	15,083	--	--	--	--	1,940	--	6,820	--	--
1967	14,682	--	--	--	--	2,015	--	7,295	--	--
1968	14,281	--	--	--	--	2,022	--	7,478	--	--
1969	13,880	--	--	--	--	2,074	--	8,148	--	--
1970	13,573	--	--	--	--	1,958	--	7,922	--	--
1971	13,143	--	--	--	--	1,805	--	8,705	--	--
1972	12,772	--	--	--	--	1,894	--	9,679	--	--
1973	12,404	--	--	--	--	1,967	--	9,514	--	--
1974	12,035	--	--	--	--	1,692	--	11,894	--	--
1975	12,208	--	--	--	--	1,831	--	10,619	--	--
1976	12,379	--	--	--	--	2,216	--	11,133	--	--
1977	12,551	--	--	--	--	2,154	--	12,598	--	--
1978	12,720	--	--	--	--	2,447	--	12,931	--	--
1979	12,858	--	--	--	--	2,527	--	13,431	--	--
1980	13,064	--	--	--	--	1,979	--	12,594	--	--
1981	13,201	--	--	--	--	1,804	--	12,824	--	--
1982	13,336	--	--	--	--	1,611	--	12,409	--	--

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APPENDIX TABLE 53. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 9, 1960-1982 (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	872	1,241	--	7,060	1,162	788	1,874	5,737	--
1961	820	1,167	--	6,970	1,208	814	1,935	5,899	--
1962	821	1,168	--	7,120	1,239	843	2,003	6,224	--
1963	809	1,152	--	7,295	1,256	858	2,041	6,593	--
1964	829	1,180	--	7,704	1,289	912	2,168	7,008	--
1965	835	1,176	--	7,585	1,282	883	2,341	7,286	--
1966	977	1,031	--	7,893	1,366	932	2,464	7,573	--
1967	979	1,108	--	7,976	1,500	866	2,804	7,988	--
1968	790	1,216	--	8,627	1,525	1,076	2,715	7,902	--
1969	892	1,215	--	9,065	1,510	867	3,968	8,073	--
1970	880	1,199	--	9,311	1,558	911	4,171	8,446	--
1971	962	1,303	--	9,407	1,615	1,118	4,247	8,747	--
1972	1,002	1,375	--	9,710	1,625	864	4,789	8,812	--
1973	928	1,389	--	10,070	1,720	1,119	4,641	9,038	--
1974	1,006	826	--	8,630	1,625	1,298	4,156	8,973	--
1975	921	786	--	8,812	1,600	1,251	4,429	9,200	--
1976	1,025	861	--	9,319	1,696	1,277	4,697	9,375	--
1977	1,132	1,012	--	9,585	1,727	2,069	4,451	9,464	--
1978	1,125	1,223	--	10,485	1,805	1,881	5,084	9,466	--
1979	1,180	1,282	--	10,658	1,877	1,962	5,302	9,373	--
1980	1,380	998	--	10,050	1,937	1,781	5,853	9,526	--
1981	1,406	1,017	--	10,280	2,059	1,885	6,195	9,760	--
1982	1,366	988	--	10,221	2,093	1,913	6,286	9,548	--

APPENDIX TABLE 54. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 10, 1960-1982

Year	Sector (1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber & Assoc Prod	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	16,504	--	--	--	--	2,735	--	14,075	--	--
1961	16,168	--	--	--	--	2,616	--	14,067	--	--
1962	15,834	--	--	--	--	2,645	--	14,513	--	--
1963	15,498	--	--	--	--	2,616	--	14,662	--	--
1964	15,163	--	--	--	--	2,689	--	14,265	--	--
1965	14,762	--	--	--	--	2,846	--	15,769	--	--
1966	14,360	--	--	--	--	2,897	--	18,188	--	--
1967	13,959	--	--	--	--	3,125	--	19,970	--	--
1968	13,557	--	--	--	--	3,100	--	18,781	--	--
1969	13,156	--	--	--	--	3,206	--	21,095	--	--
1970	12,865	--	--	--	--	3,028	--	20,511	--	--
1971	12,503	--	--	--	--	3,307	--	21,718	--	--
1972	12,174	--	--	--	--	2,980	--	22,877	--	--
1973	11,849	--	--	--	--	3,291	--	24,443	--	--
1974	11,521	--	--	--	--	3,584	--	24,288	--	--
1975	11,633	--	--	--	--	3,030	--	23,970	--	--
1976	11,746	--	--	--	--	3,545	--	25,279	--	--
1977	11,855	--	--	--	--	3,422	--	27,053	--	--
1978	11,967	--	--	--	--	4,060	--	27,492	--	--
1979	12,096	--	--	--	--	4,193	--	28,554	--	--
1980	12,192	--	--	--	--	3,290	--	27,584	--	--
1981	12,319	--	--	--	--	2,999	--	28,088	--	--
1982	12,446	--	--	--	--	2,679	--	27,177	--	--

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APPENDIX TABLE 54. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 10, 1960-1982 (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	1,645	1,988	--	10,069	2,262	1,385	4,769	8,081	--
1961	1,546	1,869	--	9,940	2,351	1,430	4,926	8,309	--
1962	1,548	1,871	--	10,155	2,412	1,481	5,100	8,767	--
1963	1,527	1,845	--	10,404	2,445	1,508	5,194	9,287	--
1964	1,563	1,889	--	10,987	2,509	1,602	5,518	9,872	--
1965	1,765	1,701	--	11,639	2,402	1,632	5,916	10,264	--
1966	1,840	1,609	--	12,132	2,500	2,081	5,617	10,791	--
1967	1,548	2,019	--	12,814	2,647	1,968	6,477	11,407	--
1968	1,551	1,857	--	13,389	2,767	2,213	6,132	11,454	--
1969	1,888	1,925	--	13,734	3,033	1,729	7,861	11,885	--
1970	1,863	1,899	--	14,106	3,129	1,817	8,262	12,434	--
1971	1,777	1,570	--	14,425	2,748	2,756	8,138	12,970	--
1972	1,639	1,850	--	14,676	2,583	2,347	9,124	13,218	--
1973	1,952	1,810	--	15,784	2,618	2,387	9,313	13,528	--
1974	1,499	1,408	--	15,370	2,680	2,600	9,451	13,431	--
1975	1,498	1,511	--	15,633	2,698	2,757	10,207	13,802	--
1976	1,645	1,615	--	16,503	2,778	3,175	10,951	13,944	--
1977	1,788	1,977	--	17,143	2,887	2,989	10,785	14,390	--
1978	1,977	1,971	--	17,367	3,101	3,339	11,423	14,632	--
1979	2,074	2,067	--	17,654	3,225	3,482	11,913	14,489	--
1980	2,055	1,892	--	18,271	3,013	3,769	14,037	14,618	--
1981	2,093	1,928	--	18,688	3,201	3,990	14,858	14,977	--
1982	2,034	1,874	--	18,582	3,256	4,048	15,076	14,651	--

APPENDIX TABLE 55. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 11, 1960-1982

Year	Sector (1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber & Assoc Prod	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	19,814	184	--	--	--	4,855	1,935	28,405	--	--
1961	19,411	153	--	--	--	4,643	1,934	28,390	--	--
1962	19,010	147	--	--	--	4,695	1,996	29,289	--	--
1963	18,606	133	--	--	--	4,643	2,016	29,590	--	--
1964	18,204	140	--	--	--	4,774	1,962	28,789	--	--
1965	17,794	200	--	--	--	5,427	2,129	28,146	--	--
1966	17,386	192	--	--	--	6,023	2,449	34,423	--	--
1967	16,977	113	--	--	--	5,760	2,606	34,541	--	--
1968	16,569	39	--	--	--	6,172	2,853	35,609	--	--
1969	16,159	6	--	--	--	5,868	3,474	36,341	--	--
1970	15,802	6	--	--	--	5,542	3,432	35,334	--	--
1971	15,417	--	--	--	--	5,728	4,219	36,456	--	--
1972	15,047	--	--	--	--	5,632	4,377	38,864	--	--
1973	14,676	--	--	--	--	6,175	4,370	38,694	--	--
1974	14,305	--	--	--	--	5,511	4,654	38,513	--	--
1975	14,455	--	--	--	--	4,558	2,826	38,253	--	--
1976	14,610	--	--	--	--	4,823	3,580	38,897	--	--
1977	14,760	--	--	--	--	5,192	3,526	40,002	--	--
1978	14,909	--	--	--	--	6,620	4,202	42,215	--	--
1979	15,070	--	--	--	--	6,838	4,208	43,846	--	--
1980	15,214	--	--	--	--	5,430	3,666	42,442	--	--
1981	15,373	--	--	--	--	4,950	3,554	43,218	--	--
1982	15,531	--	--	--	--	4,421	3,480	41,817	--	--

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APPENDIX TABLE 55. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 11, 1960-1982 (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	3,901	3,044	--	16,426	3,081	3,680	12,405	12,405	--
1961	3,668	2,862	--	16,216	3,202	3,801	12,814	12,755	--
1962	3,672	2,865	--	16,566	3,285	3,935	13,265	13,458	--
1963	3,621	2,825	--	16,972	3,330	4,008	13,511	14,256	--
1964	3,707	2,892	--	17,924	3,417	4,258	14,353	15,154	--
1965	3,795	2,657	--	18,453	3,277	4,226	14,963	15,756	--
1966	3,744	3,006	--	19,528	3,406	4,277	15,855	16,636	--
1967	3,819	3,147	--	20,523	3,733	4,270	16,875	17,649	--
1968	3,445	3,188	--	21,181	4,018	5,088	16,269	17,612	--
1969	4,332	2,841	--	22,169	4,310	5,169	17,370	18,029	--
1970	4,274	2,803	--	22,771	4,446	5,433	18,257	18,862	--
1971	4,142	2,964	--	23,762	4,230	6,151	19,265	19,604	--
1972	3,603	3,396	--	24,573	4,363	6,372	21,233	19,852	--
1973	4,066	2,976	--	24,358	4,657	6,343	22,330	20,402	--
1974	3,647	2,945	--	23,074	4,599	6,277	22,552	20,291	--
1975	3,285	3,557	--	24,201	4,746	6,980	23,563	20,848	--
1976	3,735	3,551	--	25,511	4,756	7,344	24,880	21,500	--
1977	4,499	3,419	--	27,274	4,830	7,446	26,971	21,989	--
1978	4,627	3,714	--	28,166	5,244	7,856	28,565	22,227	--
1979	4,852	3,894	--	28,631	5,453	8,193	29,791	22,009	--
1980	4,575	3,335	--	28,977	6,105	8,398	31,528	22,630	--
1981	4,660	3,400	--	29,638	6,488	8,889	33,372	23,186	--
1982	4,529	3,304	--	29,469	6,597	9,019	33,861	22,682	--

APPENDIX TABLE 56. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA, 1960-1982

Year	Sector (1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber & Assoc Prod	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	142,761	22,299	--	--	--	65,118	33,487	327,687	--	--
1961	139,858	18,505	--	--	--	62,278	33,468	327,506	--	--
1962	136,967	17,790	--	--	--	62,977	34,528	337,876	--	--
1963	134,063	16,131	--	--	--	62,271	34,883	341,354	--	--
1964	131,163	16,913	--	--	--	64,029	33,939	332,114	--	--
1965	127,083	18,027	--	--	--	69,026	36,240	365,699	--	--
1966	122,996	18,383	--	--	--	72,584	38,779	397,082	--	--
1967	118,922	17,907	--	--	--	71,748	37,463	418,880	--	--
1968	114,835	18,505	--	--	--	74,969	38,039	435,854	--	--
1969	110,757	17,909	--	--	--	79,464	40,362	456,584	--	--
1970	108,308	17,993	--	--	--	75,050	39,870	443,933	--	--
1971	105,869	17,638	--	--	--	76,270	39,377	434,784	--	--
1972	103,423	16,507	--	--	--	74,099	40,491	444,346	--	--
1973	100,986	17,202	--	--	--	77,996	44,935	459,213	--	--
1974	98,537	16,866	--	--	--	74,807	50,204	457,385	--	--
1975	99,643	16,390	--	--	--	72,895	43,632	434,886	--	--
1976	100,770	17,151	--	--	--	74,778	46,659	442,603	--	--
1977	101,870	14,610	--	--	--	77,805	46,613	459,857	--	--
1978	102,963	18,478	--	--	--	89,010	52,159	482,123	--	--
1979	104,077	19,118	--	--	--	91,942	52,227	500,753	--	--
1980	105,197	17,475	--	--	--	85,696	52,294	494,367	--	--
1981	106,297	18,000	--	--	--	78,120	50,700	503,408	--	--
1982	107,389	11,102	--	--	--	69,769	49,793	487,088	--	--

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APPENDIX TABLE 56. EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA, 1960-1982 (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	55,463	43,578	--	192,863	57,171	51,924	110,337	177,325	--
1961	52,147	40,973	--	190,392	59,431	53,637	113,979	182,326	--
1962	52,203	41,017	--	194,504	60,960	55,524	117,988	192,369	--
1963	51,477	40,447	--	199,268	61,797	56,554	120,178	203,775	--
1964	52,702	41,409	--	210,450	63,425	60,076	127,662	216,612	--
1965	52,735	41,434	--	216,091	62,977	62,166	132,102	225,223	--
1966	54,263	42,635	--	229,494	64,757	65,582	139,362	239,101	--
1967	55,786	43,831	--	238,252	67,835	69,599	147,899	253,906	--
1968	56,264	44,208	--	250,173	70,343	73,944	157,131	255,511	--
1969	57,850	45,453	--	260,689	74,127	77,917	165,575	265,789	--
1970	57,076	44,846	--	267,767	76,471	81,897	174,032	278,065	--
1971	58,038	45,601	--	277,953	79,554	87,427	185,782	291,576	--
1972	58,229	45,751	--	289,408	80,967	92,379	196,306	296,517	--
1973	59,644	46,864	--	300,910	84,594	95,462	202,856	302,324	--
1974	58,726	46,142	--	301,754	84,330	97,956	208,158	302,672	--
1975	57,188	44,934	--	304,189	86,420	101,888	216,513	311,065	--
1976	57,564	45,228	--	317,065	89,071	106,657	226,645	315,579	--
1977	58,602	46,044	--	334,778	93,095	113,072	240,279	324,245	--
1978	59,246	46,551	--	352,771	97,234	120,170	255,360	329,898	--
1979	62,132	48,818	--	358,597	101,114	125,324	266,315	326,660	--
1980	62,669	49,210	--	365,188	106,196	132,525	281,616	336,734	--
1981	63,844	50,163	--	373,521	112,853	140,279	298,092	345,020	--
1982	62,042	48,747	--	371,399	114,762	142,333	302,457	337,508	--

APPENDIX TABLE 57. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 2, 1960-1982 (1980 = BASE DOLLARS)

	Sector									
Year	(1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	26,938	74,929	--	--	--	51,396	34,951	28,330	--	--
1961	27,143	77,711	--	--	--	53,640	36,101	27,966	--	--
1962	27,047	72,056	--	--	--	52,965	35,789	26,462	--	--
1963	26,534	76,025	--	--	--	53,779	36,379	25,169	--	--
1964	28,656	73,401	--	--	--	56,431	40,252	28,737	--	--
1965	31,171	68,848	--	--	--	60,783	44,724	26,799	--	--
1966	35,018	71,125	--	--	--	25,606	42,887	28,797	--	--
1967	38,103	66,514	--	--	--	23,810	42,386	32,573	--	--
1968	41,994	66,924	--	--	--	31,538	43,216	28,878	--	--
1969	47,408	73,695	--	--	--	38,436	42,884	32,532	--	--
1970	51,047	74,334	--	--	--	36,623	42,301	36,456	--	--
1971	50,762	65,042	--	--	--	36,299	42,805	38,867	--	--
1972	50,427	73,224	--	--	--	45,331	46,748	35,404	--	--
1973	66,850	86,447	--	--	--	50,261	41,525	50,796	--	--
1974	65,747	98,431	--	--	--	74,159	38,334	72,443	--	--
1975	69,226	99,192	--	--	--	65,647	32,257	102,267	--	--
1976	71,777	100,936	--	--	--	63,330	35,366	76,509	--	--
1977	73,269	76,964	--	--	--	46,927	35,818	67,372	--	--
1978	70,755	117,950	--	--	--	44,881	38,361	80,409	--	--
1979	74,692	99,329	--	--	--	46,688	41,006	82,372	--	--
1980	84,788	109,357	--	--	--	58,581	32,796	98,307	--	--
1981	76,641	141,768	--	--	--	60,935	30,207	97,938	--	--
1982	82,273	233,047	--	--	--	67,360	28,217	118,534	--	--

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APPENDIX TABLE 57. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 2, 1960-1982 (1980 = BASE DOLLARS) (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	36,457	53,684	--	75,122	107,368	100,229	19,678	7,568	--
1961	35,623	55,781	--	75,645	101,336	98,741	18,852	7,166	--
1962	33,569	55,740	--	75,009	99,456	97,016	18,470	6,794	--
1963	33,331	55,986	--	72,889	97,150	96,461	18,027	6,329	--
1964	33,702	57,236	--	71,868	99,178	95,100	17,813	6,221	--
1965	34,569	54,824	--	72,426	104,346	87,403	18,609	6,108	--
1966	29,587	64,749	--	75,277	103,219	77,567	20,192	6,308	--
1967	26,129	58,431	--	74,343	100,630	72,615	17,300	5,941	--
1968	21,696	65,125	--	69,606	104,762	72,433	15,670	5,819	--
1969	28,035	59,949	--	71,755	99,648	83,331	15,182	6,216	--
1970	28,438	60,607	--	70,442	96,772	79,335	14,324	5,944	--
1971	24,065	61,532	--	68,820	89,046	65,285	13,163	5,817	--
1972	24,387	59,201	--	65,265	84,943	66,689	12,331	5,820	--
1973	25,117	69,924	--	70,834	97,498	83,075	13,605	6,669	--
1974	24,855	71,901	--	73,505	96,830	82,110	13,093	6,944	--
1975	21,726	83,192	--	70,396	103,535	41,467	13,117	6,598	--
1976	21,682	85,387	--	70,649	107,166	66,842	10,383	6,770	--
1977	19,444	68,368	--	69,277	97,671	56,387	11,595	6,741	--
1978	20,520	81,406	--	67,262	101,480	67,101	10,895	6,954	--
1979	19,259	79,958	--	68,744	100,785	67,708	10,802	7,217	--
1980	23,348	77,660	--	68,004	92,494	54,589	10,560	7,195	--
1981	23,878	72,572	--	63,058	81,967	48,754	9,341	6,671	--
1982	24,549	74,404	--	64,026	80,658	47,664	9,034	6,818	--

APPENDIX TABLE 58. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 3, 1960-1982 (1980 = BASE DOLLARS)

Year	Sector									
	(1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	157,857	58,364	--	--	--	40,148	41,491	79,642	--	--
1961	161,841	59,943	--	--	--	41,220	41,566	80,563	--	--
1962	164,800	59,130	--	--	--	40,341	40,907	78,269	--	--
1963	168,326	69,401	--	--	--	41,736	41,843	77,851	--	--
1964	174,783	73,397	--	--	--	43,876	46,646	80,750	--	--
1965	190,160	68,825	--	--	--	30,055	50,003	74,633	--	--
1966	209,982	71,121	--	--	--	22,092	49,628	65,274	--	--
1967	229,590	66,526	--	--	--	25,025	62,210	66,681	--	--
1968	251,266	66,956	--	--	--	34,103	50,264	69,813	--	--
1969	275,743	73,737	--	--	--	44,037	54,288	63,874	--	--
1970	274,480	68,988	--	--	--	37,462	53,135	63,900	--	--
1971	274,309	65,014	--	--	--	33,398	51,300	63,906	--	--
1972	275,250	73,261	--	--	--	30,098	53,487	62,676	--	--
1973	314,102	86,451	--	--	--	32,946	55,233	75,694	--	--
1974	325,204	98,449	--	--	--	47,326	55,154	86,443	--	--
1975	318,776	99,177	--	--	--	46,645	58,701	93,439	--	--
1976	314,954	100,918	--	--	--	36,344	59,938	98,396	--	--
1977	302,692	76,965	--	--	--	27,617	62,119	103,975	--	--
1978	296,237	117,927	--	--	--	33,956	78,301	91,803	--	--
1979	321,127	130,261	--	--	--	36,554	85,249	97,013	--	--
1980	302,251	109,396	--	--	--	37,232	74,160	114,272	--	--
1981	294,287	115,842	--	--	--	41,173	71,595	111,518	--	--
1982	315,506	190,557	--	--	--	46,593	68,742	127,878	--	--

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APPENDIX TABLE 58. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 3, 1960-1982 (1980 = BASE DOLLARS) (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	24,396	60,925	--	84,723	78,853	39,902	13,906	9,489	--
1961	23,073	61,927	--	84,120	73,550	38,285	13,034	8,847	--
1962	22,266	61,925	--	83,187	72,203	37,385	12,733	8,409	--
1963	23,680	64,195	--	82,352	72,390	37,411	12,717	8,096	--
1964	25,185	65,993	--	80,952	73,617	36,800	12,550	7,991	--
1965	24,947	69,860	--	79,164	76,745	37,176	13,306	7,864	--
1966	26,235	69,994	--	77,920	81,263	35,719	13,288	7,925	--
1967	28,057	66,258	--	76,433	78,095	36,213	12,835	7,469	--
1968	38,805	55,634	--	75,459	78,184	35,082	14,337	7,837	--
1969	38,586	59,235	--	72,301	77,192	36,509	12,536	7,855	--
1970	37,037	58,061	--	68,698	72,696	34,122	11,623	7,280	--
1971	32,637	53,756	--	67,215	72,606	31,002	10,420	6,710	--
1972	27,553	72,117	--	65,925	74,716	30,318	10,162	6,901	--
1973	32,795	62,858	--	72,613	86,769	33,513	10,988	7,800	--
1974	73,169	60,290	--	70,820	92,253	38,489	11,145	8,122	--
1975	69,138	63,227	--	70,959	94,046	34,101	10,703	8,437	--
1976	63,369	69,591	--	69,733	88,808	34,257	10,741	8,918	--
1977	42,865	56,512	--	63,293	81,036	31,573	9,479	7,969	--
1978	66,992	87,780	--	73,706	92,845	35,944	11,932	9,918	--
1979	72,281	92,092	--	78,942	97,692	37,383	12,482	11,006	--
1980	60,182	87,178	--	73,928	92,988	39,894	10,950	9,632	--
1981	63,002	87,003	--	72,449	88,198	37,319	10,388	9,547	--
1982	65,895	90,949	--	74,537	88,430	37,236	10,306	9,932	--

APPENDIX TABLE 59. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 4, 1960-1982 (1980 = BASE DOLLARS)

	Sector									
Year	(1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	47,877	--	--	--	--	22,762	--	110,107	--	--
1961	49,216	--	--	--	--	24,282	--	113,157	--	--
1962	49,290	--	--	--	--	23,655	--	111,196	--	--
1963	52,890	--	--	--	--	25,154	--	111,942	--	--
1964	58,189	--	--	--	--	26,921	--	119,663	--	--
1965	64,147	--	--	--	--	30,036	--	126,121	--	--
1966	65,230	--	--	--	--	37,478	--	117,003	--	--
1967	70,052	--	--	--	--	34,663	--	107,404	--	--
1968	74,581	--	--	--	--	40,570	--	118,168	--	--
1969	80,126	--	--	--	--	30,370	--	98,411	--	--
1970	79,133	--	--	--	--	32,895	--	104,998	--	--
1971	86,501	--	--	--	--	28,666	--	104,904	--	--
1972	87,941	--	--	--	--	30,731	--	99,985	--	--
1973	134,880	--	--	--	--	38,567	--	124,050	--	--
1974	140,701	--	--	--	--	44,138	--	103,288	--	--
1975	105,547	--	--	--	--	36,764	--	120,634	--	--
1976	137,117	--	--	--	--	38,075	--	127,646	--	--
1977	135,144	--	--	--	--	33,955	--	147,424	--	--
1978	147,584	--	--	--	--	32,740	--	139,563	--	--
1979	152,652	--	--	--	--	34,720	--	147,028	--	--
1980	156,560	--	--	--	--	60,579	--	152,527	--	--
1981	156,718	--	--	--	--	53,519	--	146,959	--	--
1982	153,695	--	--	--	--	58,645	--	163,669	--	--

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APPENDIX TABLE 59. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 4, 1960-1982 (1980 = BASE DOLLARS) (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	4,563	66,401	--	69,850	103,027	42,747	13,415	7,708	--
1961	4,921	71,577	--	71,816	100,441	42,130	13,186	7,604	--
1962	4,940	72,490	--	70,695	98,537	41,376	12,957	7,275	--
1963	5,202	76,473	--	72,573	102,379	42,442	13,232	7,185	--
1964	5,399	79,421	--	73,202	106,478	42,036	13,241	7,202	--
1965	5,885	82,035	--	74,715	107,625	37,275	14,847	7,370	--
1966	5,053	76,631	--	71,613	103,112	44,387	12,950	6,948	--
1967	6,936	81,950	--	74,547	110,739	45,186	12,337	6,724	--
1968	5,239	88,474	--	70,077	108,401	40,777	11,694	6,784	--
1969	5,368	103,624	--	73,185	104,076	44,792	9,821	7,197	--
1970	5,337	101,989	--	69,082	97,349	41,867	9,011	6,651	--
1971	5,865	91,116	--	69,219	101,812	33,687	9,452	6,940	--
1972	5,209	82,897	--	73,310	104,355	32,138	9,181	7,011	--
1973	6,026	118,283	--	97,943	135,313	43,828	11,369	9,290	--
1974	7,053	134,665	--	92,725	143,760	44,795	12,524	9,631	--
1975	6,183	104,675	--	75,982	113,761	31,871	9,690	7,860	--
1976	6,355	130,256	--	81,182	114,449	34,447	11,089	9,252	--
1977	6,965	78,828	--	77,645	120,217	41,333	9,350	8,917	--
1978	7,272	81,111	--	85,024	127,710	35,788	11,862	9,503	--
1979	7,205	78,873	--	85,323	125,006	35,201	11,495	9,768	--
1980	7,987	101,641	--	90,878	118,776	34,937	8,781	9,847	--
1981	7,683	98,009	--	88,360	110,990	32,905	8,131	9,492	--
1982	7,885	99,033	--	87,225	106,771	32,107	7,801	9,502	--

APPENDIX TABLE 60. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 5, 1960-1982 (1980 = BASE DOLLARS)

Year	Sector (1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	42,305	--	--	--	--	41,399	--	86,963	--	--
1961	43,763	--	--	--	--	43,818	--	87,238	--	--
1962	41,361	--	--	--	--	40,968	--	81,697	--	--
1963	43,514	--	--	--	--	43,357	--	79,072	--	--
1964	45,739	--	--	--	--	44,468	--	85,208	--	--
1965	50,946	--	--	--	--	51,377	--	79,168	--	--
1966	53,561	--	--	--	--	56,668	--	81,327	--	--
1967	55,950	--	--	--	--	48,144	--	80,594	--	--
1968	57,703	--	--	--	--	49,341	--	80,593	--	--
1969	60,095	--	--	--	--	39,052	--	91,742	--	--
1970	59,855	--	--	--	--	35,011	--	95,992	--	--
1971	62,621	--	--	--	--	36,582	--	78,127	--	--
1972	63,408	--	--	--	--	40,996	--	81,264	--	--
1973	102,400	--	--	--	--	67,912	--	99,750	--	--
1974	110,160	--	--	--	--	62,253	--	80,006	--	--
1975	89,749	--	--	--	--	57,353	--	83,622	--	--
1976	84,981	--	--	--	--	62,800	--	80,708	--	--
1977	95,802	--	--	--	--	47,415	--	83,113	--	--
1978	95,072	--	--	--	--	40,326	--	75,587	--	--
1979	102,488	--	--	--	--	41,818	--	79,519	--	--
1980	111,876	--	--	--	--	60,001	--	78,876	--	--
1981	101,006	--	--	--	--	62,429	--	73,123	--	--
1982	97,991	--	--	--	--	67,738	--	79,254	--	--

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APPENDIX TABLE 60. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 5, 1960-1982 (1980 = BASE DOLLARS) (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	9,453	28,516	--	84,461	99,580	52,064	14,224	10,489	--
1961	10,204	30,843	--	87,074	97,422	51,720	14,009	10,370	--
1962	9,700	29,500	--	80,948	89,713	47,935	13,008	9,349	--
1963	10,070	30,876	--	82,705	92,545	49,127	13,173	9,158	--
1964	10,145	31,076	--	80,541	92,957	47,567	12,761	8,872	--
1965	9,718	31,068	--	85,435	99,911	56,160	13,044	9,222	--
1966	5,934	46,284	--	86,003	101,592	61,029	13,049	9,280	--
1967	6,011	45,109	--	86,153	90,228	57,828	13,190	9,324	--
1968	9,377	31,420	--	81,958	80,181	54,020	12,827	9,493	--
1969	8,972	33,599	--	79,017	81,611	56,009	11,605	9,422	--
1970	8,951	33,755	--	76,385	78,376	53,305	10,975	8,923	--
1971	9,027	34,026	--	73,522	86,148	37,914	10,560	8,766	--
1972	9,791	33,384	--	68,756	83,756	27,322	9,984	8,712	--
1973	12,499	42,942	--	98,435	111,369	46,695	13,707	12,217	--
1974	14,978	42,471	--	110,605	142,415	54,841	14,931	12,903	--
1975	13,341	42,922	--	87,859	113,174	47,300	12,925	10,669	--
1976	11,444	45,284	--	87,084	104,081	32,387	11,871	10,033	--
1977	7,940	69,577	--	91,220	111,601	50,930	13,113	10,984	--
1978	9,982	48,206	--	81,459	103,278	47,189	13,068	10,721	--
1979	10,303	49,687	--	86,672	107,599	48,637	13,525	11,714	--
1980	10,479	62,815	--	92,828	111,677	60,158	11,491	12,614	--
1981	9,410	55,818	--	83,075	95,307	52,880	9,757	11,139	--
1982	9,522	55,878	--	81,509	90,903	51,633	9,286	11,049	--

APPENDIX TABLE 61. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 6, 1960-1982 (1980 = BASE DOLLARS)

Year	Sector (1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	47,992	--	--	--	--	31,986	80,478	62,632	--	--
1961	50,468	--	--	--	--	34,519	83,991	63,709	--	--
1962	51,315	--	--	--	--	34,265	83,600	61,667	--	--
1963	50,616	--	--	--	--	34,484	85,148	60,161	--	--
1964	54,387	--	--	--	--	36,305	94,488	67,984	--	--
1965	59,117	--	--	--	--	38,122	101,742	69,030	--	--
1966	65,870	--	--	--	--	42,126	106,115	63,395	--	--
1967	68,013	--	--	--	--	45,411	87,670	67,855	--	--
1968	74,081	--	--	--	--	37,811	78,546	57,848	--	--
1969	78,444	--	--	--	--	36,241	69,655	62,878	--	--
1970	82,865	--	--	--	--	39,614	68,553	68,325	--	--
1971	84,397	--	--	--	--	37,630	98,641	67,802	--	--
1972	88,213	--	--	--	--	42,442	86,541	69,789	--	--
1973	115,700	--	--	--	--	54,009	67,277	81,817	--	--
1974	112,304	--	--	--	--	43,914	59,509	69,261	--	--
1975	113,963	--	--	--	--	45,169	53,306	82,083	--	--
1976	116,517	--	--	--	--	44,625	69,463	82,401	--	--
1977	119,362	--	--	--	--	39,885	71,721	78,615	--	--
1978	120,051	--	--	--	--	29,978	69,864	79,866	--	--
1979	130,175	--	--	--	--	30,940	74,909	84,480	--	--
1980	134,752	--	--	--	--	38,789	75,254	84,716	--	--
1981	126,442	--	--	--	--	40,948	68,731	81,093	--	--
1982	128,397	--	--	--	--	45,941	64,090	91,173	--	--

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APPENDIX TABLE 61. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 6, 1960-1982 (1980 = BASE DOLLARS) (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	7,485	51,878	--	62,153	104,053	57,114	13,325	9,083	--
1961	8,208	56,916	--	64,954	103,352	57,282	13,314	9,116	--
1962	8,318	58,208	--	65,041	103,087	56,773	13,223	8,836	--
1963	8,315	57,921	--	62,292	99,609	55,268	12,739	8,164	--
1964	8,628	59,642	--	61,941	102,108	54,843	12,622	8,086	--
1965	8,331	58,096	--	62,328	105,022	56,394	12,423	8,290	--
1966	9,112	64,601	--	58,412	107,333	65,150	12,386	8,578	--
1967	9,728	66,669	--	60,312	102,019	65,087	11,767	8,302	--
1968	8,999	68,526	--	62,047	102,379	61,199	12,789	8,507	--
1969	7,936	68,098	--	64,555	97,852	52,806	12,435	8,200	--
1970	8,190	70,158	--	64,285	96,776	51,001	11,955	7,982	--
1971	9,072	65,531	--	59,002	92,600	45,097	10,346	7,648	--
1972	11,058	52,327	--	57,932	94,203	44,933	10,276	7,842	--
1973	12,398	62,653	--	68,906	114,279	52,272	12,307	9,405	--
1974	11,607	81,056	--	69,832	126,062	51,977	9,800	9,005	--
1975	13,169	70,147	--	68,259	120,518	53,183	9,635	8,854	--
1976	12,393	65,865	--	68,809	121,304	43,041	10,196	8,875	--
1977	10,362	63,012	--	66,085	119,794	47,568	9,733	8,892	--
1978	9,155	73,590	--	63,900	105,358	39,671	9,417	8,811	--
1979	9,440	75,358	--	67,515	108,855	40,759	9,659	9,557	--
1980	10,115	72,953	--	67,282	101,286	37,131	9,699	9,868	--
1981	9,366	67,567	--	62,600	90,364	33,268	8,602	9,104	--
1982	9,774	70,000	--	63,658	89,665	32,923	8,454	9,378	--

APPENDIX TABLE 62. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 7, 1960-1982 (1980 = BASE DOLLARS)

	Sector									
Year	(1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	49,486	--	--	--	--	30,420	--	92,982	--	--
1961	51,552	--	--	--	--	32,572	--	93,109	--	--
1962	52,382	--	--	--	--	32,227	--	88,239	--	--
1963	55,109	--	--	--	--	34,007	--	85,080	--	--
1964	54,132	--	--	--	--	32,757	--	89,657	--	--
1965	61,310	--	--	--	--	40,472	--	89,208	--	--
1966	66,942	--	--	--	--	38,760	--	93,904	--	--
1967	66,630	--	--	--	--	38,103	--	89,407	--	--
1968	68,409	--	--	--	--	34,428	--	75,449	--	--
1969	74,584	--	--	--	--	37,290	--	75,704	--	--
1970	75,635	--	--	--	--	39,337	--	79,076	--	--
1971	76,250	--	--	--	--	35,335	--	69,497	--	--
1972	80,870	--	--	--	--	38,337	--	65,526	--	--
1973	131,371	--	--	--	--	47,154	--	88,264	--	--
1974	131,149	--	--	--	--	48,009	--	67,751	--	--
1975	109,266	--	--	--	--	42,999	--	74,376	--	--
1976	90,497	--	--	--	--	33,700	--	63,775	--	--
1977	108,174	--	--	--	--	45,246	--	66,452	--	--
1978	115,196	--	--	--	--	40,426	--	72,481	--	--
1979	118,391	--	--	--	--	42,406	--	75,136	--	--
1980	126,949	--	--	--	--	52,768	--	66,580	--	--
1981	116,953	--	--	--	--	50,442	--	62,074	--	--
1982	112,376	--	--	--	--	54,305	--	67,377	--	--

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APPENDIX TABLE 62. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 7, 1960-1982 (1980 = BASE DOLLARS) (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	10,235	49,391	--	79,325	110,087	58,046	19,292	10,481	--
1961	11,088	53,519	--	81,774	107,783	56,960	19,047	10,386	--
1962	11,124	54,151	--	80,986	106,436	55,759	18,722	9,966	--
1963	11,538	56,606	--	82,626	109,419	57,346	18,947	9,745	--
1964	11,000	53,824	--	75,660	103,127	52,546	17,356	8,893	--
1965	11,592	55,347	--	85,043	113,297	52,878	17,385	9,393	--
1966	13,741	59,922	--	87,104	113,171	52,425	17,526	9,660	--
1967	14,772	54,267	--	86,700	105,112	56,015	15,528	9,173	--
1968	12,288	55,596	--	84,980	100,955	63,817	13,127	9,247	--
1969	11,646	64,268	--	88,800	98,972	72,339	17,124	9,775	--
1970	11,792	65,224	--	86,778	96,217	69,157	16,307	9,357	--
1971	12,139	66,774	--	84,600	107,617	38,917	16,483	9,024	--
1972	12,195	63,644	--	85,396	104,834	36,489	15,298	9,082	--
1973	15,452	101,327	--	122,042	154,206	68,451	20,555	13,369	--
1974	19,974	116,703	--	120,355	145,606	51,125	21,900	13,266	--
1975	17,733	97,041	--	96,164	121,012	39,911	16,778	11,089	--
1976	11,460	83,959	--	80,111	100,390	30,747	14,209	9,092	--
1977	14,094	77,797	--	98,411	123,902	41,212	16,018	10,770	--
1978	10,739	99,864	--	95,068	123,240	33,557	15,251	10,896	--
1979	10,718	99,411	--	97,379	123,407	33,505	15,240	11,467	--
1980	14,615	107,804	--	111,423	123,152	43,436	16,270	12,119	--
1981	13,274	97,670	--	101,449	107,551	38,432	14,142	10,945	--
1982	13,313	96,938	--	98,207	101,645	36,690	13,359	10,761	--

APPENDIX TABLE 63. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 8, 1960-1982 (1980 = BASE DOLLARS)

	Sector									
Year	(1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	401,367	--	--	--	--	19,502	29,332	64,614	--	--
1961	431,127	--	--	--	--	21,301	30,532	68,107	--	--
1962	456,216	--	--	--	--	21,843	30,465	68,679	--	--
1963	479,977	--	--	--	--	22,719	31,031	70,582	--	--
1964	522,225	--	--	--	--	23,856	34,406	77,468	--	--
1965	566,830	--	--	--	--	24,252	32,209	73,184	--	--
1966	611,708	--	--	--	--	26,105	31,702	71,425	--	--
1967	654,280	--	--	--	--	27,363	33,558	69,253	--	--
1968	701,020	--	--	--	--	27,411	33,728	68,594	--	--
1969	738,298	--	--	--	--	25,636	30,236	66,844	--	--
1970	759,726	--	--	--	--	26,609	29,783	69,368	--	--
1971	788,262	--	--	--	--	25,548	30,866	73,393	--	--
1972	822,675	--	--	--	--	26,182	31,777	73,239	--	--
1973	947,065	--	--	--	--	28,502	30,859	76,646	--	--
1974	1,009,661	--	--	--	--	29,343	29,236	81,734	--	--
1975	1,009,427	--	--	--	--	32,253	24,784	88,410	--	--
1976	1,044,118	--	--	--	--	34,036	28,006	93,038	--	--
1977	1,062,272	--	--	--	--	36,375	28,369	93,050	--	--
1978	1,040,373	--	--	--	--	30,409	29,398	87,081	--	--
1979	1,131,288	--	--	--	--	32,125	31,551	92,492	--	--
1980	1,106,873	--	--	--	--	31,091	25,151	92,895	--	--
1981	1,080,287	--	--	--	--	33,011	23,001	90,223	--	--
1982	1,166,038	--	--	--	--	38,505	21,440	103,067	--	--

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APPENDIX TABLE 63. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 8, 1960-1982 (1980 = BASE DOLLARS) (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	3,751	33,372	--	65,264	36,294	20,901	10,285	9,429	--
1961	4,186	37,217	--	69,334	36,640	21,159	10,432	9,620	--
1962	4,369	39,182	--	71,360	37,641	21,370	10,669	9,613	--
1963	4,557	40,702	--	71,391	38,056	21,513	10,702	9,295	--
1964	4,731	42,094	--	71,495	39,281	21,366	10,652	9,259	--
1965	5,067	44,280	--	73,588	41,714	21,671	10,867	9,418	--
1966	5,279	45,408	--	74,379	43,897	21,786	11,214	9,526	--
1967	5,190	47,565	--	75,098	44,402	21,141	11,357	9,432	--
1968	5,378	53,285	--	77,667	47,214	21,506	12,930	10,268	--
1969	5,504	51,820	--	76,851	46,191	20,513	11,632	10,049	--
1970	5,472	50,550	--	72,475	43,190	19,042	10,529	9,244	--
1971	5,308	49,358	--	69,062	40,113	18,423	9,667	8,673	--
1972	5,368	51,201	--	67,115	39,872	17,562	9,493	8,610	--
1973	5,891	54,989	--	70,947	41,930	18,355	10,105	9,340	--
1974	5,815	54,901	--	71,110	42,615	18,251	9,927	9,477	--
1975	6,015	59,660	--	73,946	42,761	18,228	9,894	9,471	--
1976	6,654	63,230	--	75,938	44,325	18,672	10,258	10,022	--
1977	7,023	66,939	--	74,452	43,824	17,988	9,889	10,071	--
1978	7,122	64,873	--	69,542	42,012	17,104	9,149	9,826	--
1979	7,377	66,635	--	73,783	43,579	17,651	9,401	10,693	--
1980	7,048	63,417	--	72,516	41,814	16,287	9,114	10,393	--
1981	6,715	60,053	--	68,738	38,065	14,883	8,260	9,800	--
1982	7,339	64,823	--	72,792	39,392	15,308	8,445	10,522	--

APPENDIX TABLE 64. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 9, 1960-1982 (1980 = BASE DOLLARS)

	Sector									
Year	(1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	50,180	--	--	--	--	28,853	--	55,926	--	--
1961	53,720	--	--	--	--	31,441	--	58,479	--	--
1962	54,978	--	--	--	--	31,214	--	57,489	--	--
1963	58,665	--	--	--	--	33,466	--	57,237	--	--
1964	60,247	--	--	--	--	33,805	--	65,302	--	--
1965	63,943	--	--	--	--	36,531	--	61,821	--	--
1966	75,118	--	--	--	--	42,107	--	73,527	--	--
1967	79,135	--	--	--	--	42,468	--	71,800	--	--
1968	80,120	--	--	--	--	43,821	--	72,649	--	--
1969	89,242	--	--	--	--	44,191	--	71,151	--	--
1970	94,119	--	--	--	--	49,253	--	75,203	--	--
1971	92,018	--	--	--	--	55,158	--	68,932	--	--
1972	110,076	--	--	--	--	58,291	--	67,744	--	--
1973	155,515	--	--	--	--	69,225	--	84,067	--	--
1974	152,484	--	--	--	--	75,410	--	62,049	--	--
1975	121,715	--	--	--	--	60,269	--	63,890	--	--
1976	110,294	--	--	--	--	43,411	--	59,343	--	--
1977	115,816	--	--	--	--	51,682	--	52,286	--	--
1978	130,854	--	--	--	--	49,943	--	54,801	--	--
1979	126,074	--	--	--	--	47,303	--	54,930	--	--
1980	129,827	--	--	--	--	66,915	--	59,065	--	--
1981	117,227	--	--	--	--	64,157	--	53,589	--	--
1982	110,863	--	--	--	--	68,011	--	57,037	--	--

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APPENDIX TABLE 64. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 9, 1960-1982 (1980 = BASE DOLLARS) (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	10,720	51,221	--	75,017	94,541	59,905	26,462	11,898	--
1961	11,940	57,076	--	79,791	95,481	60,860	26,845	12,136	--
1962	12,077	58,126	--	79,373	94,663	59,820	26,512	11,708	--
1963	12,750	61,747	--	82,327	99,059	62,188	27,223	11,634	--
1964	12,679	61,218	--	78,897	97,730	59,333	25,963	11,089	--
1965	13,176	63,901	--	82,448	101,407	62,917	24,994	11,054	--
1966	12,954	84,209	--	91,027	109,852	67,746	27,524	12,285	--
1967	13,448	82,575	--	95,846	106,282	77,715	25,512	12,300	--
1968	16,625	74,973	--	87,912	103,797	61,966	26,243	12,361	--
1969	15,950	81,935	--	91,805	115,021	84,450	19,645	13,239	--
1970	16,632	85,449	--	92,709	115,443	83,572	19,182	13,051	--
1971	14,686	75,692	--	87,505	106,283	65,034	18,138	12,075	--
1972	16,150	82,659	--	98,500	122,897	97,079	18,559	13,879	--
1973	22,827	105,790	--	123,677	151,326	96,370	24,677	17,603	--
1974	20,158	173,041	--	142,780	157,780	83,010	26,818	17,319	--
1975	18,466	151,730	--	113,740	130,570	70,651	21,074	13,940	--
1976	15,461	129,134	--	99,385	113,778	64,478	18,566	12,701	--
1977	15,040	120,292	--	107,230	123,899	43,980	21,521	13,836	--
1978	16,712	108,310	--	107,678	130,011	53,001	20,360	15,121	--
1979	15,823	102,813	--	104,383	123,323	50,251	19,476	15,131	--
1980	14,208	139,706	--	117,568	126,948	58,634	18,693	15,772	--
1981	12,685	124,838	--	105,804	109,515	51,375	16,028	14,051	--
1982	12,521	121,997	--	100,711	101,828	48,162	14,933	13,603	--

APPENDIX TABLE 65. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 10, 1960-1982 (1980 = BASE DOLLARS)

Year	Sector									
	(1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	58,551	--	--	--	--	27,312	--	44,935	--	--
1961	66,438	--	--	--	--	31,569	--	52,153	--	--
1962	67,801	--	--	--	--	31,331	--	51,399	--	--
1963	69,019	--	--	--	--	32,093	--	51,655	--	--
1964	77,482	--	--	--	--	35,173	--	59,059	--	--
1965	81,078	--	--	--	--	34,712	--	58,344	--	--
1966	92,223	--	--	--	--	37,566	--	55,038	--	--
1967	92,743	--	--	--	--	34,874	--	51,929	--	--
1968	91,487	--	--	--	--	33,659	--	52,901	--	--
1969	102,520	--	--	--	--	34,392	--	53,775	--	--
1970	111,346	--	--	--	--	37,269	--	57,059	--	--
1971	108,254	--	--	--	--	35,578	--	54,740	--	--
1972	124,374	--	--	--	--	45,850	--	54,716	--	--
1973	175,676	--	--	--	--	51,847	--	62,472	--	--
1974	184,309	--	--	--	--	48,391	--	65,794	--	--
1975	155,508	--	--	--	--	63,509	--	67,139	--	--
1976	159,291	--	--	--	--	49,885	--	67,357	--	--
1977	157,250	--	--	--	--	46,141	--	65,766	--	--
1978	170,363	--	--	--	--	40,905	--	65,997	--	--
1979	167,179	--	--	--	--	38,075	--	68,488	--	--
1980	171,808	--	--	--	--	50,351	--	71,091	--	--
1981	155,257	--	--	--	--	52,550	--	67,388	--	--
1982	157,262	--	--	--	--	59,323	--	75,314	--	--

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APPENDIX TABLE 65. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 10, 1960-1982 (1980 = BASE DOLLARS) (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	7,024	39,354	--	64,085	59,451	41,731	12,622	10,288	--
1961	8,329	46,597	--	72,679	64,095	44,967	13,552	11,160	--
1962	8,430	47,596	--	72,726	63,905	44,458	13,427	10,812	--
1963	8,555	48,319	--	71,243	63,213	43,884	13,177	10,218	--
1964	9,179	51,849	--	74,634	68,156	45,532	13,587	10,586	--
1965	8,413	59,205	--	71,543	72,510	45,317	13,020	10,421	--
1966	8,979	70,449	--	77,237	78,618	39,682	15,520	11,172	--
1967	10,710	56,819	--	73,942	75,085	42,500	13,646	10,678	--
1968	10,241	59,182	--	67,798	68,813	36,212	13,808	10,188	--
1969	9,463	65,404	--	75,171	71,635	52,726	12,445	11,223	--
1970	9,919	67,981	--	76,165	71,988	52,312	12,050	11,052	--
1971	10,128	79,994	--	71,616	78,963	33,197	11,909	10,251	--
1972	12,090	74,873	--	78,109	93,226	42,972	11,720	11,130	--
1973	13,156	97,969	--	94,139	119,138	54,276	14,627	14,027	--
1974	17,576	129,745	--	100,714	120,949	52,091	14,803	14,593	--
1975	15,966	108,650	--	87,108	105,894	43,432	12,267	12,608	--
1976	15,029	105,584	--	86,163	107,341	39,486	11,878	12,990	--
1977	13,949	87,340	--	83,443	104,131	42,241	12,250	12,724	--
1978	13,360	92,266	--	87,471	102,751	40,111	12,149	13,232	--
1979	12,931	89,149	--	86,445	99,415	38,729	11,797	13,486	--
1980	13,523	101,756	--	87,105	111,100	37,240	10,516	13,971	--
1981	12,211	90,822	--	77,588	95,066	32,221	8,968	12,382	--
1982	12,883	94,617	--	79,034	94,616	32,220	8,881	12,803	--

APPENDIX TABLE 66. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 11, 1960-1982 (1980 = BASE DOLLARS)

	Sector									
Year	(1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	86,961	63,440	--	--	--	30,856	75,916	63,916	--	--
1961	93,689	87,405	--	--	--	33,947	79,020	66,420	--	--
1962	95,479	60,136	--	--	--	33,655	78,717	65,488	--	--
1963	96,847	94,586	--	--	--	34,432	80,258	65,789	--	--
1964	101,739	72,857	--	--	--	35,611	88,923	72,999	--	--
1965	113,292	69,130	--	--	--	34,567	87,091	80,199	--	--
1966	123,627	70,833	--	--	--	33,023	79,096	69,534	--	--
1967	127,299	67,195	--	--	--	35,037	74,484	72,194	--	--
1968	131,586	69,744	--	--	--	33,341	67,161	71,683	--	--
1969	139,848	75,500	--	--	--	38,606	54,084	71,575	--	--
1970	145,347	--	--	--	--	44,338	53,267	74,114	--	--
1971	145,882	--	--	--	--	38,265	43,331	72,144	--	--
1972	157,854	--	--	--	--	39,337	44,587	68,818	--	--
1973	203,469	--	--	--	--	39,242	47,274	78,318	--	--
1974	205,449	--	--	--	--	45,037	46,455	80,105	--	--
1975	190,692	--	--	--	--	55,276	58,891	82,394	--	--
1976	195,159	--	--	--	--	53,675	55,106	84,153	--	--
1977	192,640	--	--	--	--	49,368	57,529	84,142	--	--
1978	198,174	--	--	--	--	38,770	56,460	79,706	--	--
1979	211,129	--	--	--	--	53,644	60,587	84,073	--	--
1980	211,934	--	--	--	--	52,412	57,125	87,942	--	--
1981	204,377	--	--	--	--	56,706	52,264	84,727	--	--
1982	204,884	--	--	--	--	63,356	48,730	95,442	--	--

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APPENDIX TABLE 66. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA REGION 11, 1960-1982 (1980 = BASE DOLLARS) (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	7,115	53,365	--	80,280	85,804	42,114	9,802	13,239	--
1961	7,953	59,734	--	85,870	87,258	42,828	9,990	13,581	--
1962	7,980	60,707	--	85,490	86,527	42,173	9,847	13,086	--
1963	8,191	61,800	--	83,866	85,674	41,894	9,686	12,386	--
1964	8,325	62,662	--	81,978	86,399	40,864	9,449	12,062	--
1965	8,822	74,018	--	86,467	98,287	44,066	9,848	12,629	--
1966	9,525	70,513	--	87,610	102,009	45,945	10,077	12,912	--
1967	9,449	69,171	--	85,721	95,532	47,412	9,732	12,488	--
1968	10,519	69,345	--	84,147	90,152	39,997	10,270	12,714	--
1969	8,592	80,533	--	83,734	87,074	41,038	9,938	12,861	--
1970	8,779	82,352	--	82,813	85,503	39,518	9,503	12,420	--
1971	8,961	77,281	--	78,454	88,880	34,706	8,963	11,843	--
1972	10,739	70,365	--	79,239	90,230	34,850	8,504	12,231	--
1973	11,246	95,843	--	95,868	101,835	40,739	9,683	14,327	--
1974	12,633	97,775	--	102,905	104,435	42,353	9,662	14,533	--
1975	13,317	77,708	--	93,863	96,496	36,014	8,837	13,540	--
1976	12,334	81,651	--	93,222	100,894	36,263	8,803	13,749	--
1977	10,373	85,973	--	87,976	100,329	36,216	8,244	13,600	--
1978	10,420	80,607	--	86,739	94,016	35,516	7,927	13,688	--
1979	10,900	84,087	--	92,869	98,578	36,769	8,291	15,076	--
1980	11,276	97,137	--	91,389	87,523	35,192	7,747	14,585	--
1981	10,685	92,282	--	87,361	80,250	32,332	7,055	13,823	--
1982	11,139	95,428	--	88,246	79,128	31,926	6,921	14,174	--

APPENDIX TABLE 67. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA, 1960-1982 (1980 = BASE DOLLARS)

	Sector									
Year	(1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Ext	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc
1960	107,150	61,775	--	--	--	23,804	37,873	64,348	--	--
1961	114,374	63,778	--	--	--	25,802	39,163	67,550	--	--
1962	118,751	61,768	--	--	--	26,044	38,940	67,528	--	--
1963	123,399	70,952	--	--	--	26,981	39,682	68,800	--	--
1964	133,041	73,393	--	--	--	28,303	44,003	75,496	--	--
1965	144,704	68,833	--	--	--	28,229	43,696	72,385	--	--
1966	157,390	71,119	--	--	--	28,530	42,713	69,597	--	--
1967	165,984	66,522	--	--	--	29,692	44,230	68,347	--	--
1968	175,399	66,957	--	--	--	30,288	43,106	67,755	--	--
1969	186,589	73,741	--	--	--	29,919	39,906	66,015	--	--
1970	192,641	69,788	--	--	--	30,994	39,279	68,647	--	--
1971	196,498	65,011	--	--	--	29,505	39,688	70,762	--	--
1972	207,652	73,256	--	--	--	30,835	41,183	70,273	--	--
1973	259,786	86,450	--	--	--	34,627	39,456	76,312	--	--
1974	270,359	98,446	--	--	--	36,520	37,014	79,451	--	--
1975	256,229	99,155	--	--	--	39,047	33,089	85,893	--	--
1976	261,637	100,914	--	--	--	38,505	36,518	88,759	--	--
1977	267,675	76,973	--	--	--	38,599	37,085	88,481	--	--
1978	271,246	117,930	--	--	--	33,576	39,348	83,876	--	--
1979	300,793	126,935	--	--	--	36,903	42,283	89,092	--	--
1980	289,400	109,393	--	--	--	37,110	34,643	90,377	--	--
1981	278,992	117,788	--	--	--	39,156	31,973	87,488	--	--
1982	290,693	193,749	--	--	--	44,652	29,948	99,500	--	--

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APPENDIX TABLE 67. GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS, BY ECONOMIC SECTOR, MINNESOTA, 1960-1982 (1980 = BASE DOLLARS) (CONTINUED)

	Sector								
Year	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail Trade	(16) FIRE	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	6,218	39,288	--	69,373	48,431	28,433	11,525	9,731	--
1961	6,612	43,273	--	73,144	48,448	28,596	11,575	9,815	--
1962	6,678	44,769	--	74,128	48,954	28,517	11,639	9,637	--
1963	6,936	46,236	--	73,808	49,239	28,605	11,611	9,265	--
1964	7,205	47,661	--	73,603	50,632	28,325	11,517	9,194	--
1965	7,530	50,303	--	75,572	53,891	28,704	11,779	9,342	--
1966	7,772	52,764	--	76,407	56,551	28,864	12,157	9,508	--
1967	7,642	53,347	--	76,692	56,188	28,276	11,954	9,311	--
1968	7,899	56,312	--	77,294	57,635	27,703	12,092	9,858	--
1969	7,952	56,867	--	77,198	56,767	27,363	11,927	9,841	--
1970	7,922	56,324	--	73,970	53,941	25,742	11,005	9,200	--
1971	7,659	54,923	--	70,742	51,425	24,003	10,212	8,698	--
1972	7,887	56,344	--	69,881	52,047	23,376	9,963	8,808	--
1973	9,007	64,004	--	78,710	58,392	26,003	11,202	10,109	--
1974	9,479	66,206	--	80,311	59,778	26,134	11,061	10,281	--
1975	9,491	67,107	--	78,260	57,268	24,285	10,480	9,855	--
1976	9,952	70,039	--	78,541	58,209	24,513	10,542	10,184	--
1977	9,458	70,726	--	76,992	57,577	23,846	10,268	10,211	--
1978	10,591	72,086	--	74,602	56,419	23,250	9,912	10,312	--
1979	11,140	75,353	--	80,765	59,729	24,368	10,378	11,439	--
1980	10,319	73,110	--	77,739	55,634	22,332	9,628	10,865	--
1981	10,006	69,121	--	73,523	50,535	20,365	8,701	10,226	--
1982	10,634	72,915	--	75,978	51,008	20,490	8,699	10,718	--

APPENDIX TABLE 68. REGRESSION EQUATIONS[a] FOR PROJECTING GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 2, (1980 = BASE DOLLARS)

Sector	Equation
(1) & (2) Agriculture	Y = -5,752,513.0 + 2,944.85(X)
(3) Metal Mining	Y = -3,647,818.0 + 1,924.74(X)
(4) Coal Mining	Y = 10,000,000[b]
(5) Pet/NG Exp/Ext	Y = 10,000,000[b]
(6) Nonmetallic Mining	Y = 10,000,000[b]
(7) Construction	Y = -944,808.6 + 508.602(X)
(8) Lumber & Assoc Prod	Y = 30,807[c]
(9) Ag Proc & Misc Mfg	Y = -7,692,923.0 + 3,936.32(X)
(10) Pet Refining	Y = 10,000,000[b]
(11) Metal Processing	Y = 10,000,000[b]
(12) Transportation	Y = 24,212[d]
(13) Comm & Public Utilities	Y = -2,306,718.0 + 1,202.22(X)
(14) Electric Generation	Y = 10,000,000[b]
(15) Retail Trade	Y = 64,026[c]
(16) Fin, Ins, Real Estate	Y = 774,508.8 - 348.041(X)
(17) Bus & Pers Service	Y = 48,209[d]
(18) Prof & Soc Service	Y = 9,188[d]
(19) Government	Y = -82,163.69 + 44.956(X)
(20) Households	Y = 10,000,000[b]

[a]Robust regression with an intercept adjustment technique.
[b]Because very little or no employment exists in this sector, arbitrarily large numbers resulting in appropriate levels were used for determining projected employment.
[c]The productivity ratio for this sector was projected as a constant using a weighted average of the 1981 and 1982 levels.
[d]The productivity ratio for this sector was projected as a constant using the average of the 1981 and 1982 levels.

APPENDIX TABLE 69. REGRESSION EQUATIONS[a] FOR PROJECTING GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 3, (1980 = BASE DOLLARS)

Sector	Equation
(1) & (2) Agriculture	Y = -16,052,330.0 + 8,256.61(X)
(3) Metal Mining	Y = -5,420,939.0 + 2,807.44(X)
(4) Coal Mining	Y = 10,000,000[b]
(5) Pet/NG Exp/Ext	Y = 10,000,000[b]
(6) Nonmetallic Mining	Y = 10,000,000[b]
(7) Construction	Y = 29,126.55 + 6.330(X)
(8) Lumber & Assoc Prod	Y = -2,493,459.0 + 1,294.78(X)
(9) Ag Proc & Misc Mfg	Y = -3,470,929.0 + 1,811.62(X)
(10) Pet Refining	Y = 10,000,000[b]
(11) Metal Processing	Y = 10,000,000[b]
(12) Transportation	Y = -4,357,000.0 + 2,231.21(X)
(13) Comm & Public Utilities	Y = -2,117,743.0 + 1,113.64(X)
(14) Electric Generation	Y = 10,000,000[b]
(15) Retail Trade	Y = 73,493[c]
(16) Fin, Ins, Real Estate	Y = 81,313[c]
(17) Bus & Pers Service	Y = 181,217.4 - 72.22(X)
(18) Prof & Soc Service	Y = 10,347[c]
(19) Government	Y = -129,456.7 + 70.248(X)
(20) Households	Y = 10,000,000[b]

[a]Robust regression with an intercept adjustment technique.
[b]Because very little or no employment exists in this sector, arbitrarily large numbers resulting in appropriate levels were used for determining projected employment.
[c]The productivity ratio for this sector was projected as a constant using the average of the 1981 and 1982 levels.

APPENDIX TABLE 70. REGRESSION EQUATIONS[a] FOR PROJECTING GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 4, (1980 = BASE DOLLARS)

Sector	Equation
(1) & (2) Agriculture	Y = -11,287,290.0 + 5,776.35(X)
(3) Metal Mining	Y = 10,000,000[b]
(4) Coal Mining	Y = 10,000,000[b]
(5) Pet/NG Exp/Ext	Y = 10,000,000[b]
(6) Nonmetallic Mining	Y = 10,000,000[b]
(7) Construction	Y = -2,070,844.0 + 1,074.42(X)
(8) Lumber & Assoc Prod	Y = 10,000,000[b]
(9) Ag Proc & Misc Mfg	Y = -3,714,100.0 + 1,953.03(X)
(10) Pet Refining	Y = 10,000,000[b]
(11) Metal Processing	Y = 10,000,000[b]
(12) Transportation	Y = -269,284.2 + 139.897(X)
(13) Comm & Public Utilities	Y = -2,085,976.0 + 1,103.25(X)
(14) Electric Generation	Y = 10,000,000[b]
(15) Retail Trade	Y = -1,524,671.0 + 814.484(X)
(16) Fin, Ins, Real Estate	Y = -1,454,107.0 + 790.655(X)
(17) Bus & Pers Service	Y = 32,506[c]
(18) Prof & Soc Service	Y = 7,966[c]
(19) Government	Y = -261,264.2 + 136.738(X)
(20) Households	Y = 10,000,000[b]

[a]Robust regression with an intercept adjustment technique.
[b]Because very little or no employment exists in this sector, arbitrarily large numbers resulting in appropriate levels were used for determining projected employment.
[c]The productivity ratio for this sector was projected as a constant using the average of the 1981 and 1982 levels.

APPENDIX TABLE 71. REGRESSION EQUATIONS[a] FOR PROJECTING GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 5, (1980 = BASE DOLLARS)

Sector	Equation
(1) & (2) Agriculture	Y = -6,378,901.0 + 3,272.35(X)
(3) Metal Mining	Y = 10,000,000[b]
(4) Coal Mining	Y = 10,000,000[b]
(5) Pet/NG Exp/Ext	Y = 10,000,000[b]
(6) Nonmetallic Mining	Y = 10,000,000[b]
(7) Construction	Y = -1,459,250.0 + 768.747(X)
(8) Lumber & Assoc Prod	Y = 10,000,000[b]
(9) Ag Proc & Misc Mfg	Y = 77,084[c]
(10) Pet Refining	Y = 10,000,000[b]
(11) Metal Processing	Y = 10,000,000[b]
(12) Transportation	Y = 2,879.832 + 3.495(X)
(13) Comm & Public Utilities	Y = -2,383,688.0 + 1,232.64(X)
(14) Electric Generation	Y = 10,000,000[b]
(15) Retail Trade	Y = -166,242.6 + 127.232(X)
(16) Fin, Ins, Real Estate	Y = -1,015,510.0 + 562.749(X)
(17) Bus & Pers Service	Y = 153,432.4 - 49.744(X)
(18) Prof & Soc Service	Y = 9,522[d]
(19) Government	Y = -218,827.2 + 116.319(X)
(20) Households	Y = 10,000,000[b]

[a]Robust regression with an intercept adjustment technique.
[b]Because very little or no employment exists in this sector, arbitrarily large numbers resulting in appropriate levels were used for determining projected employment.
[c]The productivity ratio for this sector was projected as a constant using the average of the 1980, 1981, and 1982 levels.
[d]The productivity ratio for this sector was projected as a constant using the average of the 1981 and 1982 levels.

APPENDIX TABLE 72. REGRESSION EQUATIONS[a] FOR PROJECTING GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 6, (1980 = BASE DOLLARS)

Sector	Equation
(1) & (2) Agriculture	Y = -8,675,070.0 + 4,444.69(X)
(3) Metal Mining	Y = 10,000,000[b]
(4) Coal Mining	Y = 10,000,000[b]
(5) Pet/NG Exp/Ext	Y = 10,000,000[b]
(6) Nonmetallic Mining	Y = 10,000,000[b]
(7) Construction	Y = -778,841.0 + 414.031(X)
(8) Lumber & Assoc Prod	Y = 68,731[c]
(9) Ag Proc & Misc Mfg	Y = -2,295,463.0 + 1,202.0(X)
(10) Pet Refining	Y = 10,000,000[b]
(11) Metal Processing	Y = 10,000,000[b]
(12) Transportation	Y = -172,918.6 + 92.211(X)
(13) Comm & Public Utilities	Y = -1,343,785.0 + 713.76(X)
(14) Electric Generation	Y = 10,000,000[b]
(15) Retail Trade	Y = -321,114.0 + 194.663(X)
(16) Fin, Ins, Real Estate	Y = 16,295.87 + 39.109(X)
(17) Bus & Pers Service	Y = 33,096[d]
(18) Prof & Soc Service	Y = 8,919[e]
(19) Government	Y = -87,325.94 + 48.852(X)
(20) Households	Y = 10,000,000[b]

[a]Robust regression with an intercept adjustment technique.
[b]Because very little or no employment exists in this sector, arbitrarily large numbers resulting in appropriate levels were used for determining projected employment.
[c]The productivity ratio for this sector was projected as a constant using the 1981 level.
[d]The productivity ratio for this sector was projected as a constant using the average of the 1981 and 1982 levels.
[e]The productivity ratio for this sector was projected as a constant using the average of the 1980, 1981, and 1982 levels.

APPENDIX TABLE 73. REGRESSION EQUATIONS[a] FOR PROJECTING GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 7, (1980 = BASE DOLLARS)

Sector	Equation
(1) & (2) Agriculture	Y = -6,951,329.0 + 3,568.95(X)
(3) Metal Mining	Y = 10,000,000[b]
(4) Coal Mining	Y = 10,000,000[b]
(5) Pet/NG Exp/Ext	Y = 10,000,000[b]
(6) Nonmetallic Mining	Y = 10,000,000[b]
(7) Construction	Y = -1,658,070.0 + 863.491(X)
(8) Lumber & Assoc Prod	Y = 10,000,000[b]
(9) Ag Proc & Misc Mfg	Y = 64,726[c]
(10) Pet Refining	Y = 10,000,000[b]
(11) Metal Processing	Y = 10,000,000[b]
(12) Transportation	Y = -233,474.9 + 124.79(X)
(13) Comm & Public Utilities	Y = -5,031,887.0 + 2,590.96(X)
(14) Electric Generation	Y = 10,000,000[b]
(15) Retail Trade	Y = -1,767,517.0 + 944.579(X)
(16) Fin, Ins, Real Estate	Y = -822,516.0 + 471.125(X)
(17) Bus & Pers Service	Y = 37,561[c]
(18) Prof & Soc Service	Y = 13,751[c]
(19) Government	Y = -142,311.7 + 77.530(X)
(20) Households	Y = 10,000,000[b]

[a]Robust regression with an intercept adjustment technique.
[b]Because very little or no employment exists in this sector, arbitrarily large numbers resulting in appropriate levels were used for determining projected employment.
[c]The productivity ratio for this sector was projected as a constant using the average of the 1981 and 1982 levels.

APPENDIX TABLE 74. REGRESSION EQUATIONS[a] FOR PROJECTING GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 8, (1980 = BASE DOLLARS)

Sector	Equation
(1) & (2) Agriculture	Y = -74,021,980.0 + 37,930.2(X)
(3) Metal Mining	Y = 10,000,000[b]
(4) Coal Mining	Y = 10,000,000[b]
(5) Pet/NG Exp/Ext	Y = 10,000,000[b]
(6) Nonmetallic Mining	Y = 10,000,000[b]
(7) Construction	Y = -1,225,507.0 + 635.795(X)
(8) Lumber & Assoc Prod	Y = 23,501[c]
(9) Ag Proc & Misc Mfg	Y = -2,658,539.0 + 1,390.83(X)
(10) Pet Refining	Y = 10,000,000[b]
(11) Metal Processing	Y = 10,000,000[b]
(12) Transportation	Y = -290,357.6 + 150.122(X)
(13) Comm & Public Utilities	Y = -2,815,568.0 + 1,452.97(X)
(14) Electric Generation	Y = 10,000,000[b]
(15) Retail Trade	Y = -22,960.81 + 47.607(X)
(16) Fin, Ins, Real Estate	Y = -273,096.3 + 157.927(X)
(17) Bus & Pers Service	Y = 15,096[d]
(18) Prof & Soc Service	Y = 8,353[d]
(19) Government	Y = -63,611.36 + 37.279(X)
(20) Households	Y = 10,000,000[b]

[a]Robust regression with an intercept adjustment technique.
[b]Because very little or no employment exists in this sector, arbitrarily large numbers resulting in appropriate levels were used for determining projected employment.
[c]The productivity ratio for this sector was projected as a constant using a weighted average of the 1981 and 1982 levels.
[d]The productivity ratio for this sector was projected as a constant using the average of the 1981 and 1982 levels.

APPENDIX TABLE 75. REGRESSION EQUATIONS[a] FOR PROJECTING GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 9, (1980 = BASE DOLLARS)

Sector	Equation
(1) & (2) Agriculture	Y = -8,265,338.0 + 4,232.53(X)
(3) Metal Mining	Y = 10,000,000[b]
(4) Coal Mining	Y = 10,000,000[b]
(5) Pet/NG Exp/Ext	Y = 10,000,000[b]
(6) Nonmetallic Mining	Y = 10,000,000[b]
(7) Construction	Y = -3,591,250.0 + 1,846.75(X)
(8) Lumber & Assoc Prod	Y = 10,000,000[b]
(9) Ag Proc & Misc Mfg	Y = 57,013[c]
(10) Pet Refining	Y = 10,000,000[b]
(11) Metal Processing	Y = 10,000,000[b]
(12) Transportation	Y = -420,746.5 + 219.023(X)
(13) Comm & Public Utilities	Y = -6,353,420.0 + 3,272.22(X)
(14) Electric Generation	Y = 10,000,000[b]
(15) Retail Trade	Y = -2,952,023.0 + 1,544.7(X)
(16) Fin, Ins, Real Estate	Y = -3,330,333.0 + 1,738.06(X)
(17) Bus & Pers Service	Y = 49,769[d]
(18) Prof & Soc Service	Y = 15,481[d]
(19) Government	Y = -297,478.6 + 157.473(X)
(20) Households	Y = 10,000,000[b]

[a]Robust regression with an intercept adjustment technique.
[b]Because very little or no employment exists in this sector, arbitrarily large numbers resulting in appropriate levels were used for determining projected employment.
[c]The productivity ratio for this sector was projected as a constant using a weighted average of the 1981 and 1982 levels.
[d]The productivity ratio for this sector was projected as a constant using the average of the 1981 and 1982 levels.

APPENDIX TABLE 76. REGRESSION EQUATIONS[a] FOR PROJECTING GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 10, (1980 = BASE DOLLARS)

Sector	Equation
(1) & (2) Agriculture	Y = -11,805,500.0 + 6,040.86(X)
(3) Metal Mining	Y = 10,000,000[b]
(4) Coal Mining	Y = 10,000,000[b]
(5) Pet/NG Exp/Ext	Y = 10,000,000[b]
(6) Nonmetallic Mining	Y = 10,000,000[b]
(7) Construction	Y = -2,221,793.0 + 1,149.05(X)
(8) Lumber & Assoc Prod	Y = 10,000,000[b]
(9) Ag Proc & Misc Mfg	Y = -2,014,285.0 + 1,053.13(X)
(10) Pet Refining	Y = 10,000,000[b]
(11) Metal Processing	Y = 10,000,000[b]
(12) Transportation	Y = -562,457.7 + 290.424(X)
(13) Comm & Public Utilities	Y = -4,982,938.0 + 2,563.69(X)
(14) Electric Generation	Y = 10,000,000[b]
(15) Retail Trade	Y = -1,506,220.0 + 801.344(X)
(16) Fin, Ins, Real Estate	Y = -4,379,373.0 + 2,261.3(X)
(17) Bus & Pers Service	Y = 32,221[c]
(18) Prof & Soc Service	Y = 8,955[d]
(19) Government	Y = -288,543.3 + 152.244(X)
(20) Households	Y = 10,000,000[b]

[a]Robust regression with an intercept adjustment technique.
[b]Because very little or no employment exists in this sector, arbitrarily large numbers resulting in appropriate levels were used for determining projected employment.
[c]The productivity ratio for this sector was projected as a constant using the average of the 1981 and 1982 levels.
[d]The productivity ratio for this sector was projected as a constant using a weighted average of the 1981 and 1982 levels.

APPENDIX TABLE 77. REGRESSION EQUATIONS[a] FOR PROJECTING GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA REGION 11, (1980 = BASE DOLLARS)

Sector	Equation
(1) & (2) Agriculture	Y = -12,468,070.0 + 6,398.35(X)
(3) Metal Mining	Y = 10,000,000[b]
(4) Coal Mining	Y = 10,000,000[b]
(5) Pet/NG Exp/Ext	Y = 10,000,000[b]
(6) Nonmetallic Mining	Y = 10,000,000[b]
(7) Construction	Y = -2,436,148.0 + 1,261.05(X)
(8) Lumber & Assoc Prod	Y = 53,197[c]
(9) Ag Proc & Misc Mfg	Y = -2,079,824.0 + 1,095.0(X)
(10) Pet Refining	Y = 10,000,000[b]
(11) Metal Processing	Y = 10,000,000[b]
(12) Transportation	Y = -328,240.6 + 171.264(X)
(13) Comm & Public Utilities	Y = -3,073,917.0 + 1,599.63(X)
(14) Electric Generation	Y = 10,000,000[b]
(15) Retail Trade	Y = -585,018.7 + 340.241(X)
(16) Fin, Ins, Real Estate	Y = -495,783.1 + 291.814(X)
(17) Bus & Pers Service	Y = 32,129[d]
(18) Prof & Soc Service	Y = 6,988[d]
(19) Government	Y = -146,397.6 + 81.066(X)
(20) Households	Y = 10,000,000[b]

[a]Robust regression with an intercept adjustment technique.
[b]Because very little or no employment exists in this sector, arbitrarily large numbers resulting in appropriate levels were used for determining projected employment.
[c]The productivity ratio for this sector was projected as a constant using a weighted average of the 1981 and 1982 levels.
[d]The productivity ratio for this sector was projected as a constant using the average of the 1981 and 1982 levels.

APPENDIX TABLE 78. REGRESSION EQUATIONS[a] FOR PROJECTING GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR 20-SECTOR INPUT-OUTPUT MODEL, MINNESOTA, (1980 = BASE DOLLARS)

Sector	Equation
(1) & (2) Agriculture	Y = -18,279,150.0 + 9,371.8(X)
(3) Metal Mining	Y = -5,272,772.0 + 2,732.5(X)
(4) Coal Mining	Y = 10,000,000[b]
(5) Pet/NG Exp/Ext	Y = 10,000,000[b]
(6) Nonmetallic Mining	Y = 10,000,000[b]
(7) Construction	Y = -1,341,739.0 + 697.651(X)
(8) Lumber & Assoc Prod	Y = 714,819.0 - 344.589(X)
(9) Ag Proc & Misc Mfg	Y = -2,403,822.0 + 1,260.11(X)
(10) Pet Refining	Y = 10,000,000[b]
(11) Metal Processing	Y = 10,000,000[b]
(12) Transportation	Y = -380,424.6 + 197.246(X)
(13) Comm & Public Utilities	Y = -3,420,568.0 + 1,762.89(X)
(14) Electric Generation	Y = 10,000,000[b]
(15) Retail Trade	Y = -322,333.4 + 200.949(X)
(16) Fin, Ins, Real Estate	Y = -576,569.3 + 317.497(X)
(17) Bus & Pers Service	Y = 743,350.5 - 364.608(X)
(18) Prof & Soc Service	Y = 254,692.9 - 124.020(X)
(19) Government	Y = -104,376.1 + 58.041(X)
(20) Households	Y = 10,000,000[b]

[a]Robust regression with an intercept adjustment technique.
[b]Because very little or no employment exists in this sector, arbitrarily large numbers resulting in appropriate levels were used for determining projected employment.

APPENDIX TABLE 79. PROJECTED GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR MINNESOTA REGION 2, SELECTED YEARS 1983 TO 2005 (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1)&(2) Agriculture	84,180	90,069	104,794	119,518	134,242	148,966
(3) Metal Mining	167,017	170,866	180,490	190,114	199,737	209,361
(4) Coal Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(5) Pet/NG Exp/Ext	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(6) Nonmetallic Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(7) Construction	63,241	64,258	66,801	69,344	71,887	74,430
(8) Lumber & Assoc Prod	30,807	30,807	30,807	30,807	30,807	30,807
(9) Ag Proc & Misc Mfg	108,863	116,736	136,417	156,099	175,781	195,462
(10) Pet Refining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(11) Metal Processing	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(12) Transportation	24,214	24,214	24,214	24,214	24,214	24,214
(13) Comm & Pub Util	76,082	78,486	84,498	90,509	96,520	102,531
(14) Electric Generation	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail Trade	64,026	64,026	64,026	64,026	64,026	64,026
(16) Fin, Ins, Real Estate	84,692	83,995	82,255	80,515	78,775	77,035
(17) Bus & Pers Service	48,209	48,209	48,209	48,209	48,209	48,209
(18) Prof & Soc Service	9,188	9,188	9,188	9,188	9,188	9,188
(19) Government	6,939	7,029	7,254	7,479	7,703	7,928
(20) Households	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

APPENDIX TABLE 80. PROJECTED GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR MINNESOTA REGION 3, SELECTED YEARS 1983 TO 2005 (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1)&(2) Agriculture	312,271	328,784	370,067	411,350	452,633	493,916
(3) Metal Mining	143,407	149,022	163,059	177,096	191,134	205,171
(4) Coal Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(5) Pet/NG Exp/Ext	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(6) Nonmetallic Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(7) Construction	41,673	41,685	41,717	41,749	41,780	41,812
(8) Lumber & Assoc Prod	72,795	75,385	81,858	88,332	94,806	101,280
(9) Ag Proc & Misc Mfg	119,702	123,325	132,383	141,441	150,499	159,557
(10) Pet Refining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(11) Metal Processing	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(12) Transportation	65,258	69,721	80,877	92,033	103,189	114,345
(13) Comm & Pub Util	89,491	91,719	97,287	102,855	108,423	113,992
(14) Electric Generation	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail Trade	73,493	73,493	73,493	73,493	73,493	73,493
(16) Fin, Ins, Real Estate	81,313	81,313	81,313	81,313	81,313	81,313
(17) Bus & Pers Service	38,077	37,933	37,572	37,211	36,850	36,489
(18) Prof & Soc Service	10,347	10,347	10,347	10,347	10,347	10,347
(19) Government	9,775	9,915	10,267	10,618	10,969	11,320
(20) Households	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

APPENDIX TABLE 81. PROJECTED GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR MINNESOTA REGION 4, SELECTED YEARS 1983 TO 2005 (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1)&(2) Agriculture	161,436	172,988	201,870	230,752	259,634	288,515
(3) Metal Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(4) Coal Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(5) Pet/NG Exp/Ext	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(6) Nonmetallic Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(7) Construction	58,750	60,899	66,271	71,643	77,016	82,388
(8) Lumber & Assoc Prod	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(9) Ag Proc & Misc Mfg	156,805	160,712	170,477	180,242	190,007	199,772
(10) Pet Refining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(11) Metal Processing	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(12) Transportation	7,992	8,271	8,971	9,670	10,370	11,069
(13) Comm & Pub Util	100,666	102,872	108,388	113,905	119,421	124,937
(14) Electric Generation	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail Trade	89,636	91,265	95,338	99,410	103,483	107,555
(16) Fin, Ins, Real Estate	112,971	114,553	118,506	122,459	126,412	130,366
(17) Bus & Pers Service	32,506	32,506	32,506	32,506	32,506	32,506
(18) Prof & Soc Service	7,966	7,966	7,966	7,966	7,966	7,966
(19) Government	9,751	10,024	10,708	11,391	12,075	12,759
(20) Households	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

APPENDIX TABLE 82. PROJECTED GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR MINNESOTA REGION 5, SELECTED YEARS 1983 TO 2005 (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1)&(2) Agriculture	106,897	113,441	129,803	146,165	162,527	178,888
(3) Metal Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(4) Coal Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(5) Pet/NG Exp/Ext	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(6) Nonmetallic Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(7) Construction	64,407	65,944	69,788	73,632	77,475	81,319
(8) Lumber & Assoc Prod	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(9) Ag Proc & Misc Mfg	77,084	77,084	77,084	77,084	77,084	77,084
(10) Pet Refining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(11) Metal Processing	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(12) Transportation	9,807	9,814	9,831	9,849	9,866	9,884
(13) Comm & Pub Util	59,404	61,870	68,033	74,196	80,359	86,523
(14) Electric Generation	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail Trade	85,931	86,186	86,822	87,458	88,094	88,730
(16) Fin, Ins, Real Estate	99,859	100,984	103,798	106,612	109,425	112,239
(17) Bus & Pers Service	54,840	54,740	54,492	54,243	53,994	53,745
(18) Prof & Soc Service	9,522	9,522	9,522	9,522	9,522	9,522
(19) Government	11,717	11,950	12,531	13,113	13,694	14,276
(20) Households	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

APPENDIX TABLE 83. PROJECTED GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR MINNESOTA REGION 6, SELECTED YEARS 1983 TO 2005 (1980 = BASE DOLLARS) .

Sector	1983	1985	1990	1995	2000	2005
(1)&(2) Agriculture	134,306	143,195	165,418	187,642	209,865	232,089
(3) Metal Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(4) Coal Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(5) Pet/NG Exp/Ext	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(6) Nonmetallic Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(7) Construction	42,768	43,597	45,667	47,737	49,807	51,877
(8) Lumber & Assoc Prod	68,731	68,731	68,731	68,731	68,731	68,731
(9) Ag Proc & Misc Mfg	86,901	89,305	95,315	101,325	107,335	113,345
(10) Pet Refining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(11) Metal Processing	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(12) Transportation	9,844	10,028	10,489	10,950	11,411	11,872
(13) Comm & Pub Util	70,887	72,315	75,884	79,452	83,021	86,590
(14) Electric Generation	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail Trade	64,708	65,097	66,071	67,044	68,017	68,991
(16) Fin, Ins, Real Estate	93,810	93,888	94,084	94,279	94,475	94,670
(17) Bus & Pers Service	33,096	33,096	33,096	33,096	33,096	33,096
(18) Prof & Soc Service	8,918	8,918	8,918	8,918	8,918	8,918
(19) Government	9,499	9,596	9,841	10,085	10,329	10,573
(20) Households	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

APPENDIX TABLE 84. PROJECTED GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR MINNESOTA REGION 7, SELECTED YEARS 1983 TO 2005 (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1)&(2) Agriculture	122,330	129,468	147,313	165,157	183,002	200,847
(3) Metal Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(4) Coal Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(5) Pet/NG Exp/Ext	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(6) Nonmetallic Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(7) Construction	53,369	55,096	59,414	63,731	68,049	72,366
(8) Lumber & Assoc Prod	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(9) Ag Proc & Misc Mfg	64,726	64,726	64,726	64,726	64,726	64,726
(10) Pet Refining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(11) Metal Processing	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(12) Transportation	13,859	14,108	14,732	15,356	15,980	16,604
(13) Comm & Pub Util	103,396	108,578	121,532	134,487	147,442	160,397
(14) Electric Generation	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail Trade	104,639	106,528	111,251	115,974	120,696	125,419
(16) Fin, Ins, Real Estate	111,254	112,196	114,552	116,907	119,263	121,619
(17) Bus & Pers Service	37,561	37,561	37,561	37,561	37,561	37,561
(18) Prof & Soc Service	13,751	13,751	13,751	13,751	13,751	13,751
(19) Government	11,353	11,508	11,895	12,283	12,671	13,058
(20) Households	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

APPENDIX TABLE 85. PROJECTED GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR MINNESOTA REGION 8, SELECTED YEARS 1983 TO 2005 (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1)&(2) Agriculture	1,155,676	1,231,537	1,421,188	1,610,839	1,800,490	1,990,141
(3) Metal Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(4) Coal Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(5) Pet/NG Exp/Ext	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(6) Nonmetallic Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(7) Construction	37,639	38,910	42,089	45,268	48,447	51,626
(8) Lumber & Assoc Prod	23,501	23,501	23,501	23,501	23,501	23,501
(9) Ag Proc & Misc Mfg	98,086	100,868	107,822	114,776	121,730	128,684
(10) Pet Refining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(11) Metal Processing	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(12) Transportation	7,184	7,484	8,235	8,986	9,736	10,487
(13) Comm & Pub Util	64,219	67,124	74,389	81,654	88,919	96,184
(14) Electric Generation	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail Trade	71,396	71,491	71,730	71,968	72,206	72,444
(16) Fin, Ins, Real Estate	39,915	40,231	41,021	41,810	42,600	43,390
(17) Bus & Pers Service	15,096	15,096	15,096	15,096	15,096	15,096
(18) Prof & Soc Service	8,353	8,353	8,353	8,353	8,353	8,353
(19) Government	10,276	10,350	10,537	10,723	10,909	11,096
(20) Households	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

APPENDIX TABLE 86. PROJECTED GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR MINNESOTA REGION 9, SELECTED YEARS 1983 TO 2005 (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1)&(2) Agriculture	123,536	132,002	153,164	174,327	195,489	216,652
(3) Metal Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(4) Coal Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(5) Pet/NG Exp/Ext	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(6) Nonmetallic Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(7) Construction	69,009	72,702	81,936	91,170	100,403	109,637
(8) Lumber & Assoc Prod	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(9) Ag Proc & Misc Mfg	57,013	57,013	57,013	57,013	57,013	57,013
(10) Pet Refining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(11) Metal Processing	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(12) Transportation	13,357	13,795	14,890	15,985	17,080	18,176
(13) Comm & Pub Util	132,120	138,664	155,026	171,387	187,748	204,109
(14) Electric Generation	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail Trade	109,572	112,662	120,385	128,109	135,832	143,556
(16) Fin, Ins, Real Estate	114,502	117,978	126,668	135,359	144,049	152,739
(17) Bus & Pers Service	49,769	49,769	49,769	49,769	49,769	49,769
(18) Prof & Soc Service	15,481	15,481	15,481	15,481	15,481	15,481
(19) Government	14,633	14,948	15,735	16,523	17,310	18,097
(20) Households	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

APPENDIX TABLE 87. PROJECTED GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR MINNESOTA REGION 10, SELECTED YEARS 1983 TO 2005 (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1)&(2) Agriculture	167,485	179,566	209,771	239,975	270,179	300,383
(3) Metal Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(4) Coal Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(5) Pet/NG Exp/Ext	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(6) Nonmetallic Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(7) Construction	55,624	57,922	63,667	69,413	75,158	80,903
(8) Lumber & Assoc Prod	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(9) Ag Proc & Misc Mfg	73,019	75,125	80,391	85,656	90,922	96,188
(10) Pet Refining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(11) Metal Processing	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(12) Transportation	13,163	13,744	15,196	16,648	18,100	19,552
(13) Comm & Pub Util	98,296	103,423	116,241	129,060	141,878	154,697
(14) Electric Generation	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail Trade	82,044	83,646	87,653	91,660	95,667	99,673
(16) Fin, Ins, Real Estate	102,524	107,046	118,353	129,659	140,966	152,272
(17) Bus & Pers Service	32,221	32,221	32,221	32,221	32,221	32,221
(18) Prof & Soc Service	8,955	8,955	8,955	8,955	8,955	8,955
(19) Government	13,204	13,509	14,270	15,031	15,792	16,554
(20) Households	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

APPENDIX TABLE 88. PROJECTED GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR MINNESOTA REGION 11, SELECTED YEARS 1983 TO 2005 (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1)&(2) Agriculture	213,460	226,256	258,248	290,240	322,232	354,223
(3) Metal Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(4) Coal Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(5) Pet/NG Exp/Ext	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(6) Nonmetallic Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(7) Construction	63,253	65,775	72,080	78,386	84,691	90,996
(8) Lumber & Assoc Prod	53,197	53,197	53,197	53,197	53,197	53,197
(9) Ag Proc & Misc Mfg	91,166	93,356	98,831	104,306	109,781	115,256
(10) Pet Refining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(11) Metal Processing	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(12) Transportation	11,205	11,547	12,403	13,260	14,116	14,972
(13) Comm & Pub Util	96,550	99,749	107,747	115,745	123,743	131,742
(14) Electric Generation	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail Trade	89,339	90,019	91,721	93,422	95,123	96,824
(16) Fin, Ins, Real Estate	82,592	83,176	84,635	86,094	87,553	89,012
(17) Bus & Pers Service	32,129	32,129	32,129	32,129	32,129	32,129
(18) Prof & Soc Service	6,988	6,988	6,988	6,988	6,988	6,988
(19) Government	14,275	14,437	14,843	15,248	15,653	16,059
(20) Households	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

APPENDIX TABLE 89. PROJECTED GROSS BUSINESS VOLUME TO EMPLOYMENT (PRODUCTIVITY) RATIOS FOR MINNESOTA, SELECTED YEARS 1983 TO 2005 (1980 = BASE DOLLARS)

Sector	1983	1985	1990	1995	2000	2005
(1)&(2) Agriculture	295,758	314,501	361,360	408,219	455,078	501,937
(3) Metal Mining	143,043	148,508	162,171	175,833	189,496	203,158
(4) Coal Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(5) Pet/NG Exp/Ext	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(6) Nonmetallic Mining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(7) Construction	41,005	42,401	45,889	49,377	52,865	56,354
(8) Lumber & Assoc Prod	31,844	31,154	29,432	27,709	25,986	24,263
(9) Ag Proc & Misc Mfg	93,716	96,236	102,537	108,837	115,138	121,438
(10) Pet Refining	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(11) Metal Processing	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(12) Transportation	10,517	10,912	11,898	12,884	13,870	14,856
(13) Comm & Pub Util	73,480	77,006	85,820	94,635	103,449	112,264
(14) Electric Generation	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail Trade	75,948	76,349	77,354	78,359	79,364	80,368
(16) Fin, Ins, Real Estate	52,710	53,345	54,932	56,520	58,107	59,695
(17) Bus & Pers Service	20,697	19,968	18,145	16,322	14,499	12,676
(18) Prof & Soc Service	8,885	8,637	8,017	7,397	6,777	6,157
(19) Government	10,661	10,777	11,067	11,358	11,648	11,938
(20) Households	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

APPENDIX TABLE 90. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 2, SELECTED YEARS 1980 TO 2005

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Aitkin	Aitkin	0.0184373		0.0180099		0.0175923		0.0171845		0.0167861		0.0163970	
	Hill City	0.0055520	0.0055521	0.0057729	0.0055900	0.0060025	0.0055447	0.0062413	0.0054090	0.0064896	0.0051788	0.0067477	0.004855
Beltrami	Bemidji	0.1140514	0.1140525	0.1150205	0.1113771	0.1159977	0.1071508	0.1169832	0.1013824	0.1179773	0.0941472	0.1189797	0.085610
	Blackduck	0.0068020		0.0064391		0.0060955		0.0057703		0.0054624		0.0051709	
	Lower Red Lake	0.0297389	0.0297392	0.0297692	0.0288263	0.0297996	0.0275269	0.0298300	0.0258519	0.0298604	0.0238289	0.0298909	0.021507
Cass	Cass Lake	0.0104270		0.0091530		0.0080347		0.0070530		0.0061913		0.0054349	
	East Gull Lake	0.0061041	0.0061041	0.0070433	0.0068202	0.0081271	0.0075073	0.0093776	0.0081270	0.0108206	0.0086350	0.0124856	0.008984
	Lake Shore	0.0060728	0.0060729	0.0072909	0.0070599	0.0087532	0.0080857	0.0105089	0.0091075	0.0126167	0.0100683	0.0151473	0.010899
	Pine River	0.0091768	0.0091769	0.0093322	0.0090366	0.0094902	0.0087664	0.0096508	0.0083638	0.0098142	0.0078318	0.0099803	0.007181
	Walker	0.0101041		0.0094753		0.0088856		0.0083327		0.0078141		0.0073278	
Clearwater	Bagley	0.0137603		0.0133925		0.0130347		0.0126863		0.0123473		0.0120174	
	Clearbrook	0.0060312		0.0057705		0.0055212		0.0052826		0.0050543		0.0048359	
Crow Wing	Baxter	0.0273434	0.0273437	0.0339676	0.0328916	0.0421964	0.0389782	0.0524187	0.0454282	0.0651174	0.0519644	0.0808925	0.058205
	Brainerd	0.1196758		0.1145037		0.1095552		0.1048205		0.1002905		0.0959563	
	Crosby	0.0231039		0.0218073		0.0205834		0.0194282		0.0183379		0.0173087	
	Crosslake	0.0110830	0.0110831	0.0173938	0.0168429	0.0272980	0.0252161	0.0428418	0.0371284	0.0672362	0.0536553	0.1055212	0.075926
	Deerwood	0.0060416	0.0060416	0.0060944	0.0059013	0.0061476	0.0056787	0.0062013	0.0053743	0.0062555	0.0049919	0.0063101	0.004540
	Emily	0.0061250	0.0061250	0.0068627	0.0066453	0.0076893	0.0071029	0.0086154	0.0074665	0.0096532	0.0077033	0.0108159	0.007782
	Ironton	0.0055937		0.0051125		0.0046726		0.0042707		0.0039033		0.0035675	
	Nisswa	0.0146560	0.0146562	0.0169380	0.0164015	0.0195753	0.0180823	0.0226231	0.0196061	0.0261456	0.0208645	0.0302165	0.021742

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APPENDIX TABLE 90. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 2, SELECTED YEARS 1980 TO 2005 (CONTINUED)

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Crow Wing	Pequot Lakes	0.0070936	0.0070937	0.0077020	0.0074580	0.0083625	0.0077247	0.0090797	0.0078688	0.0098584	0.0078671	0.0107038	0.007702
	West Crow Wing	0.0380725	0.0380728	0.0480000	0.0464796	0.0605163	0.0559008	0.0762962	0.0661213	0.0961908	0.0767613	0.1212729	0.087260
Hubbard	Park Rapids	0.0309996		0.0303508		0.0297155		0.0290936		0.0284846		0.0278884	
Itasca	Bovey	0.0084687		0.0077581		0.0071071		0.0065107		0.0059644		0.0054640	
	Bowstring Lake	0.0101039	0.0101040	0.0102460	0.0099214	0.0103900	0.0095976	0.0105361	0.0091310	0.0106842	0.0085261	0.0108344	0.007796
	Coleraine	0.0116249		0.0109249		0.0102670		0.0096488		0.0090678		0.0085218	
	Deer Lake	0.0284684	0.0284687	0.0336512	0.0325853	0.0397774	0.0367437	0.0470190	0.0407486	0.0555790	0.0443526	0.0656972	0.047271
	Deer River	0.0094478		0.0090987		0.0087625		0.0084387		0.0081268		0.0078265	
	Grand Rapids	0.0826429	0.0826437	0.0832033	0.0805678	0.0837675	0.0773787	0.0843355	0.0730886	0.0849074	0.0677570	0.0854831	0.061508
	Keewatin	0.0150311		0.0143134		0.0136300		0.0129793		0.0123596		0.0117694	
	La Prairie	0.0055832	0.0055833	0.0067011	0.0064889	0.0080428	0.0074294	0.0096532	0.0083659	0.0115860	0.0092458	0.0139058	0.010006
	Marble	0.0078853		0.0074812		0.0070977		0.0067340		0.0063888		0.0060614	
	Nashwauk	0.0147811		0.0138899		0.0130525		0.0122655		0.0115260		0.0108311	
	Northeast Itasca	0.0122499		0.0121853		0.0121211		0.0120572		0.0119937		0.0119305	
Koochiching	International Falls	0.0584473		0.0549063		0.0515799		0.0484550		0.0455194		0.0427617	
	Little Fork	0.0095622	0.0095623	0.0097378	0.0094293	0.0099166	0.0091603	0.0100987	0.0087520	0.0102842	0.0082069	0.0104730	0.007536
	Northome	0.0032499	0.0032499	0.0032569	0.0031538	0.0032640	0.0030150	0.0032710	0.0028348	0.0032781	0.0026160	0.0032852	0.002364
	Northwest Koochiching	0.0066562	0.0066563	0.0066594	0.0064485	0.0066627	0.0061545	0.0066659	0.0057769	0.0066691	0.0053220	0.0066724	0.004801
	Rainy Lake	0.0499265		0.0491705		0.0484259		0.0476927		0.0469705		0.0462592	
	South International Falls	0.0292283	0.0292286	0.0296912	0.0287507	0.0301615	0.0278611	0.0306391	0.0265531	0.0311243	0.0248376	0.0316172	0.022750

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APPENDIX TABLE 90. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 2, SELECTED YEARS 1980 TO 2005 (CONTINUED)

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Lake of the Woods	Baudette	0.0121874		0.0111046		0.0101181		0.0092192		0.0084001		0.0076538	
	Rainy River	0.0231872	0.0231875	0.0233512	0.0226115	0.0235163	0.0217228	0.0236826	0.0205243	0.0238501	0.0190326	0.0240187	0.017282
Wadena	Menahga	0.0102083	0.0102084	0.0105802	0.0102451	0.0109658	0.0101295	0.0113654	0.0098497	0.0117795	0.0094002	0.0122087	0.008785
	Sebeka	0.0080624		0.0078194		0.0075837		0.0073551		0.0071335		0.0069184	
	Staples	0.0027499	0.0027500	0.0034697	0.0033598	0.0043778	0.0040439	0.0055236	0.0047870	0.0069693	0.0055615	0.0087933	0.006327
	Verndale	0.0052499		0.0049376		0.0046439		0.0043676		0.0041078		0.0038634	
	Wadena	0.0489469	0.0489474	0.0490576	0.0475036	0.0491685	0.0454185	0.0492796	0.0427077	0.0493910	0.0394146	0.0495026	0.035619
SUM OF DECLINING COUNTIES		0.4582967		0.4376041		0.4180799		0.3996457		0.3822297		0.3657655	
ONE MINUS DECLINING COUNTIES		0.5417033		0.5623959		0.5819201		0.6003543		0.6177703		0.6342345	
SUM OF INCREASING COUNTIES		0.5416980		0.5807926		0.6299659		0.6927371		0.7741373		0.8814557	
ADJUSTED TOTAL			0.9999996		0.9999994		0.9999998		0.9999998		0.9999997		0.999999

APPENDIX TABLE 91. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 3, SELECTED YEARS 1980 TO 2005

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Carlton	Carlton	0.0041393	0.0041394	0.0041953	0.0041262	0.0042521	0.0040885	0.0043097	0.0040274	0.0043681	0.0039443	0.0044272	0.003840
	Cloquet	0.0535035	0.0535044	0.0571804	0.0562378	0.0611099	0.0587575	0.0653095	0.0610312	0.0697978	0.0630255	0.0745944	0.064706
	Moose Lake	0.0067613		0.0067296		0.0066981		0.0066667		0.0066355		0.0066045	
	North Carlton	0.0065404		0.0061878		0.0058542		0.0055386		0.0052400		0.0049575	
	Scanlon	0.0050421		0.0050219		0.0050018		0.0049817		0.0049618		0.0049419	
Cook	Grand Marais	0.0061897	0.0061898	0.0062590	0.0061559	0.0063291	0.0060855	0.0064000	0.0059807	0.0064716	0.0058437	0.0065441	0.005677
	West Cook	0.0067421		0.0065710		0.0064044		0.0062419		0.0060836		0.0059292	
Lake	Silver Bay	0.0140075		0.0133572		0.0127371		0.0121457		0.0115818		0.0110441	
	Two Harbors	0.0193954		0.0189322		0.0184801		0.0180388		0.0176080		0.0171875	
Pine	Hinckley	0.0046243	0.0046244	0.0048341	0.0047544	0.0050533	0.0048588	0.0052826	0.0049365	0.0055222	0.0049864	0.0057727	0.005007
	Pine City	0.0119522	0.0119524	0.0128401	0.0126285	0.0137940	0.0132630	0.0148188	0.0138480	0.0159197	0.0143750	0.0171023	0.014835
	Rock Creek	0.0042738	0.0042739	0.0045548	0.0044797	0.0048543	0.0046675	0.0051735	0.0048346	0.0055137	0.0049787	0.0058762	0.005097
	Sandstone	0.0076544	0.0076545	0.0078100	0.0076813	0.0079688	0.0076621	0.0081309	0.0075982	0.0082962	0.0074912	0.0084649	0.007343
St. Louis	Aurora	0.0128214	0.0128216	0.0128427	0.0126310	0.0128640	0.0123688	0.0128853	0.0120412	0.0129067	0.0116544	0.0129281	0.011214
	Babbitt	0.0116930		0.0116733		0.0116536		0.0116340		0.0116144		0.0115949	
	Birch Lake	0.0033566	0.0033566	0.0034779	0.0034205	0.0036035	0.0034648	0.0037338	0.0034892	0.0038687	0.0034933	0.0040085	0.003477
	Biwabik	0.0068573		0.0065269		0.0062125		0.0059132		0.0056283		0.0053572	
	Buhl	0.0061658		0.0059853		0.0058101		0.0056400		0.0054749		0.0053146	
	Chisholm	0.0284761		0.0275487		0.0266515		0.0257836		0.0249439		0.0241316	
	Cook	0.0038416	0.0038416	0.0043219	0.0042506	0.0048622	0.0046750	0.0054701	0.0051117	0.0061539	0.0055569	0.0069233	0.006006
	Duluth	0.4456816		0.4360532		0.4266326		0.4174157		0.4083979		0.3995749	
	Ely	0.0231458		0.0227624		0.0223853		0.0220144		0.0216497		0.0212910	
	Ely Lake	0.0056279	0.0056280	0.0057041	0.0056101	0.0057813	0.0055588	0.0058596	0.0054758	0.0059390	0.0053627	0.0060194	0.005221

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APPENDIX TABLE 91. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 3, SELECTED YEARS 1980 TO 2005 (CONTINUED)

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
St. Louis	Eveleth	0.0242118		0.0237768		0.0233496		0.0229300		0.0225180		0.0221134	
	Floodwood	0.0031117	0.0031117	0.0031195	0.0030681	0.0031273	0.0030069	0.0031352	0.0029298	0.0031430	0.0028381	0.0031509	0.002733
	Gilbert	0.0130662	0.0130664	0.0134062	0.0131852	0.0137550	0.0132255	0.0141130	0.0131884	0.0144802	0.0130753	0.0148570	0.012888
	Heikkila Lake	0.0077600	0.0077602	0.0088812	0.0087348	0.0101643	0.0097730	0.0116327	0.0108707	0.0133134	0.0122216	0.0152368	0.013217
	Hermantown	0.0324568	0.0324574	0.0342310	0.0336667	0.0361021	0.0347124	0.0380755	0.0355813	0.0401568	0.0362605	0.0423519	0.036738
	Hibbing	0.1017674	0.1017691	0.1078485	0.1060708	0.1142930	0.1098934	0.1211227	0.1131881	0.1283604	0.1153061	0.1360306	0.117999
	Hoyt Lakes	0.0152990	0.0152993	0.0155062	0.0152506	0.0157162	0.0151112	0.0159290	0.0148855	0.0161447	0.0145782	0.0163633	0.014194
	Mountain Iron	0.0198513	0.0198516	0.0247413	0.0243335	0.0308359	0.0296489	0.0384318	0.0359142	0.0478988	0.0432514	0.0596978	0.051785
	Northwest St. Louis	0.0027420		0.0025560		0.0023827		0.0022211		0.0020705		0.0019300	
	Pike Lake	0.0030733	0.0030733	0.0034485	0.0033917	0.0038696	0.0037207	0.0043421	0.0040577	0.0048724	0.0043996	0.0054673	0.004743
	Proctor	0.0152701	0.0152704	0.0157528	0.0154931	0.0162507	0.0156252	0.0167644	0.0156662	0.0172942	0.0156162	0.0178409	0.015476
	Sand Lake	0.0067276	0.0067277	0.0077013	0.0075743	0.0088158	0.0084765	0.0100917	0.0094306	0.0115522	0.0104314	0.0132241	0.011471
	Towner	0.0030733		0.0028782		0.0026955		0.0025243		0.0023641		0.0022140	
	Virginia	0.0530912		0.0506956		0.0484080		0.0462236		0.0441379		0.0421462	
SUM OF DECLINING COUNTIES		0.6636264		0.6472557		0.6313567		0.6159133		0.6009099		0.5863323	
ONE MINUS DECLINING COUNTIES		0.3363736		0.3527443		0.3686433		0.3840867		0.3990901		0.4136677	
SUM OF INCREASING COUNTIES		0.3363675		0.3586562		0.3834019		0.4110113		0.4419730		0.4768813	
ADJUSTED TOTAL			0.9999995		0.9999997		0.9999998		0.9999997		0.9999998		0.999999

APPENDIX TABLE 92. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 4, SELECTED YEARS 1980 TO 2005

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Becker	Detroit Lakes	0.1372414	0.1372420	0.1375046	0.1371946	0.1377681	0.1370373	0.1380321	0.1367764	0.1382967	0.1364174	0.1385617	0.135965
	Frazee	0.0247986		0.0244637		0.0241333		0.0238074		0.0234859		0.0231687	
	Lake Park	0.0138285		0.0130102		0.0122403		0.0115160		0.0108345		0.0101934	
Clay	Barnesville	0.0426244	0.0426246	0.0434549	0.0433569	0.0443015	0.0440665	0.0451645	0.0447537	0.0460445	0.0454188	0.0469415	0.046062
	Dilworth	0.0499256		0.0497040		0.0494834		0.0492637		0.0490451		0.0488273	
	Glyndon	0.0170346	0.0170347	0.0186630	0.0186210	0.0204472	0.0203387	0.0224018	0.0221981	0.0245434	0.0242099	0.0268897	0.026386
	Hawley	0.0315582	0.0315583	0.0317749	0.0317033	0.0319931	0.0318234	0.0322128	0.0319198	0.0324340	0.0319933	0.0326567	0.032045
	Moorhead	0.5793669	0.5793697	0.5857560	0.5844358	0.5922165	0.5890751	0.5987483	0.5933017	0.6053521	0.5971265	0.6120278	0.600559
	Ulen	0.0099272		0.0095420		0.0091718		0.0088160		0.0084740		0.0081452	
Mahnomen	Mahnomen	0.0247793		0.0226736		0.0207468		0.0189837		0.0173705		0.0158943	
Norman	Ada	0.0380671		0.0355758		0.0332476		0.0310717		0.0290382		0.0271378	
	Halstad	0.0133264		0.0128428		0.0123768		0.0119277		0.0114949		0.0110777	
	Twin Valley	0.0175174		0.0168766		0.0162591		0.0156643		0.0150912		0.0145391	
SUM OF DECLINING COUNTIES		0.1921700		0.1846885		0.1776590		0.1710504		0.1648341		0.1589836	
ONE MINUS DECLINING COUNTIES		0.8078300		0.8153115		0.8223410		0.8289496		0.8351659		0.8410164	
SUM OF INCREASING COUNTIES		0.8078254		0.8171532		0.8267263		0.8365595		0.8466705		0.8570774	
ADJUSTED TOTAL			0.9999991		1.0000000		0.9999998		0.9999993		0.9999999		1.000000

APPENDIX TABLE 93. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 5, SELECTED YEARS 1980 TO 2005

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Douglas	Alexandria	0.1961364	0.1961383	0.2036117	0.2026456	0.2113720	0.2090240	0.2194280	0.2152705	0.2277911	0.2213817	0.2364728	0.227354
	Evansville	0.0147205	0.0147206	0.0160796	0.0160033	0.0175642	0.0173691	0.0191859	0.0188224	0.0209574	0.0203677	0.0228924	0.022010
	Osakis	0.0349326		0.0348860		0.0348395		0.0347930		0.0347466		0.0347003	
Grant	Elbow Lake	0.0350099		0.0342405		0.0334881		0.0327522		0.0320324		0.0313285	
	Herman	0.0154683		0.0146509		0.0138767		0.0131434		0.0124488		0.0117910	
	Hoffman	0.0162673	0.0162675	0.0165402	0.0164617	0.0168176	0.0166308	0.0170997	0.0167757	0.0173866	0.0168974	0.0176782	0.016997
Otter Tail	Battle Lake	0.0182526		0.0182060		0.0181595		0.0181131		0.0180668		0.0180207	
	Fergus Falls	0.3227460		0.3172993		0.3119444		0.3066800		0.3015044		0.2964161	
	Henning	0.0214494		0.0207155		0.0200068		0.0193223		0.0186612		0.0180228	
	New York Mills	0.0250586	0.0250588	0.0262435	0.0261190	0.0274845	0.0271792	0.0287842	0.0282388	0.0301453	0.0292971	0.0315708	0.030353
	Parkers Prairie	0.0236407	0.0236409	0.0240047	0.0238908	0.0243743	0.0241035	0.0247496	0.0242806	0.0251307	0.0244236	0.0255176	0.024534
	Pelican Rapids	0.0481318	0.0481322	0.0496261	0.0493906	0.0511668	0.0505984	0.0527553	0.0517558	0.0543931	0.0528627	0.0560819	0.053919
	Perham	0.0537777	0.0537782	0.0545510	0.0542922	0.0553354	0.0547207	0.0561312	0.0550676	0.0569383	0.0553362	0.0577571	0.055530
Traverse	Browns Valley	0.0228673		0.0221476		0.0214506		0.0207756		0.0201217		0.0194885	
	Wheaton	0.0507618		0.0502455		0.0497345		0.0492286		0.0487279		0.0482324	
Wilkin	Breckenridge	0.1007758		0.0988058		0.0968744		0.0949806		0.0931239		0.0913034	
SUM OF DECLINING COUNTIES		0.6222634		0.6111969		0.6003742		0.5897886		0.5794337		0.5693033	
ONE MINUS DECLINING COUNTIES		0.3777366		0.3888031		0.3996258		0.4102114		0.4205663		0.4306967	
SUM OF INCREASING COUNTIES		0.3777328		0.3906567		0.4041147		0.4181337		0.4327423		0.4479706	
ADJUSTED TOTAL			0.9999998		0.9999999		0.9999997		0.9999999		0.9999999		1.000000

APPENDIX TABLE 94. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 6, SELECTED YEARS 1980 TO 2005

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Benton	Foley	0.0139249	0.0139250	0.0142009	0.0134405	0.0144824	0.0127087	0.0147695	0.0117773	0.0150623	0.0107027	0.0153609	0.009545
	St. Cloud	0.0402744	0.0402748	0.0410959	0.0388952	0.0419340	0.0367982	0.0427892	0.0341205	0.0436619	0.0310244	0.0445524	0.027683
	Sartell	0.0106387	0.0106388	0.0152793	0.0144611	0.0219440	0.0192564	0.0315158	0.0251309	0.0452627	0.0321619	0.0650059	0.040392
	Sauk Rapids	0.0502281	0.0502284	0.0511381	0.0483997	0.0520646	0.0456881	0.0530080	0.0422690	0.0539684	0.0383478	0.0549462	0.034142
Kanabec	Mora	0.0250579		0.0246032		0.0241567		0.0237184		0.0232880		0.0228654	
Mille Lacs	Isle	0.0049682		0.0047151		0.0044749		0.0042469		0.0040305		0.0038252	
	Milaca	0.0182428		0.0175950		0.0169703		0.0163677		0.0157865		0.0152260	
	Onamia	0.0059913		0.0056705		0.0053668		0.0050793		0.0048073		0.0045498	
	Princeton	0.0272775	0.0272777	0.0272869	0.0258257	0.0272962	0.0239532	0.0273056	0.0217737	0.0273150	0.0194089	0.0273243	0.016978
Morrison	Little Falls	0.0628614		0.0578872		0.0533066		0.0490884		0.0452041		0.0416270	
	Pierz	0.0088266		0.0086781		0.0085320		0.0083884		0.0082473		0.0081085	
	Randall	0.0045694		0.0042733		0.0039964		0.0037374		0.0034952		0.0032687	
	Royalton	0.0057225		0.0054984		0.0052830		0.0050760		0.0048771		0.0046861	
Sherburne	Becker	0.0052110	0.0052110	0.0058729	0.0055584	0.0066189	0.0058083	0.0074596	0.0059484	0.0084072	0.0059738	0.0094751	0.005887
	Big Lake	0.0191619	0.0191620	0.0245934	0.0232764	0.0315645	0.0276987	0.0405115	0.0323042	0.0519947	0.0369453	0.0667328	0.041455
	Elk River	0.0588294	0.0588298	0.0766537	0.0725489	0.0998784	0.0876459	0.1301399	0.1037746	0.1695701	0.1204898	0.2209470	0.137289
	St. Cloud	0.0383323	0.0383326	0.0387643	0.0366885	0.0392011	0.0344000	0.0396429	0.0316116	0.0400897	0.0284861	0.0405414	0.025191
	Zimmerman	0.0093122	0.0093122	0.0118964	0.0112593	0.0151977	0.0133364	0.0194152	0.0154819	0.0248031	0.0176241	0.0316862	0.019689
Stearns	Albany	0.0136041		0.0130802		0.0125765		0.0120922		0.0116265		0.0111788	
	Avon	0.0069711	0.0069711	0.0075271	0.0071240	0.0081274	0.0071320	0.0087757	0.0069978	0.0094756	0.0067330	0.0102313	0.006357
	Belgrade	0.0069798		0.0068083		0.0066410		0.0064778		0.0063186		0.0061634	
	Brooten	0.0056098		0.0051909		0.0048032		0.0044445		0.0041125		0.0038054	

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APPENDIX TABLE 94. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 6, SELECTED YEARS 1930 TO 2005 (CONTINUED)

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Stearns	Cold Spring	0.0198902		0.0197708		0.0196521		0.0195342		0.0194169		0.0193003	
	Eden Valley	0.0025231		0.0023916		0.0022669		0.0021487		0.0020367		0.0019305	
	Freeport	0.0048815		0.0044420		0.0040420		0.0036781		0.0033469		0.0030455	
	Holdingford	0.0055058		0.0053688		0.0052353		0.0051051		0.0049781		0.0048543	
	Kimball Prairie	0.0056445		0.0055150		0.0053885		0.0052649		0.0051442		0.0050262	
	Melrose	0.0208873		0.0200266		0.0192014		0.0184101		0.0176515		0.016924:	
	Paynesville	0.0185550		0.0181414		0.0177371		0.0173417		0.0169552		0.0165773	
	Richmond	0.0075174		0.0072489		0.0069901		0.0067405		0.0064998		0.0062673	
	Rockville	0.0051763	0.0051763	0.0054759	0.0051827	0.0057929	0.0050834	0.0061283	0.0048867	0.0064830	0.0046066	0.0068583	0.004262
	St. Cloud	0.2904631		0.2840344		0.2777480		0.2716008		0.2655896		0.2597114	
	St. Joseph	0.0259596	0.0259597	0.0287671	0.0272267	0.0318784	0.0279742	0.0353262	0.0281694	0.0391468	0.0278162	0.043380'	0.026955
	Sartell	0.0190750	0.0190751	0.0248180	0.0234890	0.0322901	0.0283354	0.0420118	0.0335006	0.0546605	0.0388396	0.0711175	0.044190
	Sauk Center	0.0321590		0.0301977		0.0283560		0.0266266		0.0250027		0.0234773	
	Waite Park	0.0303121	0.0303123	0.0323594	0.0306266	0.0345449	0.0303141	0.0368782	0.0294070	0.0393689	0.0279740	0.0420283	0.026115
Todd	Bertha	0.0044220		0.0040150		0.0036455		0.0033101		0.0030055		0.0027289	
	Browerville	0.0060087		0.0054914		0.0050187		0.0045866		0.0041918		0.0038309	
	Clarissa	0.0057486		0.0055562		0.0053702		0.0051904		0.0050167		0.0048483	
	Eagle Bend	0.0051416		0.0047475		0.0043837		0.0040477		0.0037374		0.0034510	
	Long Prairie	0.0247891		0.0240572		0.0233469		0.0226575		0.0219886		0.0213393	
	Staples	0.0227428		0.0209931		0.0193780		0.0178872		0.0165110		0.015240:	
SUM OF DECLINING COUNTIES		0.6393129		0.6159974		0.5938672		0.5728466		0.5528659		0.533858'	
ONE MINUS DECLINING COUNTIES		0.3606871		0.3840026		0.4061328		0.4271534		0.4471341		0.4661413	
SUM OF INCREASING COUNTIES		0.3606840		0.4057288		0.4628153		0.5356770		0.6292697		0.7501873	
ADJUSTED TOTAL			0.9999995		0.9999998		0.9999998		0.9999998		0.9999995		0.999999

APPENDIX TABLE 95. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 7, SELECTED YEARS 1980 TO 2005

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Big Stone	Clinton	0.0096397		0.0095452		0.0094517		0.0093592		0.0092675		0.0091767	
	Graceville	0.0120883		0.0115300		0.0109975		0.0104895		0.0100050		0.0095429	
	Ortonville	0.0395195		0.0377525		0.0360645		0.0344520		0.0329116		0.0314400	
Chippewa	Clara City	0.0243936	0.0243937	0.0244677	0.0241980	0.0245419	0.0239182	0.0246164	0.0235646	0.0246911	0.0231471	0.0247660	0.022675
	Granite Falls	0.0121657	0.0121657	0.0127795	0.0126387	0.0134243	0.0130831	0.0141017	0.0134992	0.0148132	0.0138870	0.0155607	0.014247
	Montevideo	0.0905849		0.0881467		0.0857742		0.0834655		0.0812189		0.0790328	
Kandiyohi	Atwater	0.0174817	0.0174817	0.0178859	0.0176887	0.0182994	0.0178343	0.0187226	0.0179225	0.0191555	0.0179577	0.0195984	0.017943
	New London	0.0125843		0.0125321		0.0124801		0.0124283		0.0123767		0.0123254	
	Prinsburg	0.0086321	0.0086322	0.0087440	0.0086476	0.0088573	0.0086322	0.0089720	0.0085887	0.0090883	0.0085200	0.0092060	0.008429
	Raymond	0.0112048	0.0112049	0.0113111	0.0111864	0.0114183	0.0111281	0.0115265	0.0110340	0.0116357	0.0109082	0.0117460	0.010754
	Spicer	0.0140875	0.0140875	0.0151787	0.0150114	0.0163544	0.0159388	0.0176212	0.0168684	0.0189862	0.0177990	0.0204569	0.018729
	Willmar	0.2463391	0.2463400	0.2646686	0.2617513	0.2843621	0.2771345	0.3055211	0.2924673	0.3282543	0.3077285	0.3526790	0.322897
Lac Qui Parle	Dawson	0.0294614		0.0290095		0.0285646		0.0281265		0.0276951		0.0272703	
	Madison	0.0342813		0.0325386		0.0308844		0.0293144		0.0278242		0.0264098	
Pope	Glenwood	0.0391011		0.0374048		0.0357821		0.0342298		0.0327449		0.0313243	
	Starbuck	0.0189694		0.0188382		0.0187079		0.0185785		0.0184500		0.0183223	
Renville	Bird Island	0.0212631		0.0205102		0.0197840		0.0190835		0.0184078		0.0177560	
	Buffalo Lake	0.0121193		0.0120148		0.0119111		0.0118083		0.0117064		0.0116054	
	Danube	0.0091437	0.0091437	0.0092404	0.0091386	0.0093382	0.0091009	0.0094370	0.0090338	0.0095368	0.0089405	0.0096377	0.008824
	Fairfax	0.0217745		0.0207459		0.0197660		0.0188323		0.0179427		0.0170951	

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APPENDIX TABLE 95. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 7, SELECTED YEARS 1980 TO 2005 (CONTINUED)

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
	Franklin	0.0079349		0.0075414		0.0071675		0.0068120		0.0064742		0.0061532	
	Hector	0.0194033		0.0185922		0.0178151		0.0170704		0.0163568		0.0156731	
	Morton	0.0085083		0.0079658		0.0074579		0.0069824		0.0065372		0.0061203	
	Olivia	0.0434243	0.0434245	0.0438420	0.0433587	0.0442636	0.0431385	0.0446893	0.0427799	0.0451191	0.0422978	0.0455531	0.041706
	Renville	0.0231383		0.0228412		0.0225478		0.0222583		0.0219725		0.0216903	
	Sacred Heart	0.0103216		0.0098685		0.0094353		0.0090212		0.0086252		0.0082466	
Stevens	Chokio	0.0086633		0.0086202		0.0085774		0.0085347		0.0084923		0.0084500	
	Hancock	0.0135916		0.0129062		0.0122553		0.0116373		0.0110504		0.0104931	
	Morris	0.0831769	0.0831771	0.0854945	0.0845521	0.0878767	0.0856431	0.0903253	0.0864660	0.0928423	0.0870368	0.0954292	0.087371
Swift	Appleton	0.0285471		0.0264825		0.0245672		0.0227904		0.0211422		0.0196131	
	Benson	0.0566602		0.0546910		0.0527903		0.0509557		0.0491848		0.0474754	
	Kerkhoven	0.0117939	0.0117939	0.0118824	0.0117514	0.0119715	0.0116672	0.0120613	0.0115460	0.0121518	0.0113920	0.0122430	0.011209
SUM OF DECLINING COUNTIES		0.5181547		0.5000772		0.4827812		0.4662296		0.4503856		0.4352158	
ONE MINUS DECLINING COUNTIES		0.4818453		0.4999228		0.5172188		0.5337704		0.5496144		0.5647842	
SUM OF INCREASING COUNTIES		0.4818431		0.5054945		0.5307075		0.5575943		0.5862742		0.6168758	
ADJUSTED TOTAL			0.9999995		0.9999998		0.9999999		0.9999999		0.9999998		1.000000

APPENDIX TABLE 96. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 8, SELECTED YEARS 1980 TO 2005

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Anoka	Andover	0.0047010		0.0044430		0.0041992		0.0039687		0.0037509		0.0035450	
	Anoka	0.0078295	0.0078296	0.0081620	0.0073978	0.0085087	0.0067141	0.0088701	0.0058296	0.0092468	0.0048202	0.0096396	0.003780
	Blaine	0.0143018	0.0143021	0.0188411	0.0170771	0.0248210	0.0195860	0.0326990	0.0214904	0.0430773	0.0224554	0.0567496	0.022253
	Centerville	0.0003676	0.0003676	0.0004217	0.0003822	0.0004839	0.0003818	0.0005551	0.0003648	0.0006369	0.0003320	0.0007307	0.000287
	Circle Pines	0.0016632		0.0016420		0.0016211		0.0016005		0.0015801		0.0015600	
	Columbia Heights	0.0100306		0.0098008		0.0095763		0.0093569		0.0091426		0.0089332	
	Coon Rapids	0.0179415	0.0179418	0.0211042	0.0191283	0.0248245	0.0195887	0.0292006	0.0191912	0.0343480	0.0179050	0.0404029	0.015843
	East Bethel	0.0033183	0.0033183	0.0046191	0.0041867	0.0064299	0.0050738	0.0089506	0.0058825	0.0124595	0.0064949	0.0173439	0.006801
	Fridley	0.0151381	0.0151383	0.0169976	0.0154062	0.0190856	0.0150602	0.0214301	0.0140843	0.0240626	0.0125434	0.0270185	0.010595
	Ham Lake	0.0039223	0.0039223	0.0056779	0.0051463	0.0082194	0.0064859	0.0118986	0.0078200	0.0172245	0.0089788	0.0249344	0.009777
	Hilltop	0.0004092	0.0004092	0.0004165	0.0003775	0.0004240	0.0003346	0.0004316	0.0002837	0.0004394	0.0002290	0.0004473	0.000175
	Lexington	0.0010767	0.0010767	0.0011216	0.0010166	0.0011683	0.0009219	0.0012170	0.0007998	0.0012677	0.0006608	0.0013205	0.000518
	Lino Lakes	0.0024870	0.0024870	0.0028403	0.0025744	0.0032438	0.0025597	0.0037047	0.0024348	0.0042310	0.0022055	0.0048321	0.001895
	Ramsey	0.0050545	0.0050546	0.0081713	0.0074062	0.0132099	0.0104238	0.0213556	0.0140353	0.0345240	0.0179967	0.0558124	0.021886
	St. Francis	0.0005930	0.0005930	0.0006007	0.0005444	0.0006085	0.0004802	0.0006164	0.0004051	0.0006245	0.0003255	0.0006326	0.000248
	Spring Lake Park	0.0031891	0.0031892	0.0035844	0.0032488	0.0040286	0.0031789	0.0045279	0.0029759	0.0050891	0.0026529	0.0057199	0.002243
Carver	Carver	0.0003215	0.0003215	0.0003290	0.0002982	0.0003367	0.0002657	0.0003446	0.0002265	0.0003527	0.0001838	0.0003609	0.000142
	Chanhassen	0.0031846	0.0031846	0.0068004	0.0061637	0.0145218	0.0114590	0.0310101	0.0203805	0.0662197	0.0345190	0.1414070	0.055450
	Chaska	0.0041796	0.0041797	0.0053390	0.0048392	0.0068201	0.0053816	0.0087119	0.0057256	0.0111285	0.0058011	0.0142155	0.005574
	Cologne	0.0002729		0.0002700		0.0002671		0.0002643		0.0002614		0.0002586	
	Norwood	0.0006105	0.0006105	0.0006149	0.0005573	0.0006193	0.0004887	0.0006238	0.0004100	0.0006283	0.0003275	0.0006329	0.000248

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APPENDIX TABLE 96. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 8, SELECTED YEARS 1980 TO 2005 (CONTINUED)

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Carver	Victoria	0.0007136	0.0007137	0.0009127	0.0008272	0.0011673	0.0009211	0.0014928	0.0009811	0.0019092	0.0009952	0.0024417	0.000957
	Waconia	0.0013211	0.0013211	0.0013302	0.0012056	0.0013393	0.0010568	0.0013485	0.0008863	0.0013577	0.0007078	0.0013671	0.000536
	Watertown	0.0009105	0.0009105	0.0009880	0.0008955	0.0010722	0.0008460	0.0011635	0.0007647	0.0012626	0.0006582	0.0013701	0.000537
	Young America	0.0006195	0.0006195	0.0007430	0.0006734	0.0008911	0.0007031	0.0010687	0.0007024	0.0012818	0.0006682	0.0015373	0.000603
Chisago	Branch	0.0009345	0.0009345	0.0012179	0.0011039	0.0015874	0.0012526	0.0020689	0.0013597	0.0026964	0.0014056	0.0035142	0.001378
	Chisago	0.0008183	0.0008183	0.0009328	0.0008455	0.0010634	0.0008391	0.0012122	0.0007967	0.0013819	0.0007204	0.0015753	0.000618
	Harris	0.0003395		0.0003378		0.0003361		0.0003344		0.0003328		0.0003311	
	Lindstrom	0.0009876	0.0009876	0.0011571	0.0010488	0.0013557	0.0010697	0.0015884	0.0010439	0.0018610	0.0009701	0.0021804	0.000855
	North Branch	0.0007998	0.0007998	0.0008609	0.0007803	0.0009267	0.0007313	0.0009976	0.0006556	0.0010738	0.0005598	0.0011559	0.000453
	Rish City	0.0006000		0.0005782		0.0005573		0.0005371		0.0005176		0.0004988	
	Stacy	0.0004988	0.0004988	0.0006949	0.0006298	0.0009680	0.0007639	0.0013485	0.0008863	0.0018786	0.0009793	0.0026171	0.001026
	Taylors Falls	0.0003120		0.0003048		0.0002977		0.0002908		0.0002840		0.0002775	
	Wyoming	0.0007808	0.0007808	0.0010153	0.0009202	0.0013203	0.0010418	0.0017169	0.0011284	0.0022326	0.0011638	0.0029033	0.001138
Dakota	Apple Valley	0.0109264	0.0109266	0.0130703	0.0118466	0.0156348	0.0123372	0.0187025	0.0122917	0.0223721	0.0116622	0.0267618	0.010494
	Burnsville	0.0178657	0.0178660	0.0195282	0.0176998	0.0213454	0.0168434	0.0233317	0.0153341	0.0255028	0.0132941	0.0278760	0.010931
	Eagen	0.0103666	0.0103667	0.0154106	0.0139677	0.0229088	0.0180770	0.0340553	0.0223818	0.0506254	0.0263901	0.0752579	0.029511
	Farmington	0.0021885	0.0021885	0.0024284	0.0022010	0.0026946	0.0021262	0.0029899	0.0019650	0.0033177	0.0017294	0.0036813	0.001444
	Hastings	0.0064237	0.0064238	0.0066399	0.0060183	0.0068634	0.0054158	0.0070944	0.0046626	0.0073332	0.0038227	0.0075801	0.002972
	Inver Grove Heights	0.0085992	0.0085993	0.0088616	0.0080319	0.0091321	0.0072060	0.0094108	0.0061850	0.0096980	0.0050554	0.0099940	0.003919
	Lakeville	0.0074068	0.0074069	0.0140020	0.0126910	0.0264697	0.0208869	0.0500389	0.0328865	0.0945944	0.0493102	0.1788232	0.070122

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APPENDIX TABLE 96. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 8, SELECTED YEARS 1980 TO 2005 (CONTINUED)

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
	Mendota	0.0036498	0.0036499	0.0037849	0.0034306	0.0039251	0.0030972	0.0040704	0.0026751	0.0042211	0.0022004	0.0043773	0.001716
	Rosemount	0.0025456	0.0025456	0.0035535	0.0032208	0.0049605	0.0039143	0.0069246	0.0045510	0.0096665	0.0050389	0.013494[illegible]	0.005291
	South St. Paul	0.0106346		0.0099587		0.0093259		0.0087332		0.0081782		0.0076585	
	West St. Paul	0.0092783	0.0092785	0.0095626	0.0086673	0.0098557	0.0077770	0.0101577	0.0066759	0.0104690	0.0054573	0.0107899	0.004231
Hennepin	Bloomington	0.0409814	0.0409820	0.0437001	0.0396086	0.0465993	0.0367709	0.0496907	0.0326577	0.0529873	0.0276212	0.0565025	0.022156
	Brooklyn Center	0.0156401	0.0156403	0.0157295	0.0142568	0.0158194	0.0124829	0.0159099	0.0104563	0.0160009	0.0083410	0.0160924	0.006310
	Brooklyn Park	0.0217005	0.0217008	0.0294467	0.0266897	0.0399580	0.0315304	0.0542215	0.0356355	0.0735765	0.0383540	0.0998405	0.039150
	Champlin	0.0045102	0.0045103	0.0069547	0.0063036	0.0107241	0.0084623	0.0165365	0.0108681	0.0254991	0.0132922	0.0393194	0.015418
	Corcoran	0.0021294	0.0021294	0.0027403	0.0024837	0.0035265	0.0027827	0.0045382	0.0029826	0.0058401	0.0030444	0.0075156	0.002947
	Crystal	0.0127920		0.0122438		0.0117191		0.0112169		0.0107362		0.0102761	
	Dayton	0.0020382	0.0020383	0.0033296	0.0030179	0.0054392	0.0042920	0.0088855	0.0058397	0.0145152	0.0075665	0.0237117	0.009298
	Deephaven	0.0018610		0.0018138		0.0017677		0.0017229		0.0016792		0.0016365	
	Eden Prairie	0.0081445	0.0081446	0.0095244	0.0086327	0.0111382	0.0087890	0.0130254	0.0085605	0.0152323	0.0079403	0.0178132	0.006985
	Edina	0.0230731	0.0230734	0.0245887	0.0222865	0.0262038	0.0206771	0.0279251	0.0183530	0.0297594	0.0155130	0.0317152	0.012436
	Excelsior	0.0012635		0.0012624		0.0012614		0.0012603		0.0012592		0.0012581	
	Golden Valley	0.0114057	0.0114058	0.0120555	0.0109268	0.0127424	0.0100549	0.0134684	0.0088517	0.0142358	0.0074209	0.0150469	0.005900
	Greenfield	0.0006966	0.0006966	0.0007997	0.0007248	0.0009181	0.0007244	0.0010539	0.0006927	0.0012099	0.0006307	0.0013890	0.000545
	Greenwood	0.0003270	0.0003270	0.0003272	0.0002966	0.0003273	0.0002583	0.0003275	0.0002152	0.0003277	0.0001708	0.0003278	0.000129
	Hanover	0.0001242	0.0001242	0.0001534	0.0001390	0.0001895	0.0001495	0.0002341	0.0001538	0.0002891	0.0001507	0.0003571	0.000140
	Hopkins	0.0076802	0.0076804	0.0078225	0.0070901	0.0079674	0.0062870	0.0081150	0.0053334	0.0082654	0.0043086	0.0084185	0.003301

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APPENDIX TABLE 96. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 8, SELECTED YEARS 1980 TO 2005 (CONTINUED)

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Hennepin	Independence	0.0013221	0.0013221	0.0014525	0.0013165	0.0015957	0.0012592	0.0017531	0.0011522	0.0019260	0.0010040	0.0021159	0.000830
	Long Lake	0.0008749	0.0008749	0.0009516	0.0008625	0.0010350	0.0008167	0.0011257	0.0007399	0.0012244	0.0006383	0.0013317	0.000522
	Maple Grove	0.0102789	0.0102791	0.0169535	0.0153662	0.0279620	0.0220645	0.0461188	0.0303102	0.0760655	0.0396515	0.1254579	0.049196
	Maple Plain	0.0007116	0.0007116	0.0007880	0.0007143	0.0008726	0.0006886	0.0009663	0.0006351	0.0010701	0.0005578	0.0011850	0.000465
	Medina	0.0013136	0.0013136	0.0014344	0.0013001	0.0015663	0.0012359	0.0017103	0.0011241	0.0018676	0.0009735	0.0020394	0.000800
	Minneapolis	0.1857734		0.1643765		0.1454440		0.1286922		0.1138697		0.1007545	
	Minnetonka	0.0193726	0.0193729	0.0204130	0.0185018	0.0215094	0.0169728	0.0226646	0.0148956	0.0238818	0.0124491	0.0251644	0.009936
	Minnetonka Beach	0.0002880		0.0002760		0.0002644		0.0002534		0.0002429		0.0002327	
	Minnetrista	0.0016206		0.0015772		0.0015350		0.0014939		0.0014539		0.0014150	
	Mound	0.0046475	0.0046475	0.0050198	0.0045498	0.0054220	0.0042784	0.0058564	0.0038490	0.0063257	0.0032974	0.0068325	0.002679
	New Hope	0.0115620	0.0115622	0.0174479	0.0158143	0.0263300	0.0207767	0.0397338	0.0261139	0.0599610	0.0312565	0.0904851	0.035482
	Orono	0.0034280		0.0034001		0.0033724		0.0033450		0.0033178		0.0032907	
	Osseo	0.0014894	0.0014894	0.0015348	0.0013911	0.0015817	0.0012481	0.0016300	0.0010713	0.0016797	0.0008756	0.0017310	0.000679
	Plymouth	0.0158326	0.0158329	0.0201704	0.0182819	0.0256965	0.0202768	0.0327367	0.0215152	0.0417057	0.0217404	0.0531319	0.020835
	Richfield	0.0189559		0.0174017		0.0159750		0.0146652		0.0134629		0.0123591	
	Robbinsdale	0.0072226		0.0066122		0.0060535		0.0055419		0.0050736		0.0046449	
	Rockford	0.0001903	0.0001903	0.0003101	0.0002811	0.0005053	0.0003988	0.0008235	0.0005412	0.0013418	0.0006995	0.0021866	0.000857
	Rogers	0.0003265	0.0003265	0.0003537	0.0003205	0.0003831	0.0003023	0.0004149	0.0002727	0.0004494	0.0002342	0.0004867	0.000191
	St. Anthony	0.0028140		0.0027745		0.0027356		0.0026972		0.0026594		0.0026221	
	St. Bonifacius	0.0004292	0.0004292	0.0004480	0.0004060	0.0004676	0.0003690	0.0004881	0.0003208	0.0005095	0.0002656	0.0005318	0.000209

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APPENDIX TABLE 96. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 8, SELECTED YEARS 1980 TO 2005 (CONTINUED

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Hennepin	St. Louis Park	0.0215000		0.0202754		0.0191205		0.0180314		0.0170044		0.0160359	
	Shorewood	0.0023252	0.0023252	0.0024124	0.0021866	0.0025030	0.0019751	0.0025969	0.0017067	0.0026943	0.0014045	0.0027954	0.001096
	Spring Park	0.0007337	0.0007337	0.0008438	0.0007648	0.0009705	0.0007658	0.0011162	0.0007336	0.0012838	0.0006692	0.0014766	0.000579
	Tonka Bay	0.0006781		0.0006600		0.0006423		0.0006252		0.0006084		0.0005922	
	Wayzata	0.0018134		0.0017651		0.0017180		0.0016722		0.0016276		0.0015842	
	Woodland	0.0002634		0.0002590		0.0002547		0.0002504		0.0002462		0.0002421	
Isanti	Braham	0.0005083	0.0005083	0.0005220	0.0004732	0.0005361	0.0004230	0.0005506	0.0003619	0.0005654	0.0002948	0.0005807	0.000223
	Cambridge	0.0015875		0.0015578		0.0015286		0.0015000		0.0014719		0.0014443	
	Isanti	0.0004297	0.0004297	0.0004600	0.0004170	0.0004925	0.0003887	0.0005273	0.0003466	0.0005646	0.0002943	0.0006045	0.000237
McLeod	Brownton	0.0003491		0.0003298		0.0003116		0.0002944		0.0002781		0.0002628	
	Glencoe	0.0022015	0.0022015	0.0022498	0.0020391	0.0022991	0.0018142	0.0023495	0.0015441	0.0024010	0.0012516	0.0024537	0.000962
	Hutchinson	0.0046293	0.0046294	0.0048333	0.0043808	0.0050463	0.0039820	0.0052687	0.0034627	0.0055008	0.0028675	0.0057432	0.002252
	Lester Prairie	0.0006155	0.0006155	0.0006178	0.0005600	0.0006201	0.0004893	0.0006224	0.0004091	0.0006248	0.0003257	0.0006271	0.000245
	Silver Lake	0.0003496		0.0003368		0.0003246		0.0003127		0.0003014		0.0002904	
	Stewart	0.0003085		0.0002849		0.0002630		0.0002429		0.0002243		0.0002071	
	Winsted	0.0007622	0.0007622	0.0007705	0.0006984	0.0007789	0.0006146	0.0007873	0.0005174	0.0007959	0.0004149	0.0008045	0.000315
Meeker	Cosmos	0.0002860		0.0002812		0.0002766		0.0002720		0.0002675		0.0002631	
	Dassel	0.0005339		0.0005319		0.0005300		0.0005281		0.0005262		0.0005242	
	Eden Valley	0.0002364		0.0002177		0.0002006		0.0001848		0.0001702		0.0001568	
	Grove City	0.0002985	0.0002985	0.0003000	0.0002719	0.0003015	0.0002379	0.0003030	0.0001992	0.0003046	0.0001588	0.0003061	0.000120
	Litchfield	0.0029567		0.0029018		0.0028478		0.0027949		0.0027429		0.0026919	
	Watkins	0.0003791		0.0003599		0.0003416		0.0003242		0.0003078		0.0002921	

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APPENDIX TABLE 96. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 8, SELECTED YEARS 1980 TO 2005 (CONTINUED)

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Ramsey	Arden Hills	0.0040124	0.0040125	0.0045313	0.0041071	0.0051174	0.0040381	0.0057792	0.0037982	0.0065266	0.0034022	0.0073707	0.002890
	Falcon Heights	0.0026498		0.0024343		0.0022363		0.0020544		0.0018873		0.0017338	
	Lauderdale	0.0009941		0.0009801		0.0009664		0.0009528		0.0009394		0.0009262	
	Little Canada	0.0035566	0.0035567	0.0040085	0.0036332	0.0045177	0.0035649	0.0050917	0.0033464	0.0057385	0.0029914	0.0064676	0.002536
	Maplewood	0.0135165	0.0135168	0.0140361	0.0127219	0.0145756	0.0115015	0.0151359	0.0099476	0.0157177	0.0081933	0.0163218	0.006430
	Mounds View	0.0063066	0.0063067	0.0070549	0.0063944	0.0078921	0.0062276	0.0088287	0.0058024	0.0098763	0.0051483	0.0110483	0.004332
	New Brighton	0.0116531	0.0116533	0.0151797	0.0137585	0.0197736	0.0156031	0.0257577	0.0169285	0.0335529	0.0174905	0.0437071	0.017139
	North Oaks	0.0014253	0.0014253	0.0018482	0.0016752	0.0023968	0.0018913	0.0031080	0.0020427	0.0040304	0.0021010	0.0052265	0.002049
	North St. Paul	0.0059700	0.0059701	0.0061366	0.0055620	0.0063078	0.0049774	0.0064838	0.0042613	0.0066647	0.0034742	0.0068507	0.002686
	Roseville	0.0179385	0.0179388	0.0187397	0.0169851	0.0195766	0.0154477	0.0204509	0.0134408	0.0213643	0.0111368	0.0223184	0.008752
	St. Anthony	0.0011829	0.0011829	0.0018150	0.0016451	0.0027849	0.0021976	0.0042732	0.0028084	0.0065567	0.0034179	0.0100605	0.003945
	St. Paul	0.1353320		0.1232510		0.1122485		0.1022282		0.0931023		0.0847911	
	Shoreview	0.0086638	0.0086639	0.0102098	0.0092539	0.0120318	0.0094942	0.0141789	0.0093187	0.0167092	0.0087102	0.0196910	0.007721
	Spring Lake Park	0.0000546	0.0000546	0.0000565	0.0000512	0.0000584	0.0000461	0.0000604	0.0000397	0.0000625	0.0000326	0.0000646	0.000025
	Vadnais Heights	0.0025596	0.0025596	0.0029046	0.0026326	0.0032961	0.0026009	0.0037405	0.0024583	0.0042447	0.0022127	0.0048169	0.001889
	White Bear Lake	0.0112871	0.0112873	0.0122766	0.0111272	0.0133529	0.0105366	0.0145235	0.0095452	0.0157968	0.0082345	0.0171816	0.006737
Rice	Faribault	0.0081335		0.0076082		0.0071167		0.0066570		0.0062270		0.0058248	
	Lonsdale	0.0005809	0.0005809	0.0006644	0.0006022	0.0007598	0.0005996	0.0008690	0.0005711	0.0009939	0.0005181	0.0011366	0.000446
	Morristown	0.0003200		0.0003052		0.0002911		0.0002777		0.0002649		0.0002526	
	Northfield	0.0062911	0.0062912	0.0065164	0.0059063	0.0067497	0.0053261	0.0069915	0.0045949	0.0072419	0.0037751	0.0075013	0.002941

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APPENDIX TABLE 96. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 8, SELECTED YEARS 1980 TO 2005 (CONTINUED)

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Scott	Belle Plaine	0.0013792	0.0013792	0.0014245	0.0012911	0.0014713	0.0011609	0.0015196	0.0009987	0.0015694	0.0008181	0.0016210	0.000636
	Jordan	0.0013336	0.0013337	0.0014601	0.0013234	0.0015985	0.0012613	0.0017500	0.0011501	0.0019159	0.0009987	0.0020976	0.000823
	New Prague	0.0009505		0.0009355		0.0009207		0.0009062		0.0008919		0.0008778	
	Prior Lake	0.0036479	0.0036479	0.0059022	0.0053496	0.0095498	0.0075357	0.0154517	0.0101552	0.0250008	0.0130324	0.0404514	0.015362
	Savage	0.0019802	0.0019802	0.0025804	0.0023388	0.0033627	0.0026535	0.0043820	0.0028800	0.0057104	0.0029767	0.0074414	0.002918
	Shakopee	0.0049784	0.0049785	0.0055323	0.0050144	0.0061479	0.0048512	0.0068320	0.0044901	0.0075922	0.0039576	0.0084369	0.003308
Washington	Afton	0.0012770	0.0012771	0.0024191	0.0021926	0.0045826	0.0036161	0.0086810	0.0057053	0.0164447	0.0085723	0.0311516	0.012215
	Bayport	0.0014684		0.0013572		0.0012545		0.0011595		0.0010718		0.0009907	
	Birchwood Village	0.0005303	0.0005304	0.0005782	0.0005241	0.0006304	0.0004974	0.0006873	0.0004517	0.0007494	0.0003906	0.0008170	0.000320
	Cottage Grove	0.0095122	0.0095124	0.0098060	0.0088879	0.0101088	0.0079768	0.0104210	0.0068489	0.0107428	0.0056000	0.0110746	0.004343
	Dellwood	0.0003761	0.0003761	0.0004435	0.0004019	0.0005229	0.0004126	0.0006165	0.0004052	0.0007270	0.0003790	0.0008572	0.000336
	Forest Lake	0.0023017	0.0023017	0.0025733	0.0023324	0.0028770	0.0022702	0.0032166	0.0021140	0.0035962	0.0018746	0.0040207	0.001577
	Hugo	0.0018885	0.0018885	0.0029042	0.0026322	0.0044660	0.0035241	0.0068679	0.0045137	0.0105615	0.0055055	0.0162416	0.006369
	Lake Elmo	0.0026522	0.0026523	0.0044157	0.0040022	0.0073515	0.0058010	0.0122393	0.0080439	0.0203770	0.0106221	0.0339250	0.013303
	Lakeland	0.0009074	0.0009075	0.0011315	0.0010256	0.0014110	0.0011134	0.0017594	0.0011563	0.0021939	0.0011436	0.0027356	0.001073
	Lake St. Croix Beach	0.0005889	0.0005889	0.0006301	0.0005711	0.0006742	0.0005320	0.0007213	0.0004741	0.0007718	0.0004023	0.0008258	0.000324
	Landfall	0.0003400	0.0003401	0.0003588	0.0003252	0.0003786	0.0002988	0.0003995	0.0002626	0.0004216	0.0002198	0.0004448	0.000174
	Mahtomedi	0.0019286	0.0019286	0.0021143	0.0019164	0.0023180	0.0018291	0.0025412	0.0016701	0.0027860	0.0014523	0.0030543	0.001193
	Marine on St. Croix	0.0002719		0.0002688		0.0002656		0.0002626		0.0002595		0.0002565	

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APPENDIX TABLE 96. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 8, SELECTED YEARS 1980 TO 2005 (CONTINUED)

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Washington	Newport	0.0016642	0.0016642	0.0017153	0.0015547	0.0017680	0.0013951	0.0018224	0.0011977	0.0018784	0.0009792	0.0019361	0.000759
	Oakdale	0.0060712	0.0060713	0.0064078	0.0058078	0.0067630	0.0053366	0.0071379	0.0046912	0.0075336	0.0039271	0.0079513	0.003113
	Oak Park Heights	0.0012976	0.0012976	0.0020497	0.0018578	0.0032379	0.0025550	0.0051148	0.0033615	0.0080796	0.0042117	0.0127631	0.005005
	St. Paul Park	0.0024359	0.0024359	0.0025430	0.0023049	0.0026549	0.0020949	0.0027717	0.0018216	0.0028936	0.0015084	0.0030209	0.001135
	Stillwater	0.0061548	0.0061549	0.0064149	0.0058143	0.0066859	0.0052758	0.0069684	0.0045798	0.0072629	0.0037860	0.0075697	0.002968
	Willernie	0.0003275		0.0003084		0.0002903		0.0002734		0.0002574		0.0002423	
	Woodbury	0.0051567	0.0051568	0.0055363	0.0050179	0.0059437	0.0046901	0.0063812	0.0041939	0.0068509	0.0035712	0.0073551	0.002894
Wright	Albertville	0.0002825	0.0002825	0.0003183	0.0002885	0.0003587	0.0002831	0.0004043	0.0002657	0.0004556	0.0002375	0.0005134	0.000201
	Annandale	0.0007852	0.0007853	0.0008338	0.0007558	0.0008854	0.0006987	0.0009402	0.0006179	0.0009984	0.0005204	0.0010601	0.000416
	Buffalo	0.0011629		0.0009284		0.0007412		0.0005918		0.0004725		0.0003772	
	Cokato	0.0010296	0.0010297	0.0010798	0.0009787	0.0011325	0.0008936	0.0011877	0.0007806	0.0012456	0.0006493	0.0013064	0.000512
	Delano	0.0012420	0.0012420	0.0013073	0.0011849	0.0013760	0.0010858	0.0014484	0.0009519	0.0015246	0.0007947	0.0016047	0.000629
	Hanover	0.0001998	0.0001998	0.0002311	0.0002094	0.0002672	0.0002109	0.0003090	0.0002031	0.0003574	0.0001863	0.0004133	0.000162
	Howard Lake	0.0006210		0.0006183		0.0006155		0.0006128		0.0006101		0.0006074	
	Maple Lake	0.0005669		0.0005502		0.0005340		0.0005183		0.0005030		0.0004882	
	Monticello	0.0014173	0.0014173	0.0015759	0.0014284	0.0017523	0.0013827	0.0019485	0.0012806	0.0021666	0.0011294	0.0024092	0.000945
	Montrose	0.0003816	0.0003816	0.0004350	0.0003943	0.0004959	0.0003913	0.0005654	0.0003716	0.0006445	0.0003360	0.0007347	0.000288
	Rockford	0.0010156	0.0010156	0.0013691	0.0012409	0.0018456	0.0014563	0.0024879	0.0016351	0.0033538	0.0017483	0.0045210	0.001773
	St. Michael	0.0007607	0.0007607	0.0008704	0.0007890	0.0009960	0.0007859	0.0011397	0.0007490	0.0013041	0.0006798	0.0014922	0.000585
SUM OF DECLINING COUNTIES		0.4486119		0.4083795		0.3721488		0.3395016		0.3100652		0.2835073	
ONE MINUS DECLINING COUNTIES		0.5513881		0.5916205		0.6278512		0.6604984		0.6899348		0.7164927	
SUM OF INCREASING COUNTIES		0.5513787		0.6527339		0.7956669		1.0049877		1.3235378		1.8271875	
ADJUSTED TOTAL			0.9999993		0.9999993		0.9999985		0.9999996		1.0000095		1.000012

APPENDIX TABLE 97. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 9, SELECTED YEARS 1980 TO 2005

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Cottonwood	Mountain Lake	0.0333756	0.0333761	0.0336982	0.0332721	0.0340239	0.0330256	0.0343527	0.0326491	0.0346848	0.0321550	0.0350201	0.031555
	Westbrook	0.0143353		0.0137928		0.0132709		0.0127686		0.0122854		0.0118205	
	Windom	0.0683928	0.0683939	0.0703746	0.0694848	0.0724138	0.0702892	0.0745122	0.0708170	0.0766713	0.0710793	0.0788929	0.071088
Jackson	Heron Lake	0.0114770		0.0109048		0.0103610		0.0098444		0.0093535		0.0088872	
	Jackson	0.0556557		0.0556441		0.0556324		0.0556207		0.0556090		0.0555974	
	Lakefield	0.0270437		0.0264465		0.0258625		0.0252914		0.0247330		0.0241868	
Lincoln	Hendricks	0.0108028		0.0102800		0.0097826		0.0093092		0.0088587		0.0084300	
	Ivanhoe	0.0111546		0.0109793		0.0108067		0.0106369		0.0104697		0.0103051	
	Lake Benton	0.0127376		0.0122359		0.0117540		0.0112911		0.0108464		0.0104192	
	Tyler	0.0198319	0.0198322	0.0200960	0.0198419	0.0203635	0.0197661	0.0206347	0.0196114	0.0209094	0.0193844	0.0211878	0.019092
Lyon	Balaton	0.0110227		0.0108022		0.0105861		0.0103744		0.0101669		0.0099636	
	Cottonwood	0.0135439	0.0135441	0.0140035	0.0138265	0.0144788	0.0140540	0.0149702	0.0142278	0.0154782	0.0143493	0.0160035	0.014420
	Marshall	0.1635926	0.1635954	0.1804817	0.1781998	0.1991141	0.1932722	0.2196706	0.2087767	0.2423489	0.2246731	0.2673688	0.240918
	Minneota	0.0215470	0.0215474	0.0215743	0.0213015	0.0216017	0.0209679	0.0216291	0.0205564	0.0216565	0.0200770	0.0216840	0.019539
	Tracy	0.0363220		0.0340004		0.0318272		0.0297928		0.0278885		0.0261060	
Murray	Fulda	0.0191724		0.0190024		0.0188339		0.0186669		0.0185014		0.0183373	
	Slayton	0.0354719		0.0341881		0.0329508		0.0317583		0.0306089		0.0295011	
Nobles	Adrian	0.0195828		0.0194598		0.0193376		0.0192161		0.0190954		0.0189755	
	Brewster	0.0081937		0.0081761		0.0081586		0.0081410		0.0081236		0.0081061	
	Ellsworth	0.0092198		0.0089293		0.0086479		0.0083755		0.0081116		0.0078560	

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APPENDIX TABLE 97. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 9, SELECTED YEARS 1980 TO 2005 (CONTINUED)

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Pipestone	Edgerton	0.0164607		0.0163665		0.0162729		0.0161797		0.0160871		0.0159951	
	Jasper	0.0107149		0.0100131		0.0093572		0.0087444		0.0081716		0.0076364	
	Pipestone	0.0716326		0.0680406		0.0646287		0.0613879		0.0583096		0.0553856	
Redwood	Lamberton	0.0151268		0.0143154		0.0135475		0.0128207		0.0121330		0.0114821	
	Morgan	0.0142914		0.0138685		0.0134582		0.0130600		0.0126735		0.0122986	
	Redwood Falls	0.0763654	0.0763666	0.0778165	0.0768326	0.0792953	0.0769687	0.0808021	0.0767950	0.0823376	0.0763323	0.0839023	0.075602
	Sanborn	0.0075927		0.0073574		0.0071295		0.0069085		0.0066944		0.0064870	
	Wabasso	0.0109201		0.0104460		0.0099926		0.0095588		0.0091438		0.0087469	
	Walnut Grove	0.0110373		0.0102840		0.0095820		0.0089280		0.0083186		0.0077508	
Rock	Hills	0.0087653	0.0087654	0.0088254	0.0087138	0.0088859	0.0086252	0.0089468	0.0085032	0.0090082	0.0083512	0.0090700	0.008173
	Luverne	0.0669568		0.0661623		0.0653772		0.0646015		0.0638349		0.0630774	
Yellow Medicine	Canby	0.0314117		0.0304716		0.0295596		0.0286750		0.0278168		0.0269843	
	Clarkfield	0.0171643		0.0169189		0.0166771		0.0164387		0.0162037		0.0159721	
	Granite Falls	0.0390774	0.0390780	0.0399467	0.0394416	0.0408354	0.0396373	0.0417438	0.0396736	0.0426724	0.0395601	0.0436218	0.039306
SUM OF DECLINING COUNTIES		0.5555007		0.5390854		0.5233940		0.5083898		0.4940385		0.4803075	
ONE MINUS DECLINING COUNTIES		0.4444993		0.4609146		0.4766060		0.4916102		0.5059615		0.5196925	
SUM OF INCREASING COUNTIES		0.4444916		0.4668167		0.4910121		0.5172621		0.5457671		0.5767509	
ADJUSTED TOTAL			0.9999996		0.9999998		0.9999999		0.9999998		0.9999999		1.000000

APPENDIX TABLE 98. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 10, SELECTED YEARS 1980 TO 2005

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Blue Earth	Amboy	0.0043109		0.0041112		0.0039208		0.0037392		0.0035660		0.0034008	
	Eagle Lake	0.0104570	0.0104571	0.0131415	0.0130556	0.0165152	0.0162564	0.0207549	0.0201864	0.0260831	0.0249941	0.0327791	0.030852
	Good Thunder	0.0039836	0.0039836	0.0040106	0.0039844	0.0040377	0.0039745	0.0040651	0.0039537	0.0040926	0.0039217	0.0041203	0.003878
	Lake Crystal	0.0147822	0.0147823	0.0150693	0.0149708	0.0153621	0.0151214	0.0156605	0.0152315	0.0159647	0.0152981	0.0162748	0.015318
	Madison Lake	0.0042113	0.0042114	0.0042787	0.0042508	0.0043473	0.0042791	0.0044169	0.0042959	0.0044876	0.0043002	0.0045594	0.004291
	Mankato	0.2038137	0.2038156	0.2055107	0.2041672	0.2072220	0.2039755	0.2089473	0.2032236	0.2106870	0.2018906	0.2124411	0.199951
	Mapleton	0.0107843	0.0107844	0.0112299	0.0111565	0.0116939	0.0115107	0.0121771	0.0118435	0.0126802	0.0121508	0.0132042	0.012428
	St. Clair	0.0046595	0.0046595	0.0051632	0.0051294	0.0057213	0.0056317	0.0063398	0.0061662	0.0070252	0.0067319	0.0077846	0.007327
Brown	Comfrey	0.0038983		0.0036444		0.0034070		0.0031851		0.0029776		0.0027837	
	New Ulm	0.0978490	0.0978498	0.0993460	0.0986965	0.1008661	0.0992859	0.1024094	0.0996041	0.1039762	0.0996351	0.1055672	0.099360
	Sleepy Eye	0.0254743		0.0246764		0.0239036		0.0231549		0.0224297		0.0217272	
	Springfield	0.0163829		0.0151542		0.0140175		0.0129662		0.0119937		0.0110941	
Faribault	Blue Earth	0.0293940		0.0281795		0.0270152		0.0258991		0.0248290		0.0238032	
	Elmore	0.0062743		0.0057442		0.0052588		0.0048144		0.0044076		0.0040352	
	Kiester	0.0047662		0.0044739		0.0041995		0.0039419		0.0037002		0.0034732	
	Minnesota Lake	0.0052926		0.0051785		0.0050668		0.0049576		0.0048507		0.0047461	
	Wells	0.0197548		0.0188160		0.0179218		0.0170701		0.0162589		0.0154862	
	Winnebago	0.0132956		0.0124487		0.0116558		0.0109134		0.0102183		0.0095674	
Le Sueur	Cleveland	0.0049724	0.0049725	0.0055417	0.0055055	0.0061762	0.0060795	0.0068834	0.0066948	0.0076715	0.0073512	0.0085498	0.008047
	Kasota	0.0052570		0.0052274		0.0051980		0.0051687		0.0051396		0.0051107	
	Le Center	0.0139925	0.0139926	0.0141894	0.0140967	0.0143892	0.0141637	0.0145917	0.0141920	0.0147971	0.0141793	0.0150054	0.014123
	Le Sueur	0.0267690		0.0266076		0.0264473		0.0262878		0.0261294		0.0259719	
	Montgomery	0.0167102		0.0165070		0.0163063		0.0161080		0.0159121		0.0157187	
	New Prague	0.0074979		0.0074691		0.0074404		0.0074118		0.0073834		0.0073550	
	Waterville	0.0122143		0.0119077		0.0116088		0.0113174		0.0110334		0.0107564	

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APPENDIX TABLE 98. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 10, SELECTED YEARS 1980 TO 2005 (CONTINUED)

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Martin	Ceylon	0.0038628		0.0036997		0.0035435		0.0033940		0.0032507		0.0031135	
	Fairmont	0.0818504	0.0818512	0.0821304	0.0815935	0.0824113	0.0811201	0.0826932	0.0804279	0.0829760	0.0795116	0.0832598	0.0783364
	Sherburn	0.0090700		0.0088150		0.0085671		0.0083263		0.0080922		0.0078646	
	Trimont	0.0057266		0.0053000		0.0049053		0.0045399		0.0042017		0.0038888	
	Truman	0.0099023		0.0097802		0.0096596		0.0095404		0.0094228		0.0093065	
	Welcome	0.0060823	0.0060823	0.0060845	0.0060448	0.0060868	0.0059915	0.0060891	0.0059223	0.0060914	0.0058371	0.0060937	0.0057735
Nicollet	Lafayette	0.0036067		0.0034566		0.0033127		0.0031748		0.0030427		0.0029160	
	Nicollet	0.0050435	0.0050436	0.0053166	0.0052818	0.0056044	0.0055166	0.0059077	0.0057459	0.0062275	0.0059675	0.0065647	0.0062179
	North Mankato	0.0650548	0.0650554	0.0697932	0.0693369	0.0748768	0.0737038	0.0803307	0.0781302	0.0861819	0.0825837	0.0924593	0.0877023
	St. Peter	0.0644220		0.0630326		0.0616733		0.0603433		0.0590419		0.0577686	
Sibley	Arlington	0.0126553		0.0125074		0.0123612		0.0122167		0.0120739		0.0119328	
	Gaylord	0.0137507	0.0137508	0.0138107	0.0137204	0.0138709	0.0136536	0.0139315	0.0135498	0.0139922	0.0134080	0.0140533	0.0133227
	Gibbon	0.0055985		0.0052172		0.0048618		0.0045307		0.0042221		0.0039345	
	Henderson	0.0052570		0.0050795		0.0049079		0.0047421		0.0045819		0.0044271	
	Winthrop	0.0097885		0.0094139		0.0090537		0.0087072		0.0083740		0.0080535	
Waseca	Janesville	0.0134947	0.0134949	0.0139508	0.0138596	0.0144223	0.0141963	0.0149097	0.0145012	0.0154135	0.0147700	0.0159344	0.0149998
	New Richland	0.0089846	0.0089847	0.0090660	0.0090067	0.0091481	0.0090048	0.0092310	0.0089781	0.0093146	0.0089257	0.0093989	0.0088846
	Waseca	0.0584674	0.0584680	0.0611490	0.0607493	0.0639536	0.0629516	0.0668868	0.0650545	0.0699545	0.0670338	0.0731630	0.0688861
Watonwan	Butterfield	0.0045101		0.0043999		0.0042923		0.0041874		0.0040850		0.0039851	
	Madelia	0.0151523		0.0144847		0.0138465		0.0132365		0.0126533		0.0120958	
	St. James	0.0309163		0.0300621		0.0292315		0.0284239		0.0276385		0.0268749	
SUM OF DECLINING COUNTIES		0.3777600		0.3653939		0.3535833		0.3422982		0.3315095		0.3211911	
ONE MINUS DECLINING COUNTIES		0.6222400		0.6346061		0.6464167		0.6577018		0.6684905		0.6788089	
SUM OF INCREASING COUNTIES		0.6222337		0.6387820		0.6567050		0.6762254		0.6976167		0.7212127	
ADJUSTED TOTAL			0.9999994		0.9999998		0.9999998		0.9999998		0.9999998		1.000000

APPENDIX TABLE 99. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 11, SELECTED YEARS 1980 TO 2005

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Dodge	Claremont	0.0025607	0.0025608	0.0026000	0.0025645	0.0026398	0.0025565	0.0026802	0.0025377	0.0027212	0.0025087	0.0027629	0.0024[illegible]
	Dodge Center	0.0078686	0.0078687	0.0079764	0.0078675	0.0080857	0.0078307	0.0081965	0.0077607	0.0083089	0.0076601	0.0084227	0.0075[illegible]
	Hayfield	0.0053859	0.0053859	0.0056033	0.0055269	0.0058296	0.0056457	0.0060650	0.0057426	0.0063099	0.0058173	0.0065647	0.0058[illegible]
	Kasson	0.0122491	0.0122493	0.0132464	0.0130656	0.0143248	0.0138730	0.0154911	0.0146675	0.0167523	0.0154443	0.0181162	0.0161[illegible]
	Mantorville	0.0030547	0.0030548	0.0031880	0.0031445	0.0033270	0.0032221	0.0034721	0.0032875	0.0036235	0.0033406	0.0037816	0.0033[illegible]
	West Concord	0.0033017		0.0031111		0.0029314		0.0027621		0.0026026		0.0024523	
Fillmore	Chatfield	0.0050262		0.0047293		0.0044500		0.0041871		0.0039398		0.0037071	
	Harmony	0.0049092		0.0046165		0.0043413		0.0040825		0.0038391		0.0036102	
	Lanesboro	0.0039993		0.0036936		0.0034113		0.0031506		0.0029097		0.0026873	
	Mabel	0.0037307		0.0036187		0.0035100		0.0034046		0.0033024		0.0032033	
	Preston	0.0064041		0.0061138		0.0058366		0.0055719		0.0053193		0.0050791	
	Rushford	0.0064041		0.0062850		0.0061681		0.0060534		0.0059409		0.0058304	
	Rushford Village	0.0029811		0.0029753		0.0029695		0.0029637		0.0029579		0.0029521	
	Spring Valley	0.0113350		0.0108324		0.0103521		0.0098930		0.0094544		0.0090351	
Freeborn	Albert Lea	0.0831928		0.0819240		0.0806745		0.0794440		0.0782323		0.0770391	
	Alden	0.0029767		0.0028408		0.0027111		0.0025872		0.0024691		0.0023563	
	Clarks Grove	0.0026864	0.0026865	0.0029589	0.0029185	0.0032590	0.0031562	0.0035895	0.0033987	0.0039536	0.0036449	0.0043545	0.0038[illegible]
	Glenville	0.0036874	0.0036874	0.0037840	0.0037323	0.0038831	0.0037606	0.0039848	0.0037729	0.0040892	0.0037699	0.0041953	0.0037[illegible]
Goodhue	Cannon Falls	0.0114954	0.0114955	0.0117234	0.0115634	0.0119560	0.0115789	0.0121932	0.0115449	0.0124351	0.0114642	0.0126818	0.0113[illegible]
	Goodhue	0.0028468		0.0028271		0.0028075		0.0027881		0.0027688		0.0027497	
	Kenyon	0.0066251		0.0062438		0.0058844		0.0055457		0.0052265		0.0049257	
	Lake City	0.0020365		0.0019484		0.0018642		0.0017835		0.0017064		0.0016326	
	Pine Island	0.0086051	0.0086052	0.0091390	0.0090143	0.0097059	0.0093998	0.0103081	0.0097600	0.0109476	0.0100928	0.0116258	0.0103[illegible]
	Red Wing	0.0595170	0.0595178	0.0608581	0.0600276	0.0622294	0.0602667	0.0636315	0.0602484	0.0650654	0.0599853	0.0665315	0.0594[illegible]

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APPENDIX TABLE 99. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 11, SELECTED YEARS 1980 TO 2005 (CONTINUED)

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Goodhue	Wanamingo	0.0031067	0.0031067	0.0031906	0.0031471	0.0032768	0.0031735	0.0033654	0.0031864	0.0034563	0.0031864	0.0035497	0.003174
	Zumbrata	0.0092249		0.0091662		0.0091080		0.0090501		0.0089925		0.0089354	
Houston	Caledonia	0.0116600		0.0112925		0.0109365		0.0105918		0.0102580		0.0099346	
	Hokah	0.0029724		0.0028449		0.0027229		0.0026061		0.0024943		0.0023873	
	Houston	0.0045799		0.0043563		0.0041436		0.0039413		0.0037489		0.0035659	
	La Crescent	0.0159190	0.0159192	0.0165675	0.0163414	0.0172424	0.0166986	0.0179448	0.0169908	0.0186759	0.0172177	0.0194367	0.017379
	Spring Grove	0.0055245		0.0052184		0.0049292		0.0046560		0.0043980		0.0041542	
Mower	Adams	0.0034534		0.0032948		0.0031434		0.0029991		0.0028613		0.0027299	
	Austin	0.0997447		0.0909460		0.0829234		0.0756086		0.0689389		0.0628577	
	Brownsdale	0.0029941		0.0029409		0.0028887		0.0028374		0.0027871		0.0027376	
	Grand Meadow	0.0041813		0.0041454		0.0041097		0.0040744		0.0040394		0.0040046	
	LeRoy	0.0040297		0.0038140		0.0036099		0.0034168		0.0032339		0.0030609	
	Lyle	0.0024958		0.0023568		0.0022255		0.0021015		0.0019844		0.0018739	
Olmsted	Byron	0.0074310	0.0074311	0.0090266	0.0089034	0.0109649	0.0106191	0.0133194	0.0126112	0.0161794	0.0149162	0.0196536	0.017573
	Chatfield	0.0038780	0.0038780	0.0040987	0.0040427	0.0043319	0.0041953	0.0045784	0.0043350	0.0048390	0.0044611	0.0051143	0.004573
	Eyota	0.0053901	0.0053902	0.0063015	0.0062155	0.0073670	0.0071346	0.0086126	0.0081547	0.0100688	0.0092827	0.0117713	0.010525
	Oronoco	0.0024871		0.0023900		0.0022967		0.0022071		0.0021209		0.0020381	
	Rochester	0.2508304	0.2508339	0.2621372	0.2585599	0.2739538	0.2653131	0.2863032	0.2710811	0.2992091	0.2758476	0.3126969	0.279594
	Stewartville	0.0170068	0.0170070	0.0201466	0.0198717	0.0238661	0.0231133	0.0282723	0.0267691	0.0334920	0.0308770	0.0396753	0.035475
Steele	Blooming Prairie	0.0085316		0.0083735		0.0082184		0.0080661		0.0079167		0.0077700	
	Ellendale	0.0024048		0.0023604		0.0023169		0.0022741		0.0022322		0.0021910	
	Medford	0.0033580	0.0033581	0.0034739	0.0034265	0.0035937	0.0034803	0.0037177	0.0035200	0.0038459	0.0035456	0.0039786	0.003557
	Owatonna	0.0807320	0.0807332	0.0838614	0.0827170	0.0871119	0.0843644	0.0904886	0.0856774	0.0939961	0.0866571	0.0976396	0.087303

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APPENDIX TABLE 99. PROJECTED AND ADJUSTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MINNESOTA REGION 11, SELECTED YEARS 1980 TO 2005 (CONTINUED)

County	City	1980		1985		1990		1995		2000		2005	
		Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted	Projected	Adjusted
Wabasha	Elgin	0.0028901	0.0028901	0.0029412	0.0029011	0.0029933	0.0028989	0.0030463	0.0028843	0.0031002	0.0028581	0.0031551	0.002821
	Lake City	0.0195200	0.0195203	0.0199009	0.0196293	0.0202892	0.0196492	0.0206851	0.0195853	0.0210887	0.0194421	0.0215002	0.019224
	Mezeppa	0.0029464	0.0029464	0.0031360	0.0030932	0.0033377	0.0032325	0.0035525	0.0033636	0.0037810	0.0034858	0.0040243	0.003598
	Plainview	0.0104683	0.0104684	0.0107314	0.0105850	0.0110011	0.0106542	0.0112777	0.0106781	0.0115612	0.0106585	0.0118518	0.010597
	Wabasha	0.0102778		0.0097049		0.0091640		0.0086533		0.0081710		0.0077155	
Winona	Goodview	0.0111226	0.0111227	0.0125008	0.0123302	0.0140498	0.0136067	0.0157907	0.0149512	0.0177474	0.0163617	0.0199465	0.017835
	Lewiston	0.0053122	0.0053122	0.0055061	0.0054310	0.0057072	0.0055272	0.0059155	0.0056010	0.0061315	0.0056528	0.0063554	0.005683
	Rollingstone	0.0022878	0.0022878	0.0023581	0.0023259	0.0024305	0.0023538	0.0025051	0.0023719	0.0025820	0.0023804	0.0026613	0.002380
	St. Charles	0.0094632		0.0093971		0.0093315		0.0092664		0.0092017		0.0091375	
	Stockton	0.0022401	0.0022402	0.0025911	0.0025558	0.0029972	0.0029026	0.0034668	0.0032825	0.0040100	0.0036969	0.0046384	0.004147
	Winona	0.1086489		0.1041375		0.0998134		0.0956689		0.0916964		0.0878890	
SUM OF DECLINING COUNTIES		0.4384427		0.4184987		0.3997930		0.3822358		0.3657442		0.3502419	
ONE MINUS DECLINING COUNTIES		0.5615573		0.5815013		0.6002070		0.6177642		0.6342558		0.6497581	
SUM OF INCREASING COUNTIES		0.5615492		0.5895464		0.6197542		0.6524535		0.6879706		0.7266874	
ADJUSTED TOTAL			0.9999997		0.9999998		0.9999999		0.9999996		0.9999998		1.000000

APPENDIX TABLE 100. ESTIMATES OF PERSONAL INCOME[a] AND DIFFERENCES IN ESTIMATES, MINNESOTA REGION 2, 1960-1982 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	Input-Output Analysis Estimate	Percent Difference
1960	--	260,417	--
1961	--	258,608	--
1962	276,403	267,536	- 3.2
1963	--	268,384	--
1964	--	284,349	--
1965	297,960	299,634	0.6
1966	318,154	343,480	8.0
1967	338,031	361,172	6.8
1968	364,843	363,215	- 0.4
1969	402,604	414,510	3.0
1970	442,856	434,162	- 2.0
1971	480,062	464,370	- 3.3
1972	524,683	494,286	- 5.8
1973	608,392	612,435	0.7
1974	675,695	693,837	2.7
1975	747,909	748,763	0.1
1976	877,401	866,170	- 1.3
1977	976,211	936,165	- 4.1
1978	1,089,407	1,050,114	- 3.6
1979	1,220,824	1,171,125	- 4.1
1980	1,331,118	1,293,451	- 2.8
1981	1,488,385	1,340,788	- 9.9
1982	--	1,402,441	--
Average Absolute Difference			3.5
Mean = -1.033 (S.D. = 4.347)			
U_1 = 0.027			

[a]The input-output personal income estimates are in current-year dollars to correspond with Department of Commerce estimates.

APPENDIX TABLE 101. ESTIMATES OF PERSONAL INCOME[a] AND DIFFERENCES IN ESTIMATES, MINNESOTA REGION 3, 1960-1982 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	Input-Output Analysis Estimate	Percent Difference
1960	--	606,959	--
1961	--	593,510	--
1962	599,261	612,451	2.2
1963	--	631,739	--
1964	--	669,776	--
1965	681,387	703,786	3.3
1966	724,301	776,648	7.2
1967	768,136	812,366	5.8
1968	818,893	880,221	7.5
1969	827,328	937,894	13.4
1970	951,373	964,879	1.4
1971	1,009,273	987,902	- 2.1
1972	1,079,370	1,040,274	- 3.6
1973	1,187,261	1,267,085	6.7
1974	1,298,913	1,420,699	9.4
1975	1,481,878	1,600,105	8.0
1976	1,710,447	1,759,393	2.9
1977	1,776,479	1,714,830	- 3.5
1978	2,042,004	2,196,643	7.6
1979	2,267,991	2,594,554	14.4
1980	2,413,441	2,608,311	8.1
1981	2,654,163	2,890,121	8.9
1982	--	3,085,430	--
Average Absolute Difference			6.4
Mean = 5.422 (S.D. = 5.173)			
U_1 = 0.041			

[a]The input-output personal income estimates are in current-year dollars to correspond with Department of Commerce estimates.

APPENDIX TABLE 102. ESTIMATES OF PERSONAL INCOME[a] AND DIFFERENCES IN ESTIMATES, MINNESOTA REGION 4, 1960-1982 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	Input-Output Analysis Estimate	Percent Difference
1960	--	121,045	--
1961	--	124,076	--
1962	136,588	128,633	- 5.8
1963	--	135,937	--
1964	--	146,500	--
1965	166,540	159,664	- 4.1
1966	170,051	170,912	0.5
1967	188,198	186,755	- 0.8
1968	195,995	195,370	- 0.3
1969	215,601	218,346	1.3
1970	250,444	221,751	-11.5
1971	266,444	246,954	- 7.3
1972	289,419	264,717	- 8.5
1973	408,649	371,038	- 9.2
1974	429,621	413,688	- 3.7
1975	388,795	391,809	0.8
1976	479,335	513,066	7.0
1977	510,344	540,202	5.9
1978	616,789	638,086	3.5
1979	624,625	698,146	11.8
1980	707,259	786,148	11.2
1981	793,195	848,636	7.0
1982	--	873,784	--
Average Absolute Difference			5.6
Mean = -0.122 (S.D. = 6.942)			
U_1 = 0.039			

[a]The input-output personal income estimates are in current-year dollars to correspond with Department of Commerce estimates.

APPENDIX TABLE 103. ESTIMATES OF PERSONAL INCOME[a] AND DIFFERENCES IN ESTIMATES, MINNESOTA REGION 5, 1960-1982 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	Input-Output Analysis Estimate	Percent Difference
1960	--	155,777	--
1961	--	159,923	--
1962	143,431	156,798	9.3
1963	--	164,322	--
1964	--	171,597	--
1965	170,751	189,715	11.1
1966	176,286	207,563	17.7
1967	189,918	223,716	17.8
1968	201,311	235,807	17.1
1969	222,048	235,177	5.9
1970	252,364	265,385	5.2
1971	277,890	286,780	3.2
1972	301,695	305,577	1.3
1973	446,884	448,154	0.3
1974	459,939	509,814	10.8
1975	443,658	482,857	8.8
1976	448,304	510,537	13.9
1977	535,002	587,516	9.8
1978	573,816	620,750	8.2
1979	632,195	726,488	14.9
1980	688,378	861,327	25.1
1981	805,769	852,258	5.8
1982	--	870,732	--
Average Absolute Difference			10.3
Mean = 10.344 (S.D. = 6.491)			
U_1 = 0.062			

[a]The input-output personal income estimates are in current-year dollars to correspond with Department of Commerce estimates.

APPENDIX TABLE 104. ESTIMATES OF PERSONAL INCOME[a] AND DIFFERENCES IN ESTIMATES, MINNESOTA REGION 6, 1960-1982 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	Input-Output Analysis Estimate	Percent Difference
1960	--	286,601	--
1961	--	298,493	--
1962	286,943	312,965	9.1
1963	--	311,113	--
1964	--	331,530	--
1965	339,145	361,700	6.7
1966	373,533	417,903	11..9
1967	406,603	447,464	10.0
1968	456,415	479,412	5.0
1969	516,174	532,524	3.2
1970	574,552	567,469	- 1.2
1971	619,344	616,301	- 0.5
1972	677,515	684,590	1.0
1973	834,557	891,397	6.8
1974	921,350	936,009	1.6
1975	1,010,557	1,041,291	3.0
1976	1,054,679	1,154,055	9.4
1977	1,227,163	1,274,663	3.9
1978	1,382,528	1,366,170	- 1.2
1979	1,571,642	1,583,193	0.7
1980	1,720,901	1,798,238	4.5
1981	1,933,442	1,863,030	- 3.6
1982	--	1,970,561	--
Average Absolute Difference			4.6
Mean = 3.906 (S.D. = 4.400)			
U_1 = 0.021			

[a]The input-output personal income estimates are in current-year dollars to correspond with Department of Commerce estimates.

APPENDIX TABLE 105. ESTIMATES OF PERSONAL INCOME[a] AND DIFFERENCES IN ESTIMATES, MINNESOTA REGION 7, 1960-1982 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	Input-Output Analysis Estimate	Percent Difference
1960	--	229,609	--
1961	--	236,396	--
1962	187,746	245,190	30.6
1963	--	256,866	--
1964	--	253,530	--
1965	256,696	284,516	10.8
1966	276,594	321,158	16.1
1967	278,029	332,450	19.6
1968	298,887	345,671	15.7
1969	328,267	395,173	20.4
1970	372,682	416,905	11.9
1971	383,865	431,575	12.4
1972	422,650	460,025	8.8
1973	695,640	714,910	2.8
1974	682,929	766,225	12.2
1975	675,488	730,638	8.2
1976	571,883	677,524	18.5
1977	817,456	857,833	4.9
1978	867,230	945,528	9.0
1979	945,675	1,069,018	13.0
1980	983,656	1,252,233	27.3
1981	1,132,748	1,269,185	12.0
1982	--	1,287,611	--
Average Absolute Difference			14.1
Mean = 14.122 (S.D. = 7.160)			
U_1 = 0.069			

[a]The input-output personal income estimates are in current-year dollars to correspond with Department of Commerce estimates.

APPENDIX TABLE 106. ESTIMATES OF PERSONAL INCOME[a] AND DIFFERENCES IN ESTIMATES, MINNESOTA REGION 8, 1960-1982 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	Input-Output Analysis Estimate	Percent Difference
1960	--	4,024,927	--
1961	--	4,256,590	--
1962	4,692,652	4,597,202	- 2.0
1963	--	4,767,968	--
1964	--	5,108,350	--
1965	5,760,188	5,535,077	- 3.9
1966	6,313,759	6,237,127	- 1.2
1967	6,884,702	6,799,956	- 1.2
1968	7,619,246	8,019,724	5.3
1969	8,484,226	8,700,395	2.5
1970	9,133,746	8,694,707	- 4.8
1971	9,682,834	8,960,516	- 7.5
1972	10,324,131	9,470,577	- 8.3
1973	11,509,262	10,997,903	- 4.4
1974	12,631,099	12,073,306	- 4.4
1975	13,633,599	13,687,275	0.4
1976	15,183,020	15,328,456	1.0
1977	17,038,654	16,875,248	- 1.0
1978	19,135,660	17,988,666	- 6.0
1979	21,839,915	20,884,845	- 4.4
1980	24,442,731	23,075,499	- 5.6
1981	27,033,406	24,401,441	- 9.7
1982	--	26,805,334	--
Average Absolute Difference			4.1
Mean = -3.067 (S.D. = 3.888)			
U_1 = 0.031			

[a]The input-output personal income estimates are in current-year dollars to correspond with Department of Commerce estimates.

APPENDIX TABLE 107. ESTIMATES OF PERSONAL INCOME[a] AND DIFFERENCES IN ESTIMATES, MINNESOTA REGION 9, 1960-1982 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	Input-Output Analysis Estimate	Percent Difference
1960	--	287,115	--
1961	--	303,577	--
1962	242,345	316,293	30.5
1963	--	336,303	--
1964	--	345,554	--
1965	338,789	367,320	8.4
1966	370,705	439,757	18.6
1967	361,199	478,402	32.4
1968	392,700	497,602	26.7
1969	436,003	573,026	31.4
1970	499,169	619,637	24.1
1971	504,327	626,247	24.2
1972	580,590	752,977	29.7
1973	834,817	1,022,732	22.5
1974	769,394	1,083,742	40.9
1975	808,680	992,373	22.7
1976	773,853	976,342	26.2
1977	1,120,333	1,137,553	1.5
1978	1,163,823	1,315,155	13.0
1979	1,292,194	1,424,831	10.3
1980	1,320,233	1,645,803	24.7
1981	1,520,022	1,645,798	8.3
1982	--	1,647,136	--
Average Absolute Difference			22.0
Mean = 22.006 (S.D. = 10.188)			
U_1 = 0.091			

[a]The input-output personal income estimates are in current-year dollars to correspond with Department of Commerce estimates.

APPENDIX TABLE 108. ESTIMATES OF PERSONAL INCOME[a] AND DIFFERENCES IN ESTIMATES, MINNESOTA REGION 10, 1960-1982 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	Input-Output Analysis Estimate	Percent Difference
1960	--	349,252	--
1961	--	390,779	--
1962	371,721	408,727	10.0
1963	--	328,530	--
1964	--	461,049	--
1965	496,170	484,423	- 2.4
1966	550,134	566,590	3.0
1967	551,353	592,556	7.5
1968	596,003	613,448	2.9
1969	652,741	722,153	10.6
1970	736,615	772,973	4.9
1971	760,860	790,274	3.9
1972	839,739	908,315	8.2
1973	1,166,992	1,219,179	4.5
1974	1,185,408	1,361,983	14.9
1975	1,237,973	1,332,539	7.6
1976	1,281,783	1,457,101	13.7
1977	1,565,656	1,568,181	0.2
1978	1,647,655	1,764,500	7.1
1979	1,832,913	1,939,499	5.8
1980	1,912,667	2,221,566	16.2
1981	2,161,768	2,207,697	2.1
1982	--	2,347,079	--
Average Absolute Difference			7.0
Mean = 6.706 (S.D. = 5.015)			
U_1 = 0.043			

[a]The input-output personal income estimates are in current-year dollars to correspond with Department of Commerce estimates.

APPENDIX TABLE 109. ESTIMATES OF PERSONAL INCOME[a] AND DIFFERENCES IN ESTIMATES, MINNESOTA REGION 11, 1960-1982 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	Input-Output Analysis Estimate	Percent Difference
1960	--	674,175	--
1961	--	716,796	--
1962	703,696	745,330	5.9
1963	--	757,709	--
1964	--	794,966	--
1965	819,669	884,359	7.9
1966	895,652	992,578	10.8
1967	944,732	1,052,933	11.5
1968	1,040,253	1,120,484	7.7
1969	1,135,638	1,219,946	7.4
1970	1,248,120	1,292,970	3.6
1971	1,305,046	1,350,810	3.5
1972	1,427,197	1,470,984	3.1
1973	1,732,462	1,868,545	7.9
1974	1,800,071	2,046,443	13.7
1975	1,948,921	2,151,842	10.4
1976	2,138,632	2,374,278	11.0
1977	2,475,992	2,552,475	3.1
1978	2,712,664	2,772,297	2.2
1979	3,024,344	3,282,442	8.5
1980	3,270,428	3,557,390	8.8
1981	3,643,135	3,787,262	4.0
1982	--	3,996,617	--
Average Absolute Difference			7.3
Mean = 7.278 (S.D. = 3.438)			
U_1 = 0.036			

[a]The input-output personal income estimates are in current-year dollars to correspond with Department of Commerce estimates.

APPENDIX TABLE 110. ESTIMATES OF PERSONAL INCOME[a] AND DIFFERENCES IN ESTIMATES, MINNESOTA, 1960-1982 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	Input-Output Analysis Estimate	Percent Difference
1960	--	7,132,851	--
1961	--	7,472,237	--
1962	7,777,598	7,935,007	2.0
1963	--	8,184,337	--
1964	--	8,737,128	--
1965	9,490,628	9,459,177	- 0.3
1966	10,328,721	10,666,547	3.3
1967	11,093,868	11,495,091	3.6
1968	12,163,054	12,965,901	6.6
1969	13,468,271	14,206,291	5.5
1970	14,721,328	14,489,916	- 1.6
1971	15,564,119	15,054,170	- 3.3
1972	16,774,613	16,155,861	- 3.7
1973	19,886,564	19,864,614	- 0.1
1974	21,351,382	21,852,084	2.3
1975	22,835,014	23,686,040	3.7
1976	25,013,304	26,187,027	4.7
1977	28,562,121	28,665,950	0.4
1978	31,912,119	31,387,187	- 1.6
1979	35,934,732	36,193,287	0.7
1980	39,590,325	39,937,043	0.9
1981	44,059,745	42,123,019	- 4.4
1982	--	45,270,023	--
Average Absolute Difference			2.7
Mean = 1.039 (S.D. = 3.199)			
U_1 = 0.015			

[a]The input-output personal income estimates are in current-year dollars to correspond with Department of Commerce estimates.

APPENDIX TABLE 111. HISTORIC AND MODEL-PROJECTED EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 2, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment					Model-Projected Employment					
	1960	1970	1980	1981	1982	1983	1985	1990	1995	2000	2005
(1) & (2) Agriculture	9,480	5,928	6,586	6,655	6,723	6,589	6,472	6,237	6,060	5,922	5,811
(3) Metal Mining	4,536	2,758	1,312	1,351	834	1,032	961	797	649	516	395
(4) Coal Mining	--	--	--	--	--	--	--	--	--	--	--
(5) Pet/NG Exp/Ext	--	--	--	--	--	--	--	--	--	--	--
(6) Nonmetallic Mining	--	--	--	--	--	--	--	--	--	--	--
(7) Construction	1,195	1,938	1,904	1,736	1,550	1,738	1,794	1,927	2,050	2,164	2,270
(8) Lumber & Assoc Prod	7,324	7,369	10,797	10,468	10,281	10,551	10,870	11,669	12,467	13,265	14,063
(9) Ag Proc & Misc Mfg	4,300	6,150	5,675	5,779	5,591	5,687	5,706	5,744	5,773	5,795	5,813
(10) Pet Refining	--	--	--	--	--	--	--	--	--	--	--
(11) Metal Processing	--	--	--	--	--	--	--	--	--	--	--
(12) Transportation	855	932	1,248	1,271	1,236	1,247	1,266	1,316	1,365	1,415	1,464
(13) Comm & Pub Utilities	1,354	1,401	1,587	1,618	1,572	1,605	1,630	1,685	1,733	1,775	1,812
(14) Elec Generation	--	--	--	--	--	--	--	--	--	--	--
(15) Retail	6,443	8,683	13,921	14,239	14,158	14,706	15,471	17,384	19,297	21,210	23,124
(16) Fin, Ins, Real Estate	876	1,191	1,918	2,039	2,073	2,068	2,193	2,515	2,851	3,202	3,569
(17) Bus & Pers Services	970	1,539	3,078	3,259	3,306	3,426	3,579	3,961	4,344	4,726	5,108
(18) Prof & Soc Services	2,733	4,627	9,204	9,743	9,885	10,327	10,844	12,137	13,430	14,723	16,015
(19) Government	8,480	12,729	15,786	16,174	15,822	16,224	16,810	18,212	19,529	20,769	21,940
(20) Households	--	--	--	--	--	--	--	--	--	--	--
Project[a]	--	--	--	--	--	--	--	--	--	--	--
TOTAL	48,546	55,245	73,016	74,332	73,031	75,199	77,596	83,583	89,547	95,481	101,383

[a]Project employment refers to direct employment associated with a site-specific single- or multiple-project development. Because no developments were included in either the historic or projected economic base of Region 2, there was no project employment.

APPENDIX TABLE 112. HISTORIC AND MODEL-PROJECTED EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 3, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment					Model-Projected Employment					
	1960	1970	1980	1981	1982	1983	1985	1990	1995	2000	2005
(1) & (2) Agriculture	5,265	2,943	3,476	3,512	3,548	3,439	3,302	3,015	2,784	2,596	2,440
(3) Metal Mining	17,579	15,230	16,163	16,649	10,268	13,501	13,686	14,091	14,433	14,724	14,976
(4) Coal Mining	--	--	--	--	--	--	--	--	--	--	--
(5) Pet/NG Exp/Ext	--	--	--	--	--	--	--	--	--	--	--
(6) Nonmetallic Mining	--	--	--	--	--	--	--	--	--	--	--
(7) Construction	3,344	4,328	5,450	4,969	4,437	5,001	5,175	5,611	6,045	6,479	6,912
(8) Lumber & Assoc Prod	4,091	3,837	3,414	3,310	3,251	3,331	3,337	3,353	3,366	3,377	3,386
(9) Ag Proc & Misc Mfg	18,159	21,534	15,409	15,691	15,182	15,225	14,861	14,038	13,321	12,690	12,130
(10) Pet Refining	--	--	--	--	--	--	--	--	--	--	--
(11) Metal Processing	--	--	--	--	--	--	--	--	--	--	--
(12) Transportation	3,230	2,231	2,172	2,212	2,150	2,155	2,115	2,033	1,972	1,923	1,884
(13) Comm & Pub Utilities	2,716	3,239	3,065	3,124	3,036	3,100	3,149	3,261	3,361	3,451	3,532
(14) Elec Generation	--	--	--	--	--	--	--	--	--	--	--
(15) Retail	12,423	17,648	22,586	23,102	22,970	23,364	24,232	26,403	28,573	30,744	32,914
(16) Fin, Ins, Real Estate	2,944	3,642	3,960	4,208	4,280	4,672	4,850	5,295	5,741	6,186	6,632
(17) Bus & Pers Services	3,166	4,355	5,060	5,356	5,434	5,391	5,619	6,196	6,784	7,383	7,995
(18) Prof & Soc Services	8,042	11,379	16,800	17,783	18,044	18,250	19,013	20,920	22,827	24,734	26,642
(19) Government	16,613	24,603	26,326	26,974	26,387	26,909	27,596	29,232	30,759	32,189	33,530
(20) Households	--	--	--	--	--	--	--	--	--	--	--
Project[a]	--	--	--	--	--	--	--	--	--	--	--
TOTAL	97,572	114,969	123,881	126,890	118,987	124,338	126,936	133,448	139,966	146,477	152,973

[a]Project employment refers to direct employment associated with a site-specific single- or multiple-project development. Because no developments were included in either the historic or projected economic base of Region 3, there was no project employment.

APPENDIX TABLE 113. HISTORIC AND MODEL-PROJECTED EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 4, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment					Model-Projected Employment					
	1960	1970	1980	1981	1982	1983	1985	1990	1995	2000	2005
(1) & (2) Agriculture	6,138	4,463	4,085	4,128	4,170	4,094	4,034	3,913	3,823	3,753	3,696
(3) Metal Mining	--	--	--	--	--	--	--	--	--	--	--
(4) Coal Mining	--	--	--	--	--	--	--	--	--	--	--
(5) Pet/NG Exp/Ext	--	--	--	--	--	--	--	--	--	--	--
(6) Nonmetallic Mining	--	--	--	--	--	--	--	--	--	--	--
(7) Construction	1,162	1,186	1,286	1,172	1,047	1,177	1,195	1,235	1,269	1,298	1,323
(8) Lumber & Assoc Prod	--	--	--	--	--	--	--	--	--	--	--
(9) Ag Proc & Misc Mfg	2,161	3,087	3,932	4,004	3,874	4,002	4,156	4,510	4,826	5,109	5,364
(10) Pet Refining	--	--	--	--	--	--	--	--	--	--	--
(11) Metal Processing	--	--	--	--	--	--	--	--	--	--	--
(12) Transportation	878	985	1,190	1,212	1,178	1,208	1,236	1,299	1,352	1,398	1,439
(13) Comm & Pub Utilities	414	365	668	680	661	683	709	770	825	875	920
(14) Elec Generation	--	--	--	--	--	--	--	--	--	--	--
(15) Retail	3,387	4,597	6,382	6,528	6,491	6,608	6,885	7,536	8,133	8,683	9,192
(16) Fin, Ins, Real Estate	449	642	979	1,040	1,058	1,050	1,099	1,218	1,328	1,432	1,530
(17) Bus & Pers Services	582	797	1,656	1,753	1,779	1,824	1,930	2,196	2,462	2,728	2,994
(18) Prof & Soc Services	1,550	3,158	5,921	6,267	6,359	6,587	6,993	8,009	9,025	10,040	11,056
(19) Government	3,710	5,798	7,206	7,383	7,222	7,395	7,634	8,180	8,661	9,087	9,468
(20) Households	--	--	--	--	--	--	--	--	--	--	--
Project[a]	--	--	--	--	--	--	--	--	--	--	--
TOTAL	20,431	25,078	33,305	34,167	33,839	34,628	35,873	38,866	41,703	44,403	46,982

[a]Project employment refers to direct employment associated with a site-specific single- or multiple-project development. Because no developments were included in either the historic or projected economic base of Region 4, there was no project employment.

APPENDIX TABLE 114. HISTORIC AND MODEL-PROJECTED EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 5, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment					Model-Projected Employment					
	1960	1970	1980	1981	1982	1983	1985	1990	1995	2000	2005
(1) & (2) Agriculture	10,203	7,805	6,926	6,998	7,070	6,930	6,812	6,568	6,379	6,228	6,105
(3) Metal Mining	--	--	--	--	--	--	--	--	--	--	--
(4) Coal Mining	--	--	--	--	--	--	--	--	--	--	--
(5) Pet/NG Exp/Ext	--	--	--	--	--	--	--	--	--	--	--
(6) Nonmetallic Mining	--	--	--	--	--	--	--	--	--	--	--
(7) Construction	774	1,061	1,059	965	862	967	991	1,046	1,096	1,140	1,181
(8) Lumber & Assoc Prod	--	--	--	--	--	--	--	--	--	--	--
(9) Ag Proc & Misc Mfg	2,447	2,752	5,415	5,514	5,335	5,570	5,873	6,630	7,387	8,144	8,900
(10) Pet Refining	--	--	--	--	--	--	--	--	--	--	--
(11) Metal Processing	--	--	--	--	--	--	--	--	--	--	--
(12) Transportation	552	696	975	993	965	1,002	1,050	1,171	1,291	1,410	1,529
(13) Comm & Pub Utilities	1,238	1,307	1,171	1,194	1,160	1,181	1,193	1,220	1,242	1,260	1,276
(14) Elec Generation	--	--	--	--	--	--	--	--	--	--	--
(15) Retail	3,623	4,972	6,897	7,054	7,014	7,161	7,513	8,382	9,239	10,084	10,916
(16) Fin, Ins, Real Estate	591	932	1,120	1,190	1,210	1,195	1,244	1,363	1,475	1,582	1,683
(17) Bus & Pers Services	636	781	1,120	1,186	1,203	1,199	1,262	1,421	1,581	1,743	1,907
(18) Prof & Soc Services	1,890	3,111	4,967	5,257	5,334	5,678	5,979	6,731	7,484	8,236	8,988
(19) Government	3,515	5,129	6,121	6,272	6,135	6,277	6,476	6,943	7,368	7,757	8,114
(20) Households	--	--	--	--	--	--	--	--	--	--	--
Project[a]	--	--	--	--	--	--	--	--	--	--	--
TOTAL	25,469	28,546	35,771	36,623	36,288	37,160	38,393	41,474	44,541	47,585	50,601

[a]Project employment refers to direct employment associated with a site-specific single- or multiple-project development. Because no developments were included in either the historic or projected economic base of Region 5, there was no project employment.

APPENDIX TABLE 115. HISTORIC AND MODEL-PROJECTED EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 6, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment					Model-Projected Employment					
	1960	1970	1980	1981	1982	1983	1985	1990	1995	2000	2005
(1) & (2) Agriculture	14,847	11,615	11,775	11,898	12,020	11,824	11,694	11,429	11,226	11,067	10,938
(3) Metal Mining	--	--	--	--	--	--	--	--	--	--	--
(4) Coal Mining	--	--	--	--	--	--	--	--	--	--	--
(5) Pet/NG Exp/Ext	--	--	--	--	--	--	--	--	--	--	--
(6) Nonmetallic Mining	--	--	--	--	--	--	--	--	--	--	--
(7) Construction	1,991	2,164	3,663	3,339	2,982	3,338	3,464	3,760	4,031	4,279	4,507
(8) Lumber & Assoc Prod	1,061	1,554	1,624	1,575	1,547	1,624	1,676	1,805	1,934	2,063	2,192
(9) Ag Proc & Misc Mfg	8,589	13,249	18,791	19,135	18,514	19,213	20,004	21,806	23,395	24,805	26,066
(10) Pet Refining	--	--	--	--	--	--	--	--	--	--	--
(11) Metal Processing	--	--	--	--	--	--	--	--	--	--	--
(12) Transportation	1,497	1,939	2,480	2,527	2,455	2,536	2,631	2,856	3,061	3,250	3,424
(13) Comm & Pub Utilities	1,286	1,396	2,179	2,221	2,159	2,231	2,318	2,522	2,708	2,878	3,033
(14) Elec Generation	--	--	--	--	--	--	--	--	--	--	--
(15) Retail	8,303	11,809	18,447	18,868	18,761	19,207	20,238	22,761	25,211	27,592	29,905
(16) Fin, Ins, Real Estate	1,029	1,639	2,569	2,730	2,776	2,770	2,935	3,348	3,759	4,168	4,576
(17) Bus & Pers Services	1,059	1,679	3,536	3,743	3,798	3,945	4,164	4,712	5,259	5,807	6,354
(18) Prof & Soc Services	3,921	6,416	12,744	13,489	13,687	13,693	14,513	16,564	18,616	20,667	22,718
(19) Government	7,415	12,425	16,452	16,857	16,490	17,023	17,867	19,903	21,840	23,685	25,446
(20) Households	--	--	--	--	--	--	--	--	--	--	--
Project[a]	--	--	--	--	--	--	--	--	--	--	--
TOTAL	50,998	65,885	94,260	96,382	95,189	97,404	101,505	111,466	121,040	130,261	139,159

[a]Project employment refers to direct employment associated with a site-specific single- or multiple-project development. Because no developments were included in either the historic or projected economic base of Region 6, there was no project employment.

APPENDIX TABLE 116. HISTORIC AND MODEL-PROJECTED EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 7, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment					Model-Projected Employment					
	1960	1970	1980	1981	1982	1983	1985	1990	1995	2000	2005
(1) & (2) Agriculture	13,342	10,305	9,482	9,581	9,680	9,507	9,378	9,110	8,900	8,731	8,592
(3) Metal Mining	--	--	--	--	--	--	--	--	--	--	--
(4) Coal Mining	--	--	--	--	--	--	--	--	--	--	--
(5) Pet/NG Exp/Ext	--	--	--	--	--	--	--	--	--	--	--
(6) Nonmetallic Mining	--	--	--	--	--	--	--	--	--	--	--
(7) Construction	1,501	1,513	1,992	1,816	1,622	1,827	1,864	1,945	2,016	2,078	2,132
(8) Lumber & Assoc Prod	--	--	--	--	--	--	--	--	--	--	--
(9) Ag Proc & Misc Mfg	3,683	5,346	9,491	9,665	9,351	9,848	10,367	11,665	12,963	14,261	15,559
(10) Pet Refining	--	--	--	--	--	--	--	--	--	--	--
(11) Metal Processing	--	--	--	--	--	--	--	--	--	--	--
(12) Transportation	735	808	1,007	1,026	997	1,026	1,058	1,132	1,200	1,262	1,320
(13) Comm & Pub Utilities	1,038	1,047	984	1,003	974	988	990	994	998	1,000	1,003
(14) Elec Generation	--	--	--	--	--	--	--	--	--	--	--
(15) Retail	5,423	6,620	8,122	8,308	8,260	8,373	8,658	9,329	9,945	10,512	11,037
(16) Fin, Ins, Real Estate	808	1,238	1,523	1,619	1,646	1,628	1,700	1,874	2,042	2,202	2,357
(17) Bus & Pers Services	671	751	1,870	1,979	2,008	2,105	2,215	2,491	2,767	3,043	3,319
(18) Prof & Soc Services	2,053	3,288	5,104	5,403	5,482	5,794	6,100	6,865	7,630	8,395	9,161
(19) Government	5,234	7,804	9,403	9,634	9,424	9,672	10,041	10,920	11,743	12,516	13,243
(20) Households	--	--	--	--	--	--	--	--	--	--	--
Project[a]	--	--	--	--	--	--	--	--	--	--	--
TOTAL	34,488	38,720	48,978	50,034	49,444	50,768	52,370	56,325	60,203	64,001	67,723

[a]Project employment refers to direct employment associated with a site-specific single- or multiple-project development. Because no developments were included in either the historic or projected economic base of Region 7, there was no project employment.

APPENDIX TABLE 117. HISTORIC AND MODEL-PROJECTED EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 8, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment					Model-Projected Employment					
	1960	1970	1980	1981	1982	1983	1985	1990	1995	2000	2005
(1) & (2) Agriculture	20,492	15,578	15,281	15,441	15,599	15,291	15,014	14,452	14,021	13,682	13,407
(3) Metal Mining	--	--	--	--	--	--	--	--	--	--	--
(4) Coal Mining	--	--	--	--	--	--	--	--	--	--	--
(5) Pet/NG Exp/Ext	--	--	--	--	--	--	--	--	--	--	--
(6) Nonmetallic Mining	--	--	--	--	--	--	--	--	--	--	--
(7) Construction	44,696	51,705	58,787	53,590	47,861	49,420	50,211	51,979	53,500	54,820	55,979
(8) Lumber & Assoc Prod	18,722	23,004	31,231	30,279	29,737	30,548	31,516	33,936	36,357	38,777	41,198
(9) Ag Proc & Misc Mfg	237,279	322,755	347,134	353,482	342,023	345,909	352,201	366,509	379,084	390,222	400,156
(10) Pet Refining	--	--	--	--	--	--	--	--	--	--	--
(11) Metal Processing	--	--	--	--	--	--	--	--	--	--	--
(12) Transportation	40,798	41,830	44,989	45,833	44,539	45,255	45,541	46,166	46,687	47,127	47,504
(13) Comm & Pub Utilities	28,691	29,724	32,673	33,306	32,366	32,867	33,050	33,445	33,770	34,041	34,272
(14) Elec Generation	--	--	--	--	--	--	--	--	--	--	--
(15) Retail	116,562	162,998	226,001	231,158	229,845	234,762	246,327	275,106	303,695	332,095	360,308
(16) Fin, Ins, Real Estate	43,520	57,408	82,091	87,237	88,713	87,823	91,579	100,718	109,512	117,980	126,139
(17) Bus & Pers Services	38,498	63,044	101,124	107,041	108,608	110,971	116,398	129,964	143,531	157,098	170,664
(18) Prof & Soc Services	68,993	108,044	170,590	180,571	183,215	188,233	198,061	222,631	247,201	271,771	296,341
(19) Government	102,662	164,847	202,679	207,666	203,145	209,042	218,164	240,405	261,873	282,607	302,645
(20) Households	--	--	--	--	--	--	--	--	--	--	--
Project[a]	--	--	--	--	--	--	--	--	--	--	--
TOTAL	760,913	1,040,937	1,312,580	1,345,604	1,325,651	1,350,119	1,398,062	1,515,313	1,629,230	1,740,221	1,848,614

[a]Project employment refers to direct employment associated with a site-specific single- or multiple-project development. Because no developments were included in either the historic or projected economic base of Region 8, there was no project employment.

APPENDIX TABLE 118. HISTORIC AND MODEL-PROJECTED EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 9, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment					Model-Projected Employment					
	1960	1970	1980	1981	1982	1983	1985	1990	1995	2000	2005
(1) & (2) Agriculture	17,290	13,573	13,064	13,201	13,336	13,071	12,850	12,404	12,066	11,801	11,588
(3) Metal Mining	--	--	--	--	--	--	--	--	--	--	--
(4) Coal Mining	--	--	--	--	--	--	--	--	--	--	--
(5) Pet/NG Exp/Ext	--	--	--	--	--	--	--	--	--	--	--
(6) Nonmetallic Mining	--	--	--	--	--	--	--	--	--	--	--
(7) Construction	2,068	1,958	1,979	1,804	1,611	1,775	1,775	1,774	1,773	1,772	1,772
(8) Lumber & Assoc Prod	--	--	--	--	--	--	--	--	--	--	--
(9) Ag Proc & Misc Mfg	5,730	7,922	12,594	12,824	12,409	12,881	13,634	15,515	17,396	19,278	21,159
(10) Pet Refining	--	--	--	--	--	--	--	--	--	--	--
(11) Metal Processing	--	--	--	--	--	--	--	--	--	--	--
(12) Transportation	872	880	1,380	1,406	1,366	1,399	1,428	1,492	1,547	1,595	1,638
(13) Comm & Pub Utilities	1,241	1,199	998	1,017	988	1,004	1,011	1,024	1,035	1,044	1,051
(14) Elec Generation	--	--	--	--	--	--	--	--	--	--	--
(15) Retail	7,060	9,311	10,050	10,280	10,221	10,325	10,607	11,248	11,812	12,312	12,758
(16) Fin, Ins, Real Estate	1,162	1,558	1,937	2,059	2,093	2,051	2,103	2,221	2,324	2,414	2,495
(17) Bus & Pers Services	788	911	1,781	1,885	1,913	2,021	2,134	2,415	2,696	2,978	3,259
(18) Prof & Soc Services	1,874	4,171	5,853	6,195	6,286	6,705	7,084	8,033	8,981	9,930	10,878
(19) Government	5,737	8,446	9,526	9,760	9,548	9,780	10,111	10,881	11,577	12,211	12,789
(20) Households	--	--	--	--	--	--	--	--	--	--	--
Project[a]	--	--	--	--	--	--	--	--	--	--	--
TOTAL	43,822	49,929	59,162	60,431	59,771	61,013	62,735	67,006	71,208	75,334	79,386

[a]Project employment refers to direct employment associated with a site-specific single- or multiple-project development. Because no developments were included in either the historic or projected economic base of Region 9, there was no project employment.

APPENDIX TABLE 119. HISTORIC AND MODEL-PROJECTED EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 10, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment					Model-Projected Employment					
	1960	1970	1980	1981	1982	1983	1985	1990	1995	2000	2005
(1) & (2) Agriculture	16,504	12,865	12,192	12,319	12,446	12,186	11,952	11,487	11,138	10,868	10,652
(3) Metal Mining	--	--	--	--	--	--	--	--	--	--	--
(4) Coal Mining	--	--	--	--	--	--	--	--	--	--	--
(5) Pet/NG Exp/Ext	--	--	--	--	--	--	--	--	--	--	--
(6) Nonmetallic Mining	--	--	--	--	--	--	--	--	--	--	--
(7) Construction	2,735	3,028	3,290	2,999	2,679	2,973	3,014	3,101	3,174	3,236	3,289
(8) Lumber & Assoc Prod	--	--	--	--	--	--	--	--	--	--	--
(9) Ag Proc & Misc Mfg	14,075	20,511	27,584	28,088	27,177	27,853	28,852	31,120	33,110	34,869	36,436
(10) Pet Refining	--	--	--	--	--	--	--	--	--	--	--
(11) Metal Processing	--	--	--	--	--	--	--	--	--	--	--
(12) Transportation	1,645	1,863	2,055	2,093	2,034	2,074	2,099	2,154	2,199	2,237	2,270
(13) Comm & Pub Utilities	1,988	1,899	1,892	1,928	1,874	1,903	1,914	1,937	1,955	1,970	1,982
(14) Elec Generation	--	--	--	--	--	--	--	--	--	--	--
(15) Retail	10,069	14,106	18,271	18,688	18,582	18,873	19,587	21,256	22,780	24,176	25,459
(16) Fin, Ins, Real Estate	2,262	3,129	3,013	3,201	3,256	3,172	3,216	3,310	3,388	3,454	3,509
(17) Bus & Pers Services	1,385	1,817	3,769	3,990	4,048	4,254	4,498	5,110	5,721	6,333	6,944
(18) Prof & Soc Services	4,769	8,262	14,037	14,858	15,076	15,901	16,823	19,130	21,436	23,743	26,049
(19) Government	8,081	12,434	14,618	14,977	14,651	15,008	15,519	16,703	17,766	18,728	19,600
(20) Households	--	--	--	--	--	--	--	--	--	--	--
Project[a]	--	--	--	--	--	--	--	--	--	--	--
TOTAL	63,513	79,914	100,721	103,141	101,823	104,196	107,474	115,308	122,669	129,613	136,191

[a]Project employment refers to direct employment associated with a site-specific single- or multiple-project development. Because no developments were included in either the historic or projected economic base of Region 10, there was no project employment.

APPENDIX TABLE 120. HISTORIC AND MODEL-PROJECTED EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA REGION 11, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment					Model-Projected Employment					
	1960	1970	1980	1981	1982	1983	1985	1990	1995	2000	2005
(1) & (2) Agriculture	19,814	15,802	15,214	15,373	15,531	15,241	15,001	14,507	14,122	13,813	13,560
(3) Metal Mining	184	6	--	--	--	--	--	--	--	--	--
(4) Coal Mining	--	--	--	--	--	--	--	--	--	--	--
(5) Pet/NG Exp/Ext	--	--	--	--	--	--	--	--	--	--	--
(6) Nonmetallic Mining	--	--	--	--	--	--	--	--	--	--	--
(7) Construction	4,855	5,542	5,430	4,950	4,421	4,558	4,581	4,632	4,674	4,711	4,742
(8) Lumber & Assoc Prod	1,935	3,432	3,666	3,554	3,490	3,599	3,713	3,998	4,283	3,568	4,852
(9) Ag Proc & Misc Mfg	28,405	35,334	42,442	43,218	41,817	42,654	43,656	45,968	48,037	49,899	51,584
(10) Pet Refining	--	--	--	--	--	--	--	--	--	--	--
(11) Metal Processing	--	--	--	--	--	--	--	--	--	--	--
(12) Transportation	3,901	4,274	4,575	4,660	4,529	4,623	4,691	4,845	4,979	5,097	5,202
(13) Comm & Pub Utilities	3,044	2,803	3,335	3,400	3,304	3,372	3,423	3,537	3,634	3,720	3,794
(14) Elec Generation	--	--	--	--	--	--	--	--	--	--	--
(15) Retail	16,426	22,771	28,977	29,638	29,469	29,976	31,201	34,184	37,058	39,829	42,503
(16) Fin, Ins, Real Estate	3,081	4,446	6,105	6,488	6,597	6,525	6,797	7,462	8,104	8,725	9,325
(17) Bus & Pers Services	3,680	5,433	8,398	8,889	9,019	9,252	9,685	10,767	11,850	12,932	14,014
(18) Prof & Soc Services	12,405	18,257	31,528	33,372	33,861	34,923	36,646	40,953	45,260	49,568	53,875
(19) Government	12,405	18,862	22,630	23,186	22,682	23,267	24,131	26,208	28,175	30,040	31,811
(20) Households	--	--	--	--	--	--	--	--	--	--	--
Project[a]	--	--	--	--	--	--	--	--	--	--	--
TOTAL	110,135	136,962	172,300	176,728	174,720	177,989	183,525	197,060	210,176	222,900	235,263

[a]Project employment refers to direct employment associated with a site-specific single- or multiple-project development. Because no developments were included in either the historic or projected economic base of Region 11, there was no project employment.

APPENDIX TABLE 121. HISTORIC AND MODEL-PROJECTED EMPLOYMENT BY ECONOMIC SECTOR, MINNESOTA, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment					Model-Projected Employment[a]					
	1960	1970	1980	1981	1982	1983	1985	1990	1995	2000	2005
(1) & (2) Agriculture	142,761	108,308	105,197	106,297	107,389	105,321	103,583	100,046	97,332	95,188	93,448
(3) Metal Mining	22,299	17,993	17,475	18,000	11,102	14,533	14,647	14,888	15,082	15,240	15,371
(4) Coal Mining	--	--	--	--	--	--	--	--	--	--	--
(5) Pet/NG Exp/Ext	--	--	--	--	--	--	--	--	--	--	--
(6) Nonmetallic Mining	--	--	--	--	--	--	--	--	--	--	--
(7) Construction	65,118	75,050	85,696	78,120	69,769	73,552	74,853	77,824	80,462	82,828	84,972
(8) Lumber & Assoc Prod	33,487	39,870	52,294	50,700	49,793	51,269	52,779	56,556	60,330	64,102	67,871
(9) Ag Proc & Misc Mfg	327,687	443,933	494,367	503,408	487,088	494,826	505,441	529,943	551,971	571,946	590,202
(10) Pet Refining	--	--	--	--	--	--	--	--	--	--	--
(11) Metal Processing	--	--	--	--	--	--	--	--	--	--	--
(12) Transportation	55,463	57,076	62,669	63,844	62,042	63,131	63,732	65,105	66,314	67,391	68,366
(13) Comm & Pub Utilities	43,578	44,846	49,210	50,163	48,747	49,598	50,057	51,078	51,955	52,716	53,384
(14) Elec Generation	--	--	--	--	--	--	--	--	--	--	--
(15) Retail	192,863	267,767	365,188	373,521	371,399	379,065	396,627	439,945	482,489	524,325	565,506
(16) Fin, Ins, Real Estate	57,171	76,471	106,196	112,853	114,762	114,005	118,813	130,528	141,825	152,733	163,283
(17) Bus & Pers Services	51,924	81,897	132,525	140,279	142,333	145,588	152,758	170,691	188,637	206,596	224,566
(18) Prof & Soc Services	110,337	174,032	281,616	298,092	302,457	311,446	327,701	368,320	408,907	449,465	489,995
(19) Government	177,325	278,065	336,734	345,020	337,508	346,713	360,609	394,162	426,128	456,648	485,835
(20) Households	--	--	--	--	--	--	--	--	--	--	--
Project[b]	--	--	--	--	--	--	--	--	--	--	--
TOTAL	1,280,013	1,665,308	2,089,167	2,140,297	2,104,389	2,149,044	2,221,602	2,399,084	2,571,430	2,739,178	2,902,804

[a]The Minnesota adaptation of NEDAM does not project state level data, therefore, regional model-projected employments were summed to obtain Minnesota totals.

[b]Project employment refers to direct employment associated with a site-specific single- or multiple-project development. Because no developments were included in either the historic or projected economic base of any state region, there was no project employment.

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