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

Technical Description

by

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FOREWORD

The work upon which this report is based was supported by funds provided by the U.S. Department of the Interior, Bureau of Land Management under contracts YA-553-CT1-89 and YA-553-CT2-117. The purpose of this research was to enable the Bureau of Land Management (BLM) to quickly and accurately assess the economic, demographic, and fiscal effects of various coal development alternatives in the Fort Union Region and similar effects of mineral and other resource development proposals. In order to achieve this objective, two computerized socioeconomic impact assessment models were developed — one for the energy resource areas of North Dakota and one for the resource development regions of Montana.

This report describes the data sources and procedures employed in adapting an existing North Dakota modeling framework for use in Montana. A companion document (Agricultural Economics Report No. 158) describes the logic, structure, data bases, and operational procedures of the North Dakota version.

The authors wish to express their appreciation to several individuals who made significant contributions to the successful completion of the study. Mr. Loren Cabe, Economist in the Montana State Office of BLM and the Contractor's Authorized Representative for this project, was an unfailing source of encouragement and guidance throughout the course of the effort. Ms. Carol Ferguson, Community Planner in the Montana State Department of Community Affairs, made an invaluable contribution to the effort, particularly through her astute advice concerning data sources for the Montana portion of the analysis. Within the Department of Agricultural Economics of North Dakota State University, we gratefully acknowledge the contributions of Ms. Cindy Danielson and Ms. Lori Cullen for their skillful and expeditious typing of the reports, Ms. Carol VavRosky for preparing the graphic materials, and Ms. Karen Maki and Ms. Brenda Ekstrom for editing the reports and making numerous other contributions to the effort. Finally, we express our appreciation to the state and local government officials and energy industry representatives who provided information essential to the analysis.

As always, our gratefulness to these individuals does not implicate them for any remaining errors or omissions.

This report (Agricultural Economics Miscellaneous Report No. 61) describes the data sources and procedures employed in adapting an existing North Dakota modeling framework for use in Montana. A companion document (Agricultural Economics Report No. 158) describes the logic, structure, data bases, and operational procedures of the North Dakota model. The intent of this report is to describe the data and procedures used for adaptation of NEDAM to Montana. User procedures are explained in great detail in the companion document (Agricultural Economics Report No. 158), and those wishing to use the model "hands-on" should first read the section called "User Procedures" in that report. The "User Procedures" section is not replicated in this report.

TABLE OF CONTENTS

	Page
List of Tables	ii
List of Figures	iii
Introduction	1
Study Area	2
Problem Statement	2
Outline of the Report	6
Methodology	6
Definition of the Study Region	7
Description of the Economic Module	12
Description of the Demographic Module	31
Description of the Residential Allocation Module	35
Modification of the Fiscal Impact Module	37
Evaluation of the Model	48
Bibliography	56
Appendices	
A: Procedures and Data Sources Used in the Economic Module	59
B: Tables of Regions 2-11 and the State of Montana	76
C: Project Specific Report	211

LIST OF TABLES

Table No.		Page
1.	COUNTIES AND COMMUNITIES FOR MODEL INCLUSION	9
2.	FUNCTIONAL ECONOMIC REGIONS FOR MONTANA EXTENSION OF NEDAM	11
3.	ECONOMIC SECTORS OF INPUT-OUTPUT MODEL AND ASSOCIATED STANDARD INDUSTRIAL CLASSIFICATION CODES FOR MONTANA EXTENSION OF NEDAM	14
4.	INPUT-OUTPUT TECHNICAL COEFFICIENTS FOR 20-SECTOR MODEL, MONTANA ECONOMY	16
5.	INPUT-OUTPUT INTERDEPENDENCE COEFFICIENTS FOR 20-SECTOR MODEL, MONTANA ECONOMY	18
6.	SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MONTANA REGION 1, 1960-1980, 1980 = BASE DOLLARS (MILLION DOLLARS)	20
7.	REGRESSION EQUATIONS FOR PROJECTING FINAL DEMAND VECTORS FOR 20-SECTOR I-O MODEL, MONTANA REGION 1, (THOUSANDS OF 1980 = BASE DOLLARS)	21
8.	PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MONTANA REGION 1, 1981, 1985, 1990, 1995, 2000, 2005 (1980 = BASE DOLLARS) MILLION DOLLARS	21
9.	GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MONTANA REGION 1, 1960-1980, (MILLIONS OF 1980 = BASE DOLLARS)	23
10.	EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 1, 1960-1980	24
11.	GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS), BY ECONOMIC SECTOR, MONTANA REGION 1, 1960-1980, (1980 = BASE DOLLARS)	25
12.	REGRESSION EQUATIONS FOR PROJECTION OF GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR 20-SECTOR MONTANA I-O MODEL, REGION 1 (1980 = BASE DOLLARS)	26
13.	PROJECTED GROSS BUSINESS VOLUMES TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR MONTANA, REGION 1, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS)	27
14.	PROJECTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MONTANA REGION 1, 1980, 1985, 1990, 1995, AND 2000	29
15.	FERTILITY RATES FOR DANIELS COUNTY, MONTANA, 1980	33
16.	MIGRATION RATES FOR DANIELS COUNTY, MONTANA, 1980	35

LIST OF TABLES (CONTINUED)

Table No.		Page
17.	ESTIMATES OF PERSONAL INCOME AND DIFFERENCES IN ESTIMATES, MONTANA REGION 1, 1960-1980 (THOUSAND DOLLARS)	50
18.	COMPARISON OF STATISTICAL TESTS FOR E-D MODEL VALIDATION, MONTANA REGIONS 1-11, AND STATE, FOR TIME PERIOD 1960-1980	51
19.	HISTORIC AND MODEL PROJECTED* EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 1, SELECTED YEARS 1960 TO 2005	54
20.	HISTORIC POPULATION AND MODEL PROJECTED POPULATION, BY CITY, COUNTY, AND REGION, MONTANA REGION 1, BY SELECTED YEARS	55

LIST OF FIGURES

Figure No.		Page
1.	The Eleven Functional Economic Regions in Montana	3

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Introduction

Recent increases in the development of coal extraction and conversion projects along with projections of future development and utilization of Montana coal reserves have created concerns regarding the associated economic and social effects on rural areas. Federal, state, and local policy makers are requesting (and requiring) an increasing number of assessments of these social and economic impacts. 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 specific energy development projects, and to lend assistance in guiding local and regional planning.

The objective of this report is to describe 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 Montana. NEDAM was originally designed to provide estimates of economic, demographic, and fiscal changes at both the regional and local levels resulting from alternative scenarios of energy resource use and development in North Dakota. The adapted version of the model for Montana projects personal income at the multi-county regional level and estimates

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

employment, population, and public sector costs and revenues at county and community levels. These projections are made on an annual basis for the period 1981 through 2005.

Study Area

The geographic scope of the project is the entire 56 counties in Montana (Figure 1). Montana is bounded by Idaho to the west, the states of Wyoming and North Dakota to the south and east, respectively, and the Canadian provinces of Alberta and Saskatchewan to the north. Montana's total land area is approximately 145,000 square miles, of which about 30 percent belongs to the Federal government. The composition of Federal land holdings varies from five Indian reservations, one national park, and one national recreation area, to extensive holdings of the U.S. Forest Service and the Bureau of Land Management.

The 1980 census population for the region was 786,690 inhabitants with a 1979 adjusted gross personal income of $5.917 billion. The natural resource-based industries (agriculture, mining, lumber, and tourism) form the state's economic backbone.

Problem Statement

In recent years, the United States has increasingly turned toward developing its vast energy resources to decrease its dependence upon energy imports. This trend has spawned marked increases in extraction activity within the West, including Montana. As a result, the energy resource base in the region has become a focal point in regional and extra-regional resource conflict. Questions relating to the magnitude, manner, and effects of energy exploitation have been raised. Thus, a detailed socioeconomic description of the region as it currently exists is needed to answer these questions. An analytical framework must be developed which is capable of assessing the direct

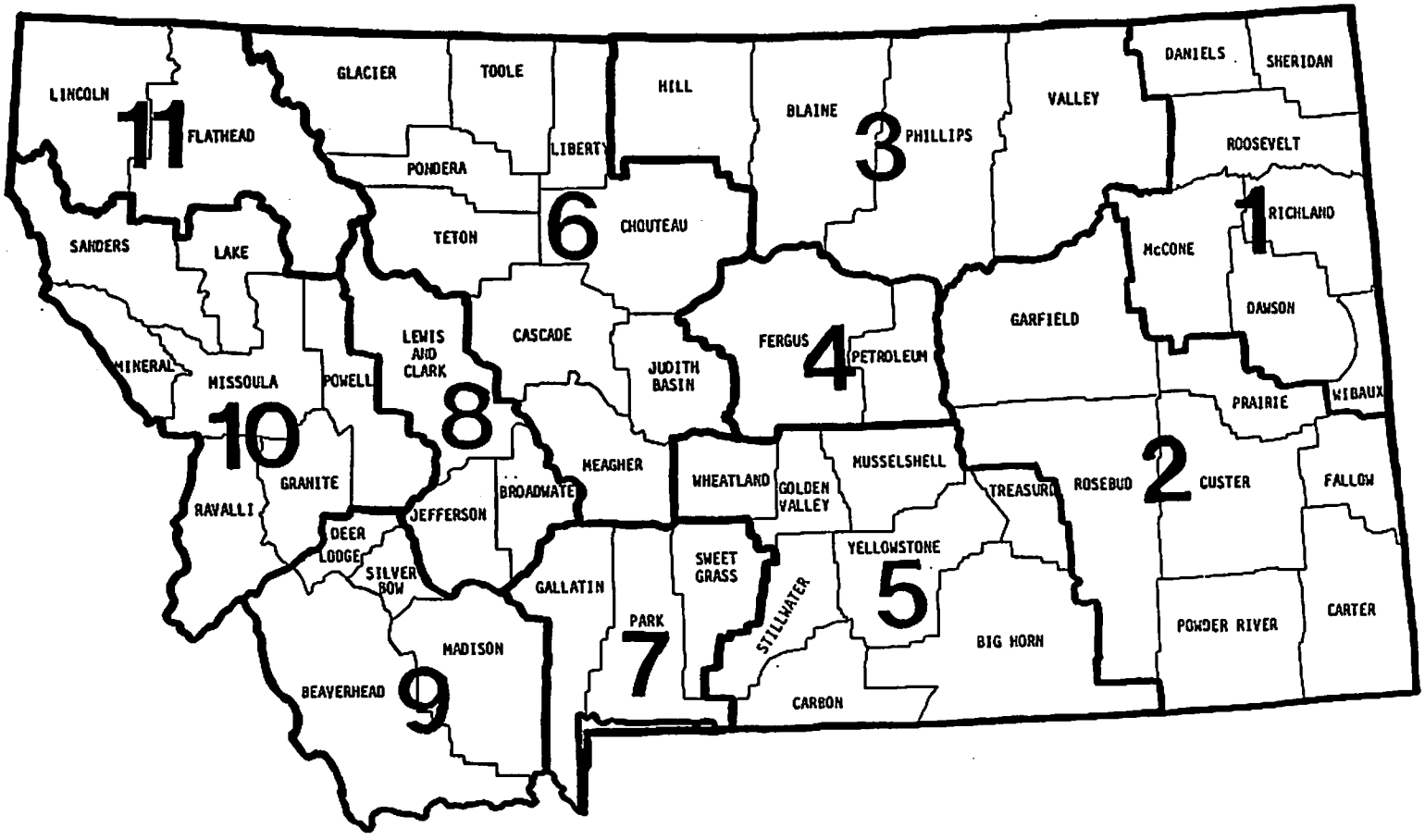

Figure 1. The Eleven Functional Economic Regions in Montana

and secondary socioeconomic impacts associated with alternative scenarios of energy development as proposed by various public and private entities in Montana. Likewise, similar questions and analytical requirements are evident in connection with the proposed development of minerals and other resources in Montana.

In response, a socioeconomic assessment model has been developed to meet these needs in Montana. 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 resource developments for state and local policy makers 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 has 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.[2] While 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 were originally 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 exist in model transfer and adaptation, including the opportunity to expand and refine a model's

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[2]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.

structure and capabilities. Such refinements are seldom possible during initial model development. Given the number of already 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 and, where appropriate, modification to the unique characteristics (e.g., public revenue and expenditure patterns) of the particular study area. The processes 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.[3] 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 retained the basic structure of NEDAM with the exception of extensive modification required in the economic sub-component. The input-output model incorporated within the North Dakota version did not reflect the economic structure of eastern Texas. The other sub-components 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 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

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[3]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.

inception, the TAMS version has been widely used by state and local agencies for impact planning purposes.[4]

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 and adaptation to Montana and a presentation of results from the adapted version; and (2) a concluding discussion on validation of the modified 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; (2) a number of input-output (final demands, gross business volumes), employment, and productivity ratio tables; and (3) samples of the scenario specification procedure and output runs.

Methodology

The adapted version of NEDAM, designed to cover the 56 counties of Montana, 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 is allowed to 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 Montana version provides for both baseline and impact projections for the period between 1981 and 2005. The 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

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[4]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.

continue to 2005. Given the historical trends of declining farm 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 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 1981 through 2005 are predicated on the expected expenditure and employment levels resulting from various developments.

The methodology used in expanding the NEDAM into Montana 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, and
5. Modification of the fiscal impact model parameters.

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

Definition of the Study Region

Adaptation of the NEDAM involved applying the methodology and collecting the appropriate data for a defined region. The study area is defined as all 56 counties in Montana (Figure 1). 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; and

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 were either incorporated places having a 1980 population greater than 300 people, or unincorporated places with a 1980 count of at least 500 people. A total of 148 Montana communities were included in the extended model. In addition, sixteen border communities in North Dakota, Idaho, South Dakota, and Wyoming were selected. These communities were included in order 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 is allowed to 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 available sources,[5] the study area was disaggregated into 11 regions (see Table 2). The boundaries of these regions were drawn along county boundaries to conform with

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[5]See Borchert, John R. and Russell B. Adams, Trade Centers and Trade Areas of the Upper Midwest, Urban Report No. 3, Upper Midwest Council, Minneapolis, 1963; 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 Finch, Joan, Upper Midwest Retail Trade Centers: The Structure of the Region in 1977, Upper Midwest Council, Minneapolis, 1982.

TABLE 1. COUNTIES AND COMMUNITIES FOR MODEL INCLUSION

County	Communities
Beaverhead	Dillon, Lima, Wisdom*
Big Horn	Busby*, Crow Agency*, Hardin, Lodge Grass, Spring Creek*
Blaine	Chinook, Harlem, Hays*, Turner
Broadwater	Townsend
Carbon	Bridger, Fromberg, Joliet, Red Lodge
Carter	Alzada*, Ekalaka
Cascade	Belt, Cascade, Great Falls, Stockett*
Chouteau	Big Sandy, Fort Benton, Geraldine
Custer	Ismay, Miles City
Daniels	Scobey
Dawson	Bloomfield*, Glendive, Lindsay, Richey
Deer Lodge	Anaconda
Fallon	Baker, Plevna
Fergus	Denton, Grass Range, Lewiston, Moore, Winifred
Flathead	Columbia Falls, Kalispell, Whitefish
Gallatin	Belgrade, Bozeman, Manhattan, Three Forks, West Yellowstone*
Garfield	Jordan
Glacier	Browning, Cut Bank
Golden Valley	Ryegate
Granite	Drummond, Phillipsburg
Hill	Havre, Rudyard*
Jefferson	Boulder, Whitehall
Judith Basin	Hobson, Stanford
Lake	Polson, Ronan, St. Ignatius
Lewis and Clark	Augusta*, East Helena, Helena, Lincoln*
Liberty	Chester
Lincoln	Eureka, Libby, Rexford, Troy
McCone	Brockway*, Circle
Madison	Ennis, Sheridan, Twin Bridges, Virginia City
Meagher	White Sulpher Springs
Mineral	Alberton, Superior
Missoula	Missoula, Seeley Lake*
Musselshell	Roundup

- Continued -

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

County	Communities
Park	Gardiner*, Livingston
Petroleum	Winnett
Phillips	Dodson, Loring*, Malta, Saco, Whitewater*
Pondera	Conrad, Valier
Powder River	Belle Creek*, Broadus
Powell	Avon*, Deer Lodge, Elliston*
Prairie	Fallon*, Terry
Ravalli	Darby, Hamilton, Stevensville
Richland	Fairview, Lambert*, Savage*, Sidney
Roosevelt	Brockton, Culbertson, Froid, Poplar, Wolf Point
Rosebud	Ashland*, Birney*, Colstrip*, Forsyth, Lame Deer*, Rosebud*
Sanders	Hot Springs, Plains, Thompson Falls
Sheridan	Medicine Lake, Plentywood
Silver Bow	Butte, Melrose*, Walkerville
Stillwater	Absarokee*, Columbus
Sweet Grass	Big Timber
Teton	Chouteau, Dutton, Fairfield
Toole	Shelby, Sunburst
Treasure	Hysham
Valley	Fort Peck*, Glasgow, Hinsdale, Nashua, Opheim
Wheatland	Harlowton, Judith Gap
Wibaux	Wibaux
Yellowstone	Billings, Broadview, Laurel

BORDER COMMUNITIES

State	Communities
North Dakota	Alexander, Beach, Bowman, Dickinson, Fortuna, Marmarth, Medora, Watford City, Williston
Idaho	Bonners Ferry, Mullan, Wallace
South Dakota	Belle Fourche
Wyoming	Lovell, Powell, Sheridan

*Unincorporated community

TABLE 2. FUNCTIONAL ECONOMIC REGIONS FOR MONTANA EXTENSION OF NEDAM

Region 1: Sidney-Glendive

Daniels	McCone	Roosevelt	Wibaux
Dawson	Richland	Sheridan	

Region 2: Miles City

Carter	Fallon	Powder River	Rosebud
Custer	Garfield	Prairie	

Region 3: Havre-Glasgow

Blaine	Hill	Phillips	Valley

Region 4: Lewiston

Fergus	Petroleum

Region 5: Billings

Big Horn	Golden Valley	Stillwater	Wheatland
Carbon	Musselshell	Treasure	Yellowstone

Region 6: Great Falls

Cascade	Glacier	Liberty	Pondera	Toole
Chouteau	Judith Basin	Meagher	Teton	

Region 7: Bozeman-Livingston

Gallatin	Park	Sweet Grass

Region 8: Helena

Broadwater	Jefferson	Lewis & Clark

Region 9: Butte

Beaverhead	Deer Lodge	Madison	Silver Bow

Region 10: Missoula

Granite	Mineral	Powell	Sanders
Lake	Missoula	Ravalli	

Region 11: Kalispell

Flathead	Lincoln

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

The sources and methods used in the preparation of each of these components, as well as 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 for the area, and with alternative scenarios of resource development. 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 delineation selected for this study is presented in Table 3. A description of the various sectors, including their data sources and 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 commodity flows between sectors are collected and tabulated, the technical coefficients can be easily derived. 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[6] were used to approximate the interindustry relationships in Montana. The similarity of the economies of eastern Montana and western North Dakota suggests that such a

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[6]See Leistritz, et al., 1982, op. cit.; 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 MONTANA 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 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

- Continued -

TABLE 3. ECONOMIC SECTORS OF INPUT-OUTPUT MODEL AND ASSOCIATED STANDARD INDUSTRIAL CLASSIFICATION CODES FOR MONTANA EXTENSION OF NEDAM (CONTINUED)

Economic Sector	SIC Code[a]
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 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.

transfer is feasible. For the central and western Montana regions, where sectors present in this area are not found in North Dakota (i.e., metallic mining, metal processing, and lumber), an existing I-O model from Colorado was selected as an appropriate source. The technical coefficients developed for Montana are provided in Table 4.

The technical coefficients matrix is 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 (thus

TABLE 4. INPUT-OUTPUT TECHNICAL COEFFICIENTS FOR 20-SECTOR MODEL, MONTANA 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	(11) Metal Proc	(12) Trans	(13) Comm & Pub Util	(14) Electric Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Hous-holds
(1) Ag, Livestock	.0937	.0019	.0000	.0000	.0000	.0000	.0000	.0000	.0742	.0000	.0000	.0000	.0000	.0000	.0575	.0000	.0000	.0005	.0000	.0097
(2) Ag, Crops	.1534	.0210	.0000	.0000	.0000	.0001	.0000	.0000	.3476	.0000	.0000	.0000	.0000	.0000	.0013	.0010	.0000	.0000	.0000	.0001
(3) Metal Mining	.0000	.0000	.1176	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
(4) Coal Mining	.0000	.0000	.0004	.0000	.0003	.0000	.0000	.0000	.0000	.0000	.0001	.0000	.0000	.1582	.0000	.0000	.0000	.0000	.0000	.0000
(5) Pet/NG Exp/Ext	.0000	-.0000	.0000	.0000	.0893	.0000	.0000	.0000	.0000	.0869	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
(6) Nonmetallic Mining	.0024	.0020	.0012	.0001	.0005	.0348	.0265	.0000	.0006	.0000	.0001	.0058	.0007	.0000	.0003	.0002	.0011	.0005	.0000	.0016
(7) Construction	.0014	.0175	.0005	.0108	.0857	.0000	.0129	.0438	.0010	.0035	.0000	.0013	.0174	.0058	.0093	.0016	.0103	.0147	.0000	.0428
(8) Lumber & Assoc Prod	.0000	.0000	.0342	.0000	.0000	.0000	.0000	.0116	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
(9) Ag Proc & Misc Mfg	.2737	.0693	.0017	.0241	.0000	.0000	.0000	.0080	.3671	.0000	.0102	.0000	.0000	.0339	.0002	.0201	.0000	.0010	.0000	.0016
(10) Pet Refining	.0000	.0000	.0000	.0168	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0075	.0000	.0000	.0000	.0000	.0000	.0000
(11) Metal Processing	.0000	.0000	.0084	.0000	.0000	.0000	.0000	.0005	.0000	.0000	.0130	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
(12) Transportation	.0042	.0018	.0556	.0031	.0137	.0208	.0051	.0203	.0024	.0033	.0252	.0014	.0077	.0009	.0067	.0033	.0059	.0019	.0000	.0009
(13) Comm & Public Util	.0068	.0035	.0246	.0215	.0230	.0864	.0119	.0236	.0059	.0021	.0244	.0224	.0414	.0024	.0207	.0434	.0536	.0394	.0000	.0443
(14) Electric Generation	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
(15) Retail Trade	.0601	.2920	.0013	.0642	.0125	.0965	.1016	.0121	.0090	.0021	.0021	.1506	.0384	.0079	.0582	.0808	.0911	.1420	.0000	.4129
(16) Fin, Ins, Real Estate	.0115	.0525	.0122	.0017	.0009	.0170	.0147	.0215	.0044	.0005	.0094	.0314	.0240	.0513	.0097	.0077	.0267	.0223	.0000	.0961
(17) Bus & Pers Service	.0028	.0253	.0004	.0018	.0004	.0079	.0036	.1249	.0010	.0000	.0009	.0134	.0050	.0018	.0019	.0278	.0209	.0030	.0000	.0328
(18) Prof & Soc Service	.0027	.0019	.0029	.0066	.0004	.0019	.0012	.0334	.0005	.0002	.0054	.0014	.0019	.0033	.0015	.0049	.0037	.0347	.0000	.0593
(19) Government	.0100	.0202	.0094	.0014	.0004	.0159	.0055	.0049	.0029	.0023	.0187	.1992	.0398	.0135	.0065	.0184	.0216	.0104	.0000	.0578
(20) Households	.3416	.4315	.2295	.3738	.1309	.4259	.3239	.2134	.0431	.0302	.1738	.4210	.4478	.1207	.1780	.6956	.3697	.5654	.0000	.0582

requiring a reinverting of the technical coefficients matrix), the Montana version has different interdependence coefficients, for comparable sectors, than the North Dakota version (Table 5).

Baseline Economic Projection Procedures

The economic module of the adapted version is used for 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. Thus, baseline estimates constitute projections of future economic conditions likely to prevail in the area if no major resource development projects were initiated or closed. These projections are the essential base upon which the changes in economic activity associated with alternative scenarios of resource development are superimposed.

The general procedures for developing baseline economic projections involve projecting historic sales to final demand for the basic economic sectors through the year 2005. The I-O technical coefficients are then applied to these final demand projections to obtain estimates of total output (gross business volume) for each sector for the respective years. Projected gross business volumes for each sector are then divided by the projected productivity ratios for their respective sectors for each year to obtain estimated employment. In the final step, regional employment is 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 1980. The economic baseline for the study region is 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

TABLE 5. INPUT-OUTPUT INTERDEPENDENCE COEFFICIENTS FOR 20-SECTOR MODEL, MONTANA 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	(11) Metal Proc	(12) Trans	(13) Comm & Pub Util	(14) Electric Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) House-holds
(1) Ag, Livestock	1.2072	.0774	.0244	.0375	.0159	.0445	.0343	.0287	.1911	.0040	.0171	.0455	.0379	.0250	.0889	.0617	.0384	.0571	.0000	.0674
(2) Ag, Crops	.3938	1.0922	.0112	.0285	.0063	.0176	.0134	.0162	.6488	.0016	.0128	.0179	.0152	.0321	.0318	.0368	.0152	.0230	.0000	.0267
(3) Metal Mining	.0000	.0000	1.1333	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
(4) Coal Mining	.0000	.0000	.0005	1.0000	.0003	.0000	.0000	.0000	.0000	.0000	.0001	.0000	.0000	.1582	.0000	.0000	.0000	.0000	.0000	.0000
(5) Pet/NG Exp/Ext	.0000	.0000	.0000	.0016	1.0981	.0000	.0000	.0000	.0000	.0954	.0000	.0000	.0000	.0010	.0000	.0000	.0000	.0000	.0000	.0000
(6) Nonmetallic Mining	.0084	.0069	.0039	.0031	.0045	1.0396	.0303	.0038	.0063	.0007	.0016	.0092	.0044	.0019	.0025	.0050	.0044	.0051	.0000	.0058
(7) Construction	.0722	.0794	.0339	.0514	.1148	.0521	1.0501	.0807	.0619	.0168	.0207	.0496	.0653	.0320	.0348	.0740	.0546	.0787	.0000	.0902
(8) Lumber & Assoc Prod	.0000	.0000	.0392	.0000	.0000	.0000	.0000	1.0117	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
(9) Ag Proc & Misc Mfg	.5730	.1612	.0193	.0617	.0097	.0272	.0207	.0315	1.7402	.0025	.0276	.0277	.0239	.0781	.0452	.0704	.0237	.0363	.0000	.0417
(10) Pet Refining	.0000	.0000	.0000	.0168	.0000	.0000	.0000	.0000	.0000	1.0000	.0000	.0000	.0000	.0102	.0000	.0000	.0000	.0000	.0000	.0000
(11) Metal Processing	.0000	.0000	.0097	.0000	.0000	.0000	.0000	.0005	.0000	.0000	1.0132	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
(12) Transportation	.0161	.0113	.0679	.0082	.0180	.0284	.0105	.0258	.0128	.0053	.0280	1.0079	.0135	.0046	.0104	.0120	.0118	.0100	.0000	.0093
(13) Comm & Public Util	.0921	.0836	.0696	.0707	.0510	.1557	.0605	.0766	.0767	.0106	.0509	.0840	1.1006	.0375	.0529	.1322	.1104	.1192	.0000	.1056
(14) Electric Generation	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	1.0000	.0000	.0000	.0000	.0000	.0000	.0000
(15) Retail Trade	.7072	.8130	.2701	.3975	.1839	.5235	.4101	.3156	.6115	.0458	.1754	.5476	.4318	.2256	1.2735	.6765	.4526	.6669	.0000	.7449
(16) Fin, Ins, Real Estate	.1526	.1677	.0753	.0767	.0388	.1140	.0837	.0903	.1322	.0101	.0487	.1205	.1129	.0976	.0578	1.1424	.1085	.1401	.0000	.1681
(17) Bus & Pers Service	.0562	.0684	.0277	.0286	.0139	.0430	.0287	.1528	.0514	.0035	.0153	.0461	.0375	.0200	.0194	.0766	1.0509	.0455	.0000	.0605
(18) Prof & Soc Service	.0711	.0644	.0384	.0491	.0210	.0560	.0402	.0714	.0531	.0055	.0274	.0519	.0527	.0300	.0276	.0816	.0497	1.1026	.0000	.0982
(19) Government	.0987	.0957	.0626	.0508	.0260	.0853	.0519	.0545	.0796	.0094	.0495	.2583	.0999	.0443	.0395	.1071	.0774	.0881	1.0000	.1060
(20) Households	1.0459	.9643	.5249	.6630	.3206	.8428	.6091	.5608	.7862	.0828	.3401	.7878	.7953	.3953	.4036	1.2019	.7161	1.0438	.0000	1.5526
Gross Receipts Multiplier	4.4938	3.6855	2.4119	2.5453	1.9248	3.0297	2.4435	2.5199	4.4518	1.2940	1.8284	3.0540	2.7909	2.1934	2.0879	3.6782	2.7137	3.4164	1.0000	3.0790

final demand are sales by agriculture (both crops and livestock), mining and manufacturing sectors, as well as 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.[7] Final demand vectors for one Montana functional economic region (Region 1, Sidney-Glendive) for the years 1960 to 1980 are presented in Table 6. (Final demand vectors for the remaining regions and Montana are included in Appendix B, Tables 2-12.) These projections of future levels of baseline activity are based on time series projections of the final demand vectors that existed in 1960 through 1980. Several time series regression analyses techniques were employed for each region and sector for the years 1960 through 1980 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). 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.

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

TABLE 6. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MONTANA REGION 1, 1960-1980, (1980 = BASE DOLLARS), MILLION 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	(14) Elec Gen	(15) Retail	(17) Bus & Pers Serv	(20) H.H.
1960	41.5	105.6	--	1.0	23.7	--	3.9	--	6.7	1.0	--	--	11.0	3.7	34.4
1961	44.5	82.4	--	1.2	26.0	--	3.9	--	6.8	--	--	--	12.1	4.0	46.5
1962	39.2	138.3	--	1.2	27.0	--	4.2	--	6.9	--	--	--	13.0	4.3	39.6
1963	37.3	160.0	--	1.2	25.2	--	5.2	--	7.0	--	--	--	13.9	4.6	48.0
1964	46.6	121.8	--	1.2	23.1	--	6.3	--	7.1	--	--	--	14.9	5.0	41.5
1965	56.1	111.1	--	1.2	27.9	--	7.0	--	7.2	2.8	--	--	16.1	5.4	49.5
1966	63.5	136.1	--	1.3	31.5	--	5.9	--	7.3	3.6	--	--	17.4	5.8	45.4
1967	60.9	140.3	--	1.3	29.1	--	5.9	--	7.1	3.9	--	--	18.8	6.3	55.0
1968	70.2	119.8	--	1.6	27.1	--	15.7	--	7.3	4.0	--	--	20.4	6.8	61.2
1969	71.3	123.2	--	--	25.8	--	4.2	--	10.6	4.1	--	--	22.2	7.4	65.6
1970	61.2	149.7	--	1.0	25.1	--	2.7	--	11.1	3.9	--	--	24.2	8.1	64.5
1971	64.7	122.4	--	1.0	23.4	--	1.4	--	11.3	4.1	--	--	26.1	8.7	63.5
1972	74.0	180.6	--	1.1	22.3	--	22.6	--	11.8	3.8	--	--	28.1	9.4	61.0
1973	83.5	252.3	--	1.5	21.3	--	2.7	--	13.1	3.6	--	--	30.6	10.2	66.5
1974	65.3	296.2	--	1.8	34.3	--	4.7	--	14.0	5.4	--	--	33.9	11.3	61.8
1975	54.2	214.6	--	2.0	34.9	--	12.3	--	20.0	6.6	--	--	34.6	11.5	65.4
1976	62.3	171.1	--	2.0	37.6	--	5.0	--	20.6	9.6	--	--	35.6	11.9	68.7
1977	68.1	129.0	--	1.8	39.4	--	10.2	--	15.3	9.4	--	--	36.6	12.2	83.1
1978	71.1	171.4	--	1.7	44.9	--	7.6	--	20.5	9.6	--	--	34.2	11 4	83.3
1979	75.0	135.7	--	2.2	71.4	--	4.7	--	21.5	17.0	--	--	31.2	10.4	85.0
1980	64.3	144.2	--	2.2	138.9	--	2.2	--	19.7	21.4	--	--	33.6	11.2	94.5

TABLE 7. REGRESSION EQUATIONS[a] FOR PROJECTING FINAL DEMAND VECTORS FOR 20-SECTOR I-O MODEL, MONTANA REGION 1, (1980 = BASE DOLLARS), THOUSAND DOLLARS

Sector	Equation
(1) Ag, Livestock	Y = -2,797,926 + 1,449.98(X)
(2) Ag, Crops	Y = -4,259,161 + 2,229.32(X)
(3) Metal Mining	Y = 0[b]
(4) Coal Mining	Y = -100,009.6 + 51.589(X)
(5) Pet/NG Exp/Ext	Y = -1,446,225 + 774.162(X)
(6) Nonmetallic Mining	Y = 0[b]
(7) Construction	Y = -1,171.164 + 3.03564(X)
(8) Lumber	Y = 0[b]
(9) Ag Proc & Misc Manufacturing	Y = -1,554,939 + 796.515(X)
(10) Pet Refining	Y = -996,059.4 + 511.658(X)
(11) Metal Processing	Y = 0[b]
(12) Transportation	Y = 0[b]
(13) Comm & Public Utilities	Y = 0[b]
(14) Electric Generation	Y = 0[b]
(15) Retail	Y = -3,090,954 + 1,579.35(X)
(16) Fin, Ins, Real Estate	Y = 0[b]
(17) Business & Personal Service	Y = -1,029,905 + 526.241(X)
(18) Prof & Social Service	Y = 0[b]
(19) Government	Y = 0[b]
(20) Households	Y = -4,772,998 + 2,457.33(X)

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

TABLE 8. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MONTANA REGION 1, 1981, 1985, 1990, 1995, 2000, 2005 (1980 = BASE DOLLARS), MILLION DOLLARS

Sector	1981	1985	1990	1995	2000	2005
(1) Ag, Livestock	73.0	78.8	86.0	93.3	100.5	107.8
(2) Ag, Crops	154.8	163.8	174.9	186.1	197.2	208.3
(3) Metal Mining	---	---	---	---	---	---
(4) Coal Mining	2.1	2.3	2.6	2.8	3.1	3.3
(5) Pet/NG Exp/Ext	86.6	89.7	93.5	97.4	101.3	105.1
(6) Nonmetallic Mining	---	---	---	---	---	---
(7) Construction	4.8	4.9	4.9	4.9	4.9	4.9
(8) Lumber & Assoc Prod	---	---	---	---	---	---
(9) Ag Proc & Misc Mfg	22.1	25.3	29.3	33.3	37.2	41.2
(10) Pet Refining	17.0	19.0	21.6	24.1	26.7	29.3
(11) Metal Processing	---	---	---	---	---	---
(14) Electric Generation	---	---	---	---	---	---
(15) Retail	36.1	42.4	50.3	58.2	66.1	74.0
(17) Bus & Pers Service	12.0	14.1	16.7	19.4	22.0	24.6
(20) Households	92.5	102.3	114.6	126.9	139.2	151.4

Estimates were made of the gross business volume by economic sector for each region for the years 1960 to 1980 (Table 9 and Appendix B, Tables 35-45). The computational method is simply dividing the historic gross business volumes (estimated by applying the interdependence coefficient matrix to the final demand vectors) for Montana by employment[8] in each sector for each of the state functional regions 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.

These 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.[9] Robust regression analysis with an intercept adjustment provided estimation equations for each sector and each region (Table 12 and Appendix B, Tables 68-78). These equations were then used to project gross business volume per worker to the year 2005. The resulting estimates of gross business volume/employment ratios projected through the year 2005 are shown for Region 1 in Table 13 and the remaining Regions in Appendix B, Tables 79-89.

County and Municipal Employment Allocators

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

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

[9]These methods are similar to those employed in North Dakota. See, for example, 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, MONTANA REGION 1, 1960-1980, (1980 = BASE DOLLARS), MILLION DOLLARS

	Sector																				
Year	(1) Ag. Lstk	(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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) House-holds	TOTAL
1960	63.5	137.6	--	1.0	26.1	1.6	22.4	--	54.9	1.0	--	2.9	19.3	--	167.0	33.1	16.6	14.7	20.1	221.7	803.4
1961	66.4	113.9	--	1.2	28.6	1.5	22.2	--	53.6	--	--	2.8	19.2	--	161.3	31.9	16.3	14.7	19.6	222.8	775.8
1962	64.0	172.8	--	1.2	29.7	1.9	26.1	--	59.5	--	--	3.3	22.8	--	199.5	39.5	19.7	17.3	23.8	261.6	942.6
1963	64.0	196.0	--	1.2	27.7	2.1	29.3	--	62.5	--	--	3.6	25.4	--	223.5	44.3	21.9	19.5	26.7	294.3	1,042.0
1964	72.0	157.9	--	1.2	25.4	1.9	27.3	--	61.6	--	--	3.3	22.4	--	195.8	38.4	19.9	17.1	23.3	257.8	925.3
1965	82.4	150.3	--	1.2	30.9	2.0	29.3	--	66.0	2.8	--	3.5	23.6	--	202.8	39.8	20.7	18.0	24.4	272.9	971.6
1966	94.2	180.6	--	1.3	34.9	2.2	30.8	--	74.4	3.6	--	3.9	26.2	--	227.5	44.6	23.1	19.9	27.2	299.9	1,094.3
1967	92.1	184.3	--	1.3	32.3	2.2	31.6	--	73.7	3.9	--	4.0	27.4	--	237.7	46.5	24.3	20.9	28.4	315.2	1,126.8
1968	102.7	166.1	--	1.6	30.1	2.5	41.4	--	76.6	4.0	--	4.1	27.8	--	238.4	46.5	24.7	21.3	28.6	322.5	1,138.7
1969	104.9	172.3	--	--	28.7	2.2	30.1	--	83.4	4.1	--	4.1	28.2	--	244.2	47.5	25.7	21.7	29.2	329.0	1,155.3
1970	99.9	197.7	--	1.0	27.9	2.3	29.9	--	82.9	3.9	--	4.2	29.5	--	260.6	50.4	27.6	22.7	30.7	343.5	1,209.7
1971	97.2	169.4	--	1.0	26.1	2.1	26.5	--	80.8	4.1	--	3.9	27.5	--	242.1	46.2	26.5	21.1	28.4	319.3	1,122.1
1972	123.7	237.2	--	1.1	24.9	3.2	53.8	--	96.9	3.8	--	5.0	34.4	--	305.8	58.9	32.2	26.2	35.8	395.6	1,428.5
1973	130.9	320.1	--	1.5	23.7	3.2	39.9	--	116.1	3.6	--	5.9	41.0	--	371.1	72.0	38.4	31.4	43.5	473.6	1,715.8
1974	112.9	361.6	--	1.8	38.2	3.5	45.5	--	114.5	5.4	--	6.3	43.6	--	399.1	77.0	41.6	33.1	46.1	498.2	1,828.2
1975	94.9	272.2	--	2.0	39.0	3.1	47.1	--	105.8	6.6	--	5.4	37.2	--	335.6	63.8	36.4	28.1	38.6	423.7	1,539.2
1976	101.5	228.3	--	2.0	42.2	2.7	37.3	--	104.5	9.6	--	5.1	34.5	--	307.9	58.0	34.4	26.0	35.4	393.1	1,422.5
1977	105.5	191.7	--	1.8	44.2	2.7	41.0	--	92.6	9.4	--	4.9	33.1	--	289.0	54.1	32.9	25.1	33.5	381.0	1,332.4
1978	113.2	232.4	--	1.7	50.2	3.0	42.7	--	110.1	9.6	--	5.5	37.3	--	325.4	62.1	35.4	28.3	38.1	428.0	1,523.0
1979	115.5	195.7	--	2.2	80.0	2.8	40.4	--	108.4	17.0	--	5.6	35.9	--	301.0	57.8	32.5	26.8	35.8	406.8	1,454.4
1980	104.8	200.4	--	2.2	154.6	3.1	46.3	--	101.7	21.4	--	6.9	40.1	--	321.3	61.6	34.8	28.9	38.4	439.2	1,635.6

TABLE 10. EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 1, 1960-1980

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	(12) Trans	(13) Coms & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) House-holds
1960	5,668	--	104	205	--	499	--	648	1	--	1,621	361	60	2,826	346	301	1,886	2,352	--
1961	5,483	--	104	205	--	513	--	640	--	--	1,534	361	58	2,782	341	295	1,928	2,443	--
1962	5,681	--	115	205	--	563	--	690	--	--	1,473	354	75	2,782	341	308	1,939	2,517	--
1963	5,763	--	183	489	6	532	--	815	--	--	1,357	437	74	3,094	328	415	1,372	2,626	--
1964	5,572	--	183	442	6	481	--	771	3	--	1,339	437	67	3,163	333	417	1,429	2,737	--
1965	5,382	--	140	519	5	497	--	825	17	--	1,003	459	61	3,299	370	351	1,573	2,810	--
1966	5,699	--	181	436	1	483	--	737	20	--	951	455	69	3,347	355	239	1,928	3,058	--
1967	5,755	8	360	596	25	464	--	703	20	--	1,167	376	64	3,286	370	253	2,218	3,201	--
1968	5,209	42	218	587	--	466	--	859	20	--	831	478	51	3,207	379	385	2,190	3,129	--
1969	5,313	--	187	649	--	407	--	935	19	--	821	431	57	3,275	416	477	2,711	3,284	--
1970	5,606	--	113	479	--	399	--	866	21	--	812	480	63	3,155	1,004	610	2,467	3,262	--
1971	5,416	--	125	440	--	411	--	843	19	--	1,029	388	56	3,279	401	579	2,276	2,953	--
1972	5,103	--	58	459	--	341	--	816	17	--	1,009	423	53	3,272	396	643	2,476	3,479	--
1973	5,573	--	70	412	--	410	--	1,134	14	--	968	404	57	3,242	427	737	2,320	4,392	--
1974	5,931	--	23	476	7	705	--	1,275	14	--	678	353	54	3,133	437	458	3,007	3,873	--
1975	5,287	--	27	329	8	645	--	1,280	16	--	685	453	39	3,132	567	410	2,965	4,195	--
1976	5,045	--	28	367	7	725	--	1,622	23	--	459	484	38	3,097	549	462	3,027	3,829	--
1977	5,182	--	35	476	7	886	--	1,633	21	--	558	635	36	3,142	508	414	3,150	3,570	--
1978	4,927	--	51	562	7	862	--	1,366	22	147	609	420	40	3,560	569	452	2,890	4,275	--
1979	4,780	--	62	986	6	1,015	--	1,587	26	--	906	568	41	3,625	585	457	3,170	3,627	--
1980	4,636	--	66	1,102	6	985	--	1,581	30	--	880	616	41	3,641	594	509	3,381	3,652	--

TABLE 11. GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS), BY ECONOMIC SECTOR, MONTANA REGION 1, 1960-1980, (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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	35,480	--	9,615	127,317	---	44,890	--	84,722	1,000,000	--	1,789	53,463	--	59,094	95,665	55,150	7,794	8,546	--
1961	32,884	--	11,539	139,512	---	43,275	--	83,750	---	--	1,825	53,186	--	57,980	93,548	55,254	7,625	8,023	--
1962	41,683	--	10,435	144,878	---	46,359	--	86,232	---	--	2,240	64,407	27	71,711	115,836	63,961	8,922	9,456	--
1963	45,115	--	6,557	56,646	350,000	55,075	--	76,687	---	--	2,653	58,124	--	72,237	135,061	52,771	14,213	10,168	--
1964	41,260	--	6,557	57,466	316,670	56,757	--	79,896	---	--	2,465	51,259	--	61,903	115,315	47,722	11,966	8,513	--
1965	43,423	--	8,571	59,538	400,000	58,954	--	80,000	164,710	--	3,490	51,416	--	61,473	107,568	58,974	11,443	8,683	--
1966	49,080	--	7,182	80,046	2,200,000	63,768	--	100,950	180,000	--	4,101	57,582	--	67,971	125,634	96,653	10,322	8,895	--
1967	48,028	--	3,611	54,195	88,000	68,103	--	104,836	195,000	--	3,428	72,872	--	72,337	125,676	96,047	9,423	8,872	--
1968	51,603	--	7,339	51,278	---	88,841	--	89,173	200,000	--	4,934	58,159	--	74,337	122,691	64,156	9,726	9,140	--
1969	52,174	--	---	44,222	---	73,956	--	89,198	215,790	--	4,994	65,429	--	74,565	114,183	53,878	8,004	8,892	--
1970	52,194	--	8,850	58,246	---	74,937	--	95,727	185,710	--	5,172	61,458	--	82,599	50,199	45,246	9,202	9,411	--
1971	49,225	--	8,000	59,318	---	64,477	--	95,848	215,790	--	3,790	70,876	--	73,833	115,212	45,769	9,271	9,617	--
1972	68,764	--	18,966	54,248	---	157,771	--	118,750	223,530	--	4,955	81,324	--	93,460	148,737	50,078	10,582	10,290	--
1973	80,926	--	21,429	57,524	---	97,317	--	102,381	257,140	--	5,992	101,485	--	114,466	168,618	52,103	14,698	9,904	--
1974	79,987	--	78,261	80,252	500,000	64,539	--	89,804	385,710	--	9,292	123,513	--	127,386	176,201	90,830	11,008	11,903	--
1975	69,435	--	74,074	118,541	387,500	73,023	--	82,656	412,500	--	7,883	82,119	--	107,152	112,522	88,781	9,477	9,201	--
1976	65,372	--	71,429	114,986	385,710	51,448	--	64,427	417,390	--	11,111	71,281	--	99,419	105,647	74,459	859	9,245	--
1977	55,423	--	51,429	92,857	385,710	46,275	--	56,705	447,620	--	8,781	52,126	--	91,980	106,496	79,469	7,968	9,384	--
1978	70,144	--	33,333	89,324	428,570	49,536	--	80,600	436,360	--	9,031	88,810	--	91,404	109,139	78,319	9,792	8,912	--
1979	65,105	--	35,484	81,218	466,670	39,803	--	68,305	653,850	--	6,181	63,204	--	83,034	98,803	71,116	8,454	9,870	--
1980	65,833	--	33,333	140,290	516,670	47,005	--	64,326	713,330	--	7,841	65,097	--	88,245	103,704	68,369	8,548	10,515	--

TABLE 12. REGRESSION EQUATIONS[a] FOR PROJECTION OF GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR 20-SECTOR MONTANA I-O MODEL, REGION 1 (1980 = BASE DOLLARS), THOUSAND DOLLARS

Sector	Equation
(1) & (2) Agriculture	Y = -3,152.346 + 1.62759(X)
(3) Metal Mining	Y = 10,000[b]
(4) Coal Mining	Y = -3,037.111 + 1.55266(X)
(5) Pet/NG Exp/Ext	Y = -937.7864 + 0.52649(X)
(6) Nonmetallic Mining	Y = -38,934.07 + 19.9215(X)
(7) Construction	Y = 79.71585 - 0.0173245(X)
(8) Lumber and Assoc Prod	Y = 10,000[b]
(9) Ag Proc & Misc Manufacturing	Y = 71.077[c]
(10) Pet Refining	Y = -62,347.48 + 31.8244(X)
(11) Metal Processing	Y = 10,000[b]
(12) Transportation	Y = -704.0989 + 0.35985(X)
(13) Comm & Public Utilities	Y = -1,911.503 + 1.00297(X)
(14) Electric Generation	Y = 10,000[b]
(15) Retail	Y = -3,494.993 + 1.8112(X)
(16) Fin, Ins, Real Estate	Y = 1,009.23 - 0.457709(X)
(17) Business & Pers Service	Y = -2,108.281 + 1.10257(X)
(18) Prof & Social Service	Y = 8.931[c]
(19) Government	Y = -118.5073 + 0.0648499(X)
(20) Households	Y = 10,000[b]

[a]Robust regression with intercept adjustment technique.
[b]Because these sectors have historically accounted for very little or no employment in this region, arbitrary, very large values were utilized in developing projections of baseline employment.
[c]The average of the last three years.

employment between 1960 and 1980.[10] Since employment data are not available at the sub-county level, population was used as the proxy measure. Thus, 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. These cities' shares were then used to allocate the region's total nonagricultural employment among the cities in each region. In similar fashion, the region's agricultural employment was allocated to the counties in the region based on

[10]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 13. PROJECTED GROSS BUSINESS VOLUMES TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR MONTANA, REGION 1, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS)

Sector	1981	1985	1990	1995	2000	2005
(1) & (2) Agriculture	70,282	76,793	84,931	93,068	101,206	109,344
(3) Metal Mining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(4) Coal Mining	37,156	43,366	51,130	58,893	66,656	74,420
(5) Pet/NG Exp/Ext	104,664	106,770	109,402	112,035	114,667	117,300
(6) Nonmetallic Mining	510,500	590,186	689,794	789,401	889,009	988,616
(7) Construction	45,413	45,344	45,257	45,171	45,084	44,998
(8) Lumber & Assoc Prod[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(9) Ag Proc & Misc Mfg	71,077	71,077	71,077	71,077	71,077	71,077
(10) Pet Refining	664,852	792,130	951,252	1,110,374	1,269,496	1,428,618
(11) Metal Processing[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(12) Transportation	8,404	9,844	11,643	13,442	15,241	17,041
(13) Comm & Public Util	74,378	78,389	83,404	88,419	93,434	98,449
(14) Electric Generation[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail	91,183	98,428	107,484	116,540	125,596	134,652
(16) Fin, Ins, R.E.	102,966	101,135	98,847	96,558	94,270	91,981
(17) Bus & Pers Service	74,808	79,218	84,731	90,244	95,756	101,269
(18) Prof & Soc Service	8,931	8,931	8,931	8,931	8,931	8,931
(19) Government	9,896	10,155	10,479	10,803	11,128	11,452
(20) Households[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

[a]Because these sectors have historically accounted for very little or no employment in this region, arbitrary very large values were utilized in developing projections of baseline employment.

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. The county and city allocators used in the adapted version are presented for Region 1 in Table 14 and 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 is assumed to be largely additive to trends in baseline activity. Thus, 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 resource 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 for rapid updating of information regarding specific projects (e.g., changes in construction timetables and labor requirements) and for the addition of information for new projects.

The portion of the site-specific data file for each project that drives the input-output model is a final demand vector. In the construction phase of a project, this consists of annual expenditures to the contract construction sector, retail trade sector, and household sector. During the operation phase, annual expenditures are to the retail trade sector and household sector. Thus, 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 sectors (for supplies and materials purchased locally) and household sector (for wages and salaries to employees living in the area).

TABLE 14. PROJECTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MONTANA REGION 1, 1980, 1985, 1990, 1995, AND 2000

County	City	1980	ADJ 1980	1985	ADJ 1985	1990	ADJ 1990	1995	ADJ 1995	2000	ADJ 2000
Daniels	Scobey	0.0535991		0.0511722		0.0488551		0.0466430		0.0445311	
Dawson	Bloomfield	0.0010859		0.0010025		0.0009255		0.0008544		0.0007888	
	Glendive	0.2318492		0.2244832		0.2173512		0.2104458		0.2037597	
	Lindsay	0.0015513		0.0015657		0.0015802		0.0015949		0.0016097	
			0.0015514		0.0015425		0.0015266		0.0015045		0.0014
	Richey	0.0161728		0.0157586		0.0153551		0.0149618		0.0145787	
McCone	Brockway	0.0019392		0.0017402		0.0015616		0.0014014		0.0012576	
	Circle	0.0361076		0.0348203		0.0335789		0.0323817		0.0312273	
Richland	Fairview	0.0529779		0.0577186		0.0628835		0.0685107		0.0746413	
			0.0529784		0.0568640		0.0607502		0.0646275		0.0684
	Lambert	0.0116350		0.0139647		0.0167609		0.0201169		0.0241450	
			0.0116351		0.0137579		0.0161923		0.0189767		0.0221
	Savage	0.0106267		0.0104850		0.0103451		0.0102070		0.0100709	
	Sidney	0.2220746		0.2372108		0.2533786		0.2706485		0.2890950	
			0.2220767		0.2336985		0.2447830		0.2553081		0.2652
Roosevelt	Brockton	0.0145050		0.0147089		0.0149156		0.0151252		0.0153377	
			0.0145052		0.0144911		0.0144096		0.0142679		0.0140
	Culbertson	0.0344011		0.0344139		0.0344267		0.0344395		0.0344523	
			0.0344014		0.0339043		0.0332588		0.0324874		0.0316
	Froid	0.0125271		0.0118541		0.0112172		0.0106145		0.0100442	
	Poplar	0.0385898		0.0347784		0.0313434		0.0282477		0.0254577	
	Wolf Point	0.1181740		0.1145189		0.1109769		0.1075444		0.1042181	
Sheridan	Medicine Lake	0.0158238		0.0155668		0.0153140		0.0150654		0.0148207	
	Plentywood	0.0960274		0.1007409		0.1056859		0.1108735		0.1163158	
			0.0960283		0.0992493		0.1021007		0.1045892		0.1067
Wibaux	Wibaux	0.0303283		0.0307680		0.0312141		0.0316667		0.0321258	
			0.0303285		0.0303124		0.0301552		0.0298718		0.0294
SUM OF DECLINING COUNTIES		0.5364950		0.5161799		0.4968237		0.4783670		0.4607545	
ONE MINUS DECLINING COUNTIES		0.4635050		0.4838201		0.5031763		0.5216330		0.5392455	
SUM OF INCREASING COUNTIES		0.4635004		0.4910913		0.5208454		0.5529757		0.5877226	
ADJUSTED TOTAL			0.9999996		0.9999999		0.9999999		0.9999999		1.0000

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 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, and
    c) Construction,
15. Direct Labor,
    a) Construction (temporary workers), and
    b) Operation or permanent workers.

Although various configurations can be selected for the types of resource development projects, characteristics of a typical coal-fired power plant in eastern Montana are displayed in Appendix C.

Description of the Demographic Module

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

1. Population by each of the 75 age groups (single-year) for males and females in each county,
2. Birth rates by county of residence and age groups (single-year) for females 15 to 45 years of age,
3. Survival rates for each of the 75 age groups (single-year) for males and females for the state, and
4. Migration rates for each of the 10 age groups (single-year), 65 to 74+, for males and females for counties.

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

Population by Age and Sex

Populations for single years of age were derived from the STF 2A 1980 census tape for Montana. The populations are grouped into 75 single-year age groups by male and female for each county. (Census information consisted of 104 age cohorts from 0 to 103.) Cohorts 0 and 1 were added to form the first age group and cohorts 75 and over were summed to form the last age group.

Birth Rates

Three sets of age-specific birth rates were computed for each county in Montana 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.

Data on births were obtained from the Montana Department of Health and Environmental Sciences, Bureau of Records and Statistics; and 1980 data on the number of females were obtained from the 1980 STF 2A tape for Montana. The use of an average number of births for a three-year period is a standard procedure[11] 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 were the sum of a set of age-specific fertility rates for women in the childbearing ages. These were the rates that would result in the indicated number of births (1.8, 2.1, or 2.5) per female, if each female were to experience a given set of age-specific rates for each age group as she aged through her reproductive lifetime. These rates were obtained for each county by trending county to national rates that reflect 1.8, 2.1, and 2.5 levels of total fertility.[12] To do this, the ratio of county age-specific fertility rates to projected national age-specific fertility rates for 1980 was computed, and this ratio was then applied to projected national age-specific fertility rates for each year during the projection period for

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[11]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.

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

each level of fertility. The use of this procedure[13] resulted in a set of age-specific fertility rates for each county for each of the levels of completed fertility. An example of county fertility rates for 1980 is provided in Table 15 for Daniels County.

TABLE 15. FERTILITY RATES[a] FOR DANIELS COUNTY, MONTANA, 1980

Age Group	Birth Rate
15-19[b]	.046832
20-24	.222222
25-29	.158416
30-34	.078014
35-39	.018779
40-44[c]	.000000

[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 each age and sex group for the projection period were computed from the life tables for Montana for 1979 to 1981.[14] Because of the lack of required data at the county level and the relatively small variation in mortality from one area to another, state survival rates are used for all counties. These rates were computed using the life table survival rate method:

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[13]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.

[14]Vital Statistics Division, Department of Health and Environmental Services, unpublished data, Helena, Montana, 1982.

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

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.

L_{x+t} and L_x were 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 for each county were computed for each single-year age group, 65-74+, for each sex for 1980. These rates were computed by using an average of the rates computed by forward and reverse survival rate methods,[15] using data from the 1970 first count, file B and STF 2A for 1980. Migration rates for 1980 were assumed to prevail throughout the projection period. The 1980 net out-migration rates for Daniels County were provided in Table 16.

Data on population by age and sex were derived from the 1980 census, and data on fertility were derived from 1979 to 1981 birth data and 1980 census counts and were trended to national patterns of 1.8, 2.1, and 2.5 levels of completed fertility. Survival rates were derived from state rates for 1979-81 and migration rates for 1980 from procedures using 1970 and 1980 census data. Thus, the components of the demographic model employ the most recent data available and use widely accepted procedures.

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[15]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.

TABLE 16. MIGRATION RATES FOR DANIELS COUNTY, MONTANA, 1980

Age Group	Male	Female
65	-.017239	.005300
66	-.017239	.005300
67	-.017239	.005300
68	-.017239	.005300
69	-.017239	.005300
70	-.018622	-.018127
71	-.018622	-.018127
72	-.018622	-.018127
73	-.018622	-.018127
74+	-.018622	-.018127

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.[16] The allocations are made at the municipal level using a gravity model. Use of this model assumes that the number of in-migrants moving to a city will be inversely related to the distance between the city and the employment site. In addition, the model assumes that qualitative factors exist among settlements affecting workers' choices. Previously collected data on settlement patterns of workers were used as a basis for estimating parameters for the gravity model.[17] In symbolic form, these assumptions may be stated as follows for each site:

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

[17]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, Fargo, 1976; Mountain West Research, Inc., Construction Worker Profile, A Study for the 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.

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

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 made by the gravity model include 148 municipalities within Montana as an inital set, plus 16 municipalities in North Dakota, Wyoming, Idaho, and South Dakota that adjoin Montana.[18] This set of municipalities is further reduced to only those cities within this group that fall within a 150-mile radius of a given project site.[19] Non-Montana municipalities are allowed to attract population away from Montana during gravity model calculations, but no annual calculations of changes in the population of non-Montana cities are made. These cities were

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[18]For a listing of the municipalities included in the Montana adaptation, see Appendix B.

[19]A 164 x 164 matrix was created showing the distances (highway mileage) between all communities included in the Montana version.

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, 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 being allocated to municipalities near the plant site than is the case of operating workers. Slightly more indirect workers are allocated to nearby cities than are construction workers.

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 that there is project-related in-migration, using appropriate previous year's employment of each type for each city.

Modification of the Fiscal Impact Module

Fiscal impact analysis is often used to describe the comparison between revenue and expenditure flows over time as communities respond to resource or industrial development projects. As such, 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 the costs and revenues, the typical result of fiscal impact analysis is a statement of net surplus or deficit. The key features are: (1) an exclusive focus on the revenues

received and the costs incurred by governmental units; and (2) inclusion of the distribution of costs and revenues through time.[20]

The fiscal implications of any 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 the capacity of existing service facilities), and the nature of the economic and demographic effects resulting from the project.

Though the basic structure of the fiscal impact module remains intact in the Montana version, various fiscal functions, which estimate the public sector costs and revenues associated with energy development projects, have been modified to conform to those site area characteristics unique to Montana. The data sources[21] and methods used in modifying the fiscal model parameters are described below.

Revenue Estimation

In comparing the North Dakota and Montana taxation systems, the principal difference is that Montana does not have a general retail sales and use tax. The four tax sources that yielded the greatest revenue in Montana for 1980 were property taxes (54.2 percent); income taxes from individuals and

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[20]Leistritz and Murdock, 1981, op. cit.

[21]The general sources utilized in modifying the fiscal module for Montana were: Thompson, Layton S., The Taxation and Revenue Systems of State and Local Government in Montana, Revised Edition, 1980, Montana Agricultural Experiment Station Bulletin No. 723, Montana State University, Bozeman, 1980; Stinson, Thomas F. and Stanley W. Voelker, Coal Development in the Northern Plains: The Impact on Revenues of State and Local Governments, Agricultural Economic Report No. 394, Economics, Statistics, and Cooperative Service, U.S. Department of Agriculture, Washington, D.C., 1978; and Voelker, Stanley W., State and Local Taxes Affected by Energy Developments in Selected Western States, EPA-600/7-81-005, U.S. Environmental Protection Agency, Denver, 1980.

corporations (21.0 percent); coal severance taxes (9.7 percent); and highway users taxes (6.6 percent). These four taxes provided over $706 million in 1980, or nearly 92 percent of the total tax revenue.[22]

In estimating the changes in state and local tax collections in Montana, the appropriate tax rate is applied to the estimated change in the relevant tax base. A discussion of the various tax estimators for the state and local governments used in the Montana version is presented below.

State Revenue Sources.

1. State Personal Income Tax: The state personal income tax estimator is 2.44 percent of the total personal income.

This was derived by dividing the total personal income tax collections for 1978 to 1981 ($547,214,010) by the estimated total personal income for these years ($22,444,735,000).

2. State Corporate Income Tax: The corporate income tax estimator is 0.357 percent of the gross business volume of all business sectors. This was derived by comparing the corporate income tax collections for the years 1973 to 1981 to the estimated gross business volume of all business sectors for those years.

3. Other State-Collected Taxes: The various highway taxes, the liquor tax, and the tobacco tax were estimated on a per capita basis from data obtained from the State Department of Revenue and the State Highway Department. Highway taxes were defined for this purpose to include revenues from the motor vehicle registration fees, gross vehicle weight fee, and motor vehicle fuel tax. The per capita estimates in 1980 prices were:

Highway Taxes	$101.03
Tobacco Tax	$ 14.18
Liquor Tax	$ 16.04

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[22]Montana State Department of Revenue, Report of the State Department of Revenue, Montana State Department of Revenue, Helena, 1980 and 1982.

4. Electric Energy Production Tax: Conversion tax revenues were computed on the basis of 0.2 mill per Kilowatt hour of electrical energy produced, with the proceeds going to the state general fund.

The state legislature has yet to determine the tax levy on synthetic gas produced by the proposed coal gasification plants.[23]

5. Coal Severance Tax: The state actually has two production taxes on coal--the resource indemnity trust tax (RIT) and the severance tax. The RIT is an annual tax of $25 plus 0.5 percent of the gross value of the product in excess of $5,000 levied against each mining firm. Proceeds from this tax are placed in the trust and legacy fund.

The present severance tax rates on coal production as adopted by the 1975 legislature are the greater of a tax per ton or percent of contract sales price, exempting the first 20,000 tons per year. The rates for surface and underground mines are related to the BTU's per pound as follows:

BTU's per pound	Surface		Underground	
	cents per ton	percent of value	cents per ton	percent of value
	- the greater of -		- the greater of -	
6,999 or less	12	20	5	3
7,000 - 8,000	20	30	8	4
8,001 - 9,000	34	30	10	4
9,001 and above	40	30	12	4

The disposition of severance tax receipts has been subject to change. During calendar year 1980, these receipts were divided between three funds: the state general fund--19 percent; the state trust fund--50 percent; and the earmarked revenue fund (principally education, local impact, and state school equalization)--31 percent.

6. Federal Coal Royalties: Federal coal royalties are determined as follows: federally owned land containing coal is advertised for lease; bids

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[23]Thompson, 1980, op. cit.; Voelker, 1980, op. cit.

are taken (bids consist of a front-end bonus payment plus a base rate on the fair market value of the coal); and after federal authorities have determined the "fair market value" for the coal the bid is approved (or rejected). Federal coal royalties vary greatly from year-to-year and are quite site-specific depending upon how many acres of federal land are mined in a given year. Federal coal royalties are estimated in the project files. The 1976 federal leasing law mandates that 50 percent of the royalties collected from development of federal leases be returned to the state. Cumulative royalty payments to the federal government from surface mining operations in Montana (through December 1980) are as follows:[24]

Mines	County	Royalty Payments
Decker	Big Horn	$5,313,783
Knife River	Richland	$ 708,366
NERCO	Big Horn	$ 18,874
Peabody	Rosebud	$2,325,719

The price per ton at the various sites depends on the quality of the coal; an average for calendar year 1980 was $7.67 per ton. Estimates of annual royalty payments to the state were provided by the U.S. Bureau of Land Management. Montana state coal royalties are handled in a manner very similar to the federal coal royalties. Since very little state-owned land is being leased at this time, state coal royalties were not included in the model but could be handled in the project files if necessary.

7. Oil and Natural Gas Severance Tax: The severance tax on oil is 5 percent of the gross value (6 percent after April 1, 1983). This tax applies to all crude oil extracted or produced within Montana. A severance tax of 2.65 percent of the gross value applies to all natural gas produced in Montana. Proceeds from these taxes are placed in the county general fund.

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[24]Montana Coal Council, Montana Coal, Montana Coal Council, Helena, 1981.

8. Metalliferous Mines License Tax: This tax applies to all merchantable metals, precious and semiprecious gems and stones extracted or produced in Montana. The rates for this tax are as follows:

Gross Value*	Tax Rate
0-100,000	.150%
100,000-250,000	.575
250,001-400,000	.860
400,001-500,000	1.150
500,001 and over	1.438

*Average price according to Engineering and Mining Journal used as a base.

Proceeds from this tax are placed in the state general fund.

Explicit functions for computing oil and gas severance tax and metalliferous mines license tax are not presently incorporated in the model. Estimates of these taxes could readily be incorporated into the project files of individual projects, however.

Local Revenue Sources.

1. Ad Valorem Property Tax: The local property tax estimator is 2.24 percent of the market value of the property. This estimator was based on the 1980 state average sales assessment ratio of 8.7 percent and the state average mill rate of 257.67.[25] Added property tax revenue was estimated by applying the estimator to the estimated market value of additional 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.

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[25]Montana State Department of Revenue, 1981. op. cit.; and Montana Taxpayers' Association, Montana Property Tax Mill Levies 1979-80, Montana Taxpayers' Association, Helena, 1980.

Capital investment in business structures was estimated by Prestgard[26] at $0.22 per dollar of gross business volume.

The estimates of investment cost per unit in 1980 prices are equivalent to those used in the North Dakota version:

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

In 1980, Montana property tax revenues were distributed in the following manner:

Disposition	Percent
Schools, other than universities	56.5
Counties	21.2
Cities	9.5
State (mostly education)	4.6
Special Improvement Districts	8.2

Montana's net proceeds law provides a special method for assessing the value of mining property. Net proceeds, defined as annual gross value of the product of mines less certain deductions, serves as the measure of the value of mining property. Mill levies against the property are those of the taxing district in which the property lies. Oil and gas properties, lime rock, gypsum and other quarries and mines producing valuable minerals and stones come under the provisions of the net proceeds law. The taxable value of the assessment is 100 percent of market value. The 1975 Legislative Session enacted a particular method for valuing coal mining property. The gross yield of a mine derived from the contract sales price of the coal produced serves as a measure of value. Contract price is defined as the price of the coal extracted and prepared for shipment f.o.b. mine excluding that amount charged by the seller to pay taxes on production. The taxable value of gross proceeds is 45 percent

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[26]Prestgard, P. G., "Effect of Coal Development on Public Costs in North Dakota," unpublished Masters thesis, Department of Agricultural Economics, North Dakota State University, Fargo, 1974.

of the assessed value in the case of strip mines and 33-1/3 percent in the case of underground mines. The 1977 Legislative Session changed the method of valuing metal mining property from net proceeds to gross proceeds. Taxable value is 3 percent of the gross proceeds from metal mines. Local property tax estimates for mines and oil and gas properties are handled in the respective project files.

Property tax revenues from mine property were estimated in 1980 prices as follows:

Capital investment in mine = ($13.52 x Size of mine in tons per year)
Mine value = (capital investment x 6.7 percent)
Tax revenue = (mine value x 2.24 percent)

2. Educational Transfers From State: Transfers were estimated on the basis of per pupil payments for elementary and secondary students as follows:[27]

Elementary Number of Students	Transfer Payment/Student 1980
>1000	$1,631.00
101-999	$1,650.00
<100	$2,160.00

Secondary Number of Students	Transfer Payment/Student 1980
>550	$1,963.50
151-549	$2,252.00
<150	$3,536.00

3. Highway Fund Transfers From State:[28] Transfers estimated as a per capita share of state highway taxes were, in 1980 dollars:

County share per capita = $12.40
Municipal share per capita = $ 9.38

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[27]Office of the Superintendent of Public Instruction, 1981 Montana Schools Statistics, Office of the Superintendent of Public Instruction, Helena, 1981.

[28]Montana State Department of Highways, Annual Financial Statements for the Fiscal Years Ending June 30, 1979 and 1980, Montana Department of Highways, Helena, 1981.

4. No Cigarette and Tobacco Tax Transfer From State.

5. Coal Severence Tax Transfer From State:

Disposition of Severance Tax (as of 1980)	Percent
State Trust Fund	50.0
State General Fund	19.5
Local Impact and Education Fund	18.25
School Equalization Fund of State	5.00
Renewable Resource Development Bond	1.25
Alternative Energy Resource Development	2.5
Park Acquisition	2.5
County Planning	.5
State Library Commission	.5

6. Federal Revenue Sharing Transfers: These were assumed equivalent to North Dakota's due to application of a national formula to two very similar states. Estimates were made on average per capita for counties and municipalities in 1980 dollars:

Counties = $10.94 per capita
Municipalities = $ 6.65 per capita

7. User Fees: User fee revenues, estimated on the basis of average per household expenditures for water, sewer, and solid waste, are the same as used in North Dakota (i.e., $165.91 in 1980 dollars).

8. Special Assessments: Revenues from special assessments were estimated by amortizing the capital investments for streets, water, sewer, and solid wastes at 7 percent interest for 20 years.

Cost Estimation

The effect of an energy 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 most important. A description of cost calculations and cost estimating equations is presented below.

State Costs.

1. Education Transfers to School Districts: Cost to the state was estimated at the total of per pupil payments (see the local revenue, education transfers from the state section).

2. Highway System Operating Expenditures: Increased operating costs for all highway department functions were estimated to be $226.88 per capita in 1980 dollars.[29]

3. General Government Functions: As in the North Dakota version, these were estimated to be $480.10 per capita in 1980 dollars.

4. Capital Investment in Highway System: Capital costs for highway improvement were estimated on the basis of a per in-migrating operating worker cost of $29,987 in 1980 prices, adjusted annually for inflation.[30]

Local Costs.

1. Schools:

a. Operating expenditures were estimated as a cost per pupil in 1980 prices where both elementary and secondary per pupil costs were estimated on the basis of the number of new secondary students as follows:[31]

Number of Additional High School Students	Per Pupil Cost
>200	$1,767.07
150-199	$1,925.36
100-149	$2,184.31
75- 99	$2,307.55
51- 74	$2,766.69
≤ 50	$2,535.52

[29]Montana Department of Highways, 1981, op. cit.

[30]Leistritz, et al., 1982, op. cit.

[31]Office of the Superintendent of Public Instruction, 1981, op. cit.

b. Expansion costs of school facilities in Montana were assumed to be equivalent to those in North Dakota, i.e., cost per student basis in 1980 dollars.

2. Streets, Distribution and Treatment of Water, Waste-Water Systems and Treatment, and Solid Waste Disposal: Cost estimates for infrastructure were assumed to be equivalent to those in North Dakota's version.

3. Law Enforcement, Fire Protection, and Other Local Government Functions: The Montana city and county governments' operational expenditures were estimated by using regression analysis. The sources of information were the budget data consisting of 48 cities and 56 counties for the year 1977.[32] Equations were developed for police protection and fire protection on the city governmental level (where X = 1977 population) and for law enforcement, social services, and highway maintenance on the county governmental level (where X = 1977 population).

The best fit equations were:

1. $Y = 5{,}115 + 25.56X$ $\quad R^2 = .87$, $F = 34.0$

   Where Y = total city police protection costs

2. $Y = -78{,}206 + 29.20X$ $\quad R^2 = .96$, $F = 997.73$

   Where Y = total city fire protection costs

3. $Y = 30{,}865 + 8.12X$ $\quad R^2 = .85$, $F = 303.28$

   Where Y = total county police protection costs

4. $Y = -958 + 15.18X$ $\quad R^2 = .33$, $F = 26.08$

   Where Y = total county social services costs

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[32]Montana Department of Community Affairs, Research and Information Systems Division, Local Government Finances, 1974-1979, Helena, 1981.

5. $Y = 175{,}506 + 12.67X$ $R^2 = .79$

$F = 207.76$

Where Y = total county highway maintenance costs

These equations result in costs per capita in 1980 prices as follows:[33]

County Social Services	$19.25
County Law Enforcement	$10.30
County Highway Maintenance	$16.06
City Fire Protection	$37.02
City Police Protection	$32.41

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 sources, and computational procedures; (2) investigating its response to perturbations; and (3) testing its ability to reproduce historical data.[34] 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 Montana 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 is then provided with the historic values of the input variables and simulated over this period. The resultant values estimated by the model are then compared to the actual values by applying a number of statistical tests (including Theil's U_1 coefficient,

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[33]City and county general governmental per capita costs ($108.00 and $94.86, respectively) in North Dakota (in 1980 prices) are used in the Montana version.

[34]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.

mean absolute error, mean error, and R^2 coefficient)[35] to evaluate the "goodness of fit."

The NEDAM adaptation to Montana was evaluated by determining how closely the model reproduces historical personal income as reported by the Department of Commerce.[36] In brief review, the model estimates personal income for each of the years (1960-1980) for the 11 regions and the state of Montana using input-output techniques. The interdependence coefficients developed elsewhere in North Dakota[37] and northwestern Colorado[38] are applied to final 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 the state of Montana and its 11 regions are presented in Table 17 (and Appendix B, Tables 100-110). The differences, expressed as

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[35]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.

[36]Bureau of Economic Analysis, Personal Income by Place of Residence, Montana, U.S. Department of Commerce, Washington, D.C., 1962, 1965-1979.

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

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

TABLE 17. ESTIMATES OF PERSONAL INCOME AND DIFFERENCES IN ESTIMATES, MONTANA REGION 1, 1960-1980 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	I-O Analysis Estimate	Percent Difference
1960	---	85,840	--
1961	---	87,187	--
1962	95,767	104,293	8.9
1963	---	119,005	--
1964	---	105,738	--
1965	104,349	114,466	9.7
1966	116,974	129,797	11.0
1967	117,353	141,054	20.2
1968	117,541	150,164	27.8
1969	137,050	161,037	17.5
1970	146,769	177,261	20.8
1971	134,941	172,684	28.0
1972	181,143	223,150	23.2
1973	271,266	282,314	4.1
1974	244,261	322,783	32.1
1975	259,751	300,002	15.5
1976	245,742	292,810	19.2
1977	235,084	300,500	27.8
1978	328,683	362,309	10.2
1979	306,141	373,427	22.0
1980	---	439,195	--
Average Difference			18.625

Mean = 18.625 (S.D. = 8.1774)
U_1 = .091370587

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 are simulating the economy correctly, but sales for final demand vectors are either being over- or under-estimated.

Statistical tests were used to evaluate performance of the model. Results of these tests are presented for all 11 regions and the state in Table 18. Absolute average difference indicates more variation at the regional level than for the state as a whole, with most regions having less than a 20 percent difference. The mean average difference shows that Regions 1, 2, 3,

TABLE 18. COMPARISON OF STATISTICAL TESTS FOR E-D MODEL VALIDATION, MONTANA REGIONS 1-11, AND STATE, FOR TIME PERIOD 1960-1980

Region	Average Absolute Difference[a]	Mean Average Difference[b]	Standard Deviation[c]	Theil Coefficient[d]
1	18.63%	18.63%	8.18	.091
2	37.24	37.24	12.90	.184
3	19.70	15.65	16.07	.105
4	5.11	2.54	6.33	.030
5	26.84	-26.84	3.63	.151
6	11.68	- 7.53	11.00	.067
7	20.96	-20.96	5.05	.140
8	10.17	-10.17	6.09	.050
9	19.28	-19.28	5.03	.102
10	12.66	-12.66	5.65	.096
11	10.50	- 1.49	12.69	.058
State	8.45	- 8.45	4.58	.048

[a]Average 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 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

and 4 (the eastern Montana regions) are slightly over-estimated while the remaining (western) regions are slightly under-estimated. The state is under-estimated by 8.45 percent for the historic period. Standard deviations range from 3.63 to 16.07 for the regions, and the state has a value of 4.58. Theil's coefficients result in a range from .030 to .184 for the regions, and a value of .048 for the state. These values (all very close to 0.0) indicate the model performs quite well and can be used with confidence for predicting purposes.

For the three eastern-most regions (1,2,3) the sales for final demand vectors appear to have a significant upward bias. This consistent divergence between the personal income estimates[39] is due to the area's economic structure in general, and the sales for final demand in the energy sectors in particular. The eastern regions, having less diverse economies, are probably experiencing substantial leakages of dollars. Expenditures by local residents, presumably in the major trade centers, are made on those goods and services unavailable (perceived or actual) in their communities. With regard to the energy sectors, net exports data from those energy-producing regions were not readily available. The distribution of energy flows often follows the pattern of exporting the unrefined product while importing the finished product for sale in the region. This is especially evident within the petroleum sector. Data on these net energy flows simply do not exist. Though final demand exports were available for the regions, gross estimates had to be made based on inter-regional flows of energy.

In contrast, the six western regions' (6,7,8,9,10,11) personal income estimates all indicate a consistent downward bias.[40] This consistent pattern, evident for most years in each region, is probably due to inter-regional spill-over effects and understating export sales for final demand in such sectors as metal mining and processing, lumber, contract construction, and retail trade.

Although the input-output model invariably underestimates or overstates personal income, the adapted version does appear to "track" reasonably consistently with the Department of Commerce data. In utilizing an ex post forecasting error statistic, Theil's inequality coefficient, the results

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[39]The mean of the average differences for the three regions is 17.5 percent.

[40]The mean of the average differences for the five western regions is 23.2 percent.

indicate that the adapted model predicts quite well.[41] Thus, in spite of the upward bias in the historical comparison, this evaluation does not negate the model for use in impact analysis of coal development in the eastern regions.

Analyzing the transition from historic data to corresponding model-projected values gives a good measure 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 employments by sector, thus giving values to be compared to the historic sector employments. The 1960 to 1980 employment by sector trends compare very well with the 1981 to 2005 model-projected employments by sector. Sector employments tended to show some variations for the 1980 to 1981 period, but regional totals were quite close to historic employments (Table 19, and Appendix B, Tables 111 to 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. Data were not available for comparing the 2005 employment projections, but the model performs very well in the early portion of the projection period.

Population projections made by the model also give a good indication of how the model is performing. Projected populations for 1985, 1990, 1995, 2000, and 2005 were compared to the population values from the Census for 1960, 1970,

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[41]The average Theil U_1 coefficients for the 11 regions and the state were .097 and .048 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.

TABLE 19. HISTORIC AND MODEL-PROJECTED* EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 1, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment			Model-Projected Employment			
	1960	1970	1980	1981	1990	2000	2005
(1) & (2) Agriculture	5,668	5,606	4,636	4,735	4,562	4,428	4,376
(3) Metal Mining	---	---	---	---	---	---	---
(4) Coal Mining	104	113	66	58	51	47	46
(5) Pet/NG Exp/Ext	205	479	1,102	924	958	993	1,009
(6) Nonmetallic Mining	---	---	6	6	5	5	4
(7) Construction	499	399	985	983	1,133	1,302	1,386
(8) Lumber	---	---	---	---	---	---	---
(9) Ag Proc & Misc Mfg	648	866	1,581	1,580	1,931	2,321	2,517
(10) Pet Refining	1	21	30	26	23	21	21
(11) Metal Proc	---	---	---	---	---	---	---
(12) Transportation	1,621	812	880	742	628	558	535
(13) Comm & Pub Util	361	480	616	530	562	591	603
(14) Elec Gen	60	63	41	---	---	---	---
(15) Retail	2,826	3,155	3,641	3,631	3,716	3,785	3,812
(16) F.I.R.E.	346	1,004	594	613	757	932	1,026
(17) Bus & Pers Service	301	610	509	485	537	581	600
(18) Prof & Soc Service	1,886	2,467	3,381	3,274	3,900	4,597	4,945
(19) Government	2,352	3,262	3,652	3,951	4,433	4,909	5,127
(20) Households	---	---	---	---	---	---	---
TOTAL	16,878	19,337	21,720	21,537	23,197	25,070	26,006

*Projected from equations estimated by robust regression with intercept adjustment techniques.

and 1980 (Table 20, and Appendix B, Tables 122 to 132). Projected populations appear to fall in line quite well with the census numbers and follow a trend compatible with the historic populations. The model performs quite well in the early years, with estimates very close to the 1980 census population.

TABLE 20. HISTORIC POPULATION AND MODEL-PROJECTED POPULATION, BY CITY, COUNTY, AND REGION, MONTANA REGION 1, BY SELECTED YEARS

County/City	Census Population			Model-Projected Population*				
	1960	1970	1980	1985	1990	1995	2000	2005
Daniels County	3,755	3,083	2,835	3,383	3,581	3,704	3,749	3,767
Scoby	1,726	1,486	1,382	1,446	1,531	1,621	1,701	1,729
Dawson County	12,314	11,269	11,805	10,981	11,629	11,953	12,198	12,397
Bloomfield	40	28	28	29	29	29	27	27
Glendive	7,058	6,305	5,978	6,215	6,583	6,889	7,131	7,333
Lindsay	40	40	40	42	44	47	49	52
Richey	480	389	417	436	464	489	509	526
McCone County	3,321	2,875	2,702	2,790	2,923	3,076	3,152	3,213
Brockway	80	75	50	51	51	53	51	49
Circle	1,117	964	931	999	1,087	1,181	1,242	1,293
Richland County	10,504	9,837	12,243	13,414	14,850	16,360	17,591	18,976
Fairview	1,006	956	1,366	1,481	1,599	1,716	1,842	1,989
Lambert	150	250	300	325	351	377	405	437
Savage	300	275	274	295	319	342	368	386
Sidney	4,564	4,543	5,726	6,207	6,701	7,192	7,723	8,336
Roosevelt County	11,731	10,365	10,467	11,077	11,636	12,139	12,434	12,564
Brockton	367	401	374	406	443	481	523	569
Culbertson	919	821	887	963	1,050	1,142	1,233	1,271
Froid	418	330	323	351	372	387	395	397
Poplar	1,565	1,389	995	1,046	1,053	1,043	1,011	969
Wolf Point	3,585	3,095	3,074	3,308	3,607	3,903	4,075	4,193
Sheridan County	6,458	5,779	5,414	6,364	6,985	7,601	8,092	8,474
Medicine Lake	452	393	408	436	469	501	534	570
Plentywood	2,121	2,381	2,476	2,645	2,847	3,043	3,239	3,462
Wibaux County	1,698	1,465	1,476	1,719	1,796	1,852	1,913	1,975
Wibaux	766	644	782	833	901	968	1,033	1,102
REGION 1	49,781	44,709	46,942	49,728	53,399	56,685	59,129	61,367

*Based on a birthrate of 2.1 births per female, unallocated labor pool maximum = 0.07 and minimum = 0.01, family size for construction, energy operating, non-energy operating, indirect, and baseline is 2.291, 3.535, 3.535, 3.507, and 2.8 respectively. The maximum fraction of city workers who can work on farms is 0.2, and the maximum fraction of rural workers who can work in cities is 0.2.

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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--an 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, are often termed the region's export base.

The general methods used in estimating and projecting economic activity from the NEDAM 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 and 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 Montana. The discussion begins with an overview of the procedures used in expanding the input-output model for Montana. Following this, the section is divided into

the various economic sectors with each containing relevant data sources and discussion of how the data were handled.

Input-Output Model--Interdependence Coefficients

The input-output technical and interdependence coefficients for the North Dakota economy 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 Montana: metal mining, lumber and associated products, and metal processing. Sector delineation and associated Standard Industrial Classification (SIC) codes are presented in Table 3.

Similarities between the economic base of North Dakota and Montana allowed the transfer of input-output interdependence coefficients to Montana. Expanding the North Dakota model (17 economic sectors) to represent the Montana 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

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[1]Sand, L. D., "Analysis of Effects of Income Changes In Intersectional and Intercommunity Economic Structure," unpublished M.S. Thesis, Department of Agricultural Economics, North Dakota State University, Fargo, 1968; Bartch, B. L., "Analysis of Intersectional 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.

expenditures data collected in 1974. Similarity between the metal mining, lumber, and metal processing industries in Montana and northwestern Colorado justified the use of these coefficients for Montana.

The North Dakota input-output interdependence coefficients were originally for a 13-sector model. They 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 (1 in the diagonal)

Survey expenditure data 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 ($A_{13 \times 13}$) is 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 Montana. The technical coefficients for Montana's 20-sector economy are presented in Table 4. Inverting the 20 X 20 technical coefficents matrix for Montana yielded the interdependence coefficients (Table 5).

Indexing

In order to reflect the real 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 for 1980 base dollar values. The use of the IMP index as a deflator assumes that a single index is applicable for all sectors of the economy for a given year. The method is rather simple--dividing current year dollars by their respective IMP index resulted in final demand vector values in 1980 base year dollars. IMP indices for 1960 to 1980 are presented in Appendix Table A1.[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 are 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. This tends to make projecting models act rather erratic.

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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 A1. GROSS NATIONAL PRODUCT IMPLICIT PRICE DEFLATORS FOR 1967 AND 1980 BASE

Year	GNP Implicit Price Deflators 1967 = 100	1980 = 100
1960	86.9	38.7
1961	87.7	39.1
1962	89.3	39.8
1963	90.7	40.4
1964	92.0	41.0
1965	94.1	42.0
1966	97.1	43.3
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

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

The data in the Montana extension of NEDAM did not always yield acceptable linear regression equations (very low R^2 values) for model projections. To obtain more acceptable linear 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.

The three regression techniques for projecting final demand vectors and productivity ratios were determined, projections were calculated, and the three sets of numbers were run through the model. The results indicated the robust regression with a slope intercept adjustment gave more realistic overall employment projections over the entire 11 regions in Montana than the other techniques (Table A2). The 1981 projected employment was very close to the

APPENDIX TABLE A2. HISTORIC EMPLOYMENT AND PROJECTED EMPLOYMENT RESULTING FROM THREE REGRESSION TECHNIQUES, BY REGION, 1980 AND 1981

		Projected Employment					
	Historic	Regular Regression		Robust Regression		Robust Regression with Adjustment	
Region	1980 Employment	1981 Employment	% Diff.	1981 Employment	% Diff.	1981 Employment	% Diff.
1	21,720	21,429	- 1.34	20,222	-6.90	21,537	-0.84
2	15,706	15,613	- 0.59	15,096	-3.88	15,641	-0.41
3	17,480	17,119	- 2.06	17,355	-0.72	17,297	-1.05
4	5,760	95,198	1552.74	6,060	5.21	5,732	-0.49
5	74,505	68,318	- 8.30	69,302	-6.98	75,155	0.87
6	57,287	233,984	308.44	51,643	-9.85	57,820	0.93
7	24,595	22,332	- 9.07	24,093	-2.04	25,490	3.64
8	24,160	23,201	- 4.13	22,750	-5.84	24,611	1.87
9	27,378	26,518	- 3.14	27,269	-0.40	27,069	-1.13
10	54,841	55,070	0.42	54,811	-0.05	58,293	6.29
11	28,568	25,469	-10.85	26,934	-5.72	29,098	1.86

1980 historic employment for all 11 Montana regions indicating the regression equation is predicting quite well in the early part of the projection period. No data are available for analyzing the projections toward the end of the projection period.

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 Montana 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 time period 1960 through 1980 at the regional level for Montana. Eleven economic regions were used for calculating the economic base in Montana (Figure 1). 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 in Montana 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. These data were published every year from 1960 to 1979 at the county and state levels for Montana.[5] State estimates were available for 1980 for Montana.[6] State livestock sales for 1980 were allocated to counties at the same proportion as 1979 county share was of state total. Montana's regional final demand vectors were obtained by adding livestock sales receipts for counties in each of the 11 regions.

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[5]Montana Statistical Reporting Service, Montana Agricultural Statistics, Montana Department of Agriculture cooperating with U.S. Department of Agriculture, Helena, December 1962, 1964, 1968, 1970, 1974, 1976, 1978, and 1980.

[6]Montana Statistical Reporting Service, Telephone Interview, Montana Department of Agriculture cooperating with U.S. Department of Agriculture, Helena, Montana, December 1981.

Agriculture, Crops (Sector 2)

Total receipts for crops and government payments comprise the agriculture, crops final demand vector. These data were published annually for Montana at county and state levels for 1960 through 1979.[7] Estimates for 1980 were available at the state level for Montana.[8] County share of state total for 1979 was used to allocate 1980 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 Montana'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. Major metals mined in Montana include: copper, gold, silver, lead, zinc, and chromium. Values of metals mined were available by county for each metal.[9] Metals which were not processed in Montana were assumed to be exported as a raw material. Metal processing plants, the metals they processed, and their processing capacities were available for the years 1960 through 1980.[10] From this data raw metal ore exports could be determined (i.e., gold, silver, zinc, lead, and chromium). The values of metal exports were calculated, and county values were aggregated to the regional level.

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[7]Montana Statistical Reporting Service, op. cit., 1981.

[8]Ibid.

[9]Bureau of Mines, Minerals Yearbook, Volumes I and II. "Metals, Minerals, and Fuels," U.S. Department of the Interior, U.S. Government Printing Office, Washington, D.C., 1960-1979; and Rylo, James H., Montana Natural Resource Assessment, Nonfuel Minerals, Montana Department of Labor and Industry, Capitol Station, Helena, Montana, November 1978.

[10]Montana State Department of Revenue, Miscellaneous Tax Division, unpublished data, Helena, Montana, 1960-1980.

Coal Mining (Sector 4)

The total receipts from sales of coal to customers located outside the region comprise the coal mining final demand vector. Production by mine and value per ton were available for the years 1960 through 1980.[11]

Nonlocal sales of coal were assumed to be 95 percent of total production.[12] Montana's coal customers, their locations, and the amount of coal purchased also were used in determining coal flows.[13] County coal exports were summed to the regional level to determine Montana's regional coal final demand vector.

Petroleum and Natural Gas Exploration and Extraction (Sector 5)

Export sales of petroleum and natural gas from the local region constituted the final demand vector for sector 5. Montana's crude oil production was available by oil field and county for the years 1960 through 1980.[14] Also available were production (in barrels) and value of production by oil field. Data on exports of crude oil from Montana were not readily available, but estimates were obtained from Montana officials.[15] One-half of the crude oil production from Montana Regions 1, 2, 3, 4, and 6 was assumed to be exported for refining, and Region 5 to consume all of its crude oil production locally.

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[11]Montana Coal Council, unpublished coal production data for Montana, Helena, Montana, 1968-1980; U.S. Department of the Interior, 1960-1979, op. cit.; and Montana State Department of Revenue, 1960-1980, op. cit.

[12]Steele, Lynda, Historic Energy Statistics, 4th Ed, Energy Division, Department of Natural Resources and Conservation, Helena, Montana, October 1980.

[13]Montana Coal Council, 1968-1980, op. cit.

[14]Oil and Gas Conservation Commission of the State of Montana, Statement of Crude Oil Production and Valuation, All Montana Fields, Oil and Gas Conservation Commission, Helena, Montana, 1960-1980.

[15]Syth, Larry, Telephone Interview, Montana Oil and Gas Conservation Commission, Helena, Montana, December 1981.

Natural gas production was also available by field and county for the years 1960 through 1980.[16] Value of natural gas production (per cubic foot) was available for 1960 to 1980.[17] The regional exports of natural gas constituted sales for final demand. Export data for Montana natural gas were not readily available, but estimates were obtained from Montana officials.[18] The major natural gas producing regions of Montana (3 and 6) were assumed to export 30 percent of their production. The state of Montana was a net importer of natural gas. Regional final demand vectors were determined by adding county value of exports of crude oil and natural gas to the regional level.

Nonmetallic Mining (Sector 6)

Total receipts from the nonlocal sales of nonmetallic minerals comprised the nonmetallic mining final demand vector. Nonmetallic mining in Montana included the following minerals: phosphate, gypsum, talc, cement, bentonite, vermiculite, silica, limestone, and sand and gravel. Production and value of production of the nonmetallic minerals was available for the years 1960 to 1980.[19] Data on exports of nonmetallic minerals raw ore were not readily available, but production not processed in Montana was assumed

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[16]Oil and Gas Conservation Commission of the State of Montana, Montana Gas Production Data, Oil and Gas Conservation Commission, Helena, Montana, 1960-1980.

[17]Keeler, Graham, Telephone Interview, Montana Oil and Gas Conservation Commission. Helena, Montana, December 1981.

[18]Syth, Larry, 1981, op. cit.; Keeler, Graham, 1981, op. cit.

[19]Bender, Steve, Report of the State Board of Equalization, Montana Department of Revenue, Miscellaneous Tax Division, Helena, Montana, 1960-1980; and U.S. Department of Commerce, Census of the Mineral Industries, Bureau of the Census, Volume II Area Statistics, U.S. Government Printing Office, Washington, D.C.

exported.[20] All phosphate, gypsum, talc, cement, and limestone production was assumed to be exported. County value of production exported was summed to the regional level to find the nonmetallic mining final demand vector.

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 Montana between the years 1960 to 1968.[21] The procedure for reporting these data changed in 1967, and actual federal expenditures for Montana were available at county and state levels from 1967 to 1980.[22] Federal government outlays for construction in the respective regions for the years 1960 to 1966 were estimated by allocating state totals on the basis of regional shares reported for 1967 to 1980.

Lumber and Associated Products (Sector 8)

Total receipts from nonlocal sales of lumber, linerboard, particleboard, fiberboard, and plywood constituted the final demand vector for sector 8. County lumber production and value of Montana lumber production were available for 1960 to 1980.[23] Approximately 95 percent of the lumber cut

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[20]U.S. Department of the Interior, 1960-1979, op. cit.

[21]U.S. Treasury Department, Annual Report of the Secretary on the Treasury on the State of the Finances, 1960-1968, U.S. Government Printing Office, Washington, D.C.

[22]U.S. Department of Commerce, Federal Outlays in Montana, Office of Economic Opportunity, National Technical Information Service, Washington, D.C., 1967-1980.

[23]Western Wood Products Association, 1980 Statistical Yearbook of the Western Lumber Industry, Western Wood Products Association Economic Services Department, Portland, Oregon, 1981.

in Montana is exported out of the producing region.[24] Annual plant capacity for the one linerboard plant in Montana was available for the years 1960 through 1980.[25] A national average value per ton of linerboard was also available for this time period.[26] Particleboard and fiberboard annual plant capacities were available for the 1972 to 1980 time period.[27] Particleboard production began in 1972, and fiberboard production started in 1974. National particleboard prices were used to establish a value for particleboard production. Particleboard prices were available for the 1972-1980 time period.[28] Fiberboard prices were obtained from the sales department of a company manufacturing fiberboard.[29] Plant capacities and plywood production were available for Montana by plant for the years 1960-1980.[30] Plywood production, or plant capacity when production was not available, was used to allocate the Montana plywood production to the plants, and therefore, the

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[24]Keegan, Charles E., III, Montana's Forest Products Industry: A Descriptive Analysis, Bureau of Business and Economic Research, University of Montana, Missoula, Montana, April 1980; and Schuster, Ervin G., Montana's Timber Harvest and Timber-Using Industry: A Study of Relationships, Bulletin 41, Montana Forest and Conservation Experiment Station, School of Forestry, University of Montana, Missoula, December 1978.

[25]Schweitzer, Dennis L., and Robert E. Benson, A Descriptive Analysis of Montana's Forest Resources, USDA Forest Service Resource Bulletin INT-11, Intermountain Forest and Range Experiment Station, Ogden, Utah, January 1975; Keegan, Charles E., III, Telephone Interview, Research Assistant, Bureau of Business and Economic Research, University of Montana, Missoula, December 1981; and Keegan, Charles E., III, 1980, op. cit.

[26]Sharing, Fred, Telephone Interview, Editor, Official Board Markets, Chicago, Illinois, November 1981.

[27]Keegan, Charles E., III, 1980, op. cit.

[28]Meyers, Dave, Telephone Interview, Crows Digit, Portland, Oregon, November 1981.

[29]Tate, Bruce, Telephone Interview, Sales Department, Plum Creek Lumber Company, Columbia Falls, Montana, November 1981.

[30]Directory of the Forest Products Industry, Miller Freeman Publications, Inc., San Francisco, California, 1960-1980.

counties.[31] Average value for plywood produced in Montana was available for the time period 1960-1980.[32]

Values were applied to production for the associated products to yield value of production. All value of associated lumber products was assumed to be exported from the producing region. County nonlocal sales of lumber, linerboard, particleboard, fiberboard, and plywood were added to the regional level to obtain Montana's regional lumber and associated products final demand vector.

Agricultural Processing and Miscellaneous Manufacturing (Sector 9)

Gross output of the agricultural processing and miscellaneous manufacturing sector consists principally of the value of miscellaneous manufacturing, much of which is food processing. Also included in this sector are wholesaling activities, although they are rather small. State or county level data were not readily available for this sector. Personal income data for manufacturing and wholesale trade were available for North Dakota and Montana.[33,34] Values of agricultural processing and miscellaneous manufacturing data were published at the state level for North Dakota.[35] The ratio of personal income for manufacturing and wholesale trade to sales for final demand

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[31]Ridgway, Robert, Telephone Interview, American Plywood Association, Tacoma, Washington, November 1981.

[32]Ibid.

[33]U.S. Department of Commerce, Bureau of Economic Analysis, Personal Income by Major Sources--North Dakota, Regional Economics Information System, U.S. Government Printing Office, Washington, D.C., 1959, 1962, 1965-1979.

[34]Bureau of Economic Analysis, Personal Income by Major Sources--Montana, U.S. Department of Commerce, Regional Economics Information System, U.S. Government Printing Office, Washington, D.C., 1959, 1962, 1965-1979.

[35]Greater North Dakota Association, New Wealth--North Dakota, North Dakota State Chamber of Commerce, North Dakota, 1958-1980.

for agricultural processing and miscellaneous manufacturing was calculated for North Dakota. The ratio was applied to Montana personal income from manufacturing and wholesale trade to calculate agricultural processing and miscellaneous manufacturing final demand vectors at the county level. Regional final demand vectors for this sector were obtained by aggregating county data.

Petroleum Refining (Sector 10)

Export sales of refined petroleum products were calculated for the petroleum refining sector. Montana data were available on petroleum refining by refinery for 1960-1980.[36] An average value for each barrel of refined petroleum was determined and assigned to production to obtain total value of refined petroleum products.[37] Data on exports of petroleum refined in Montana were not readily available, but an estimate of 60 percent being sold nonlocally was assumed.[38] Regional petroleum refining final demand vectors were obtained by summing county values of refined petroleum sold nonlocally.

Metal Processing (Sector 11)

Sales of processed metals outside the local region constituted the metal processing final demand vector. Metals processed, amount processed, and

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[36]Oil and Gas Conservation Commission of the State of Montana, Barrels of Crude Oil Refined In Montana, Oil and Gas Conservation Commission, Helena, Montana, 1960-1980.

[37]Foster Associates, Inc. United States Average Wholesale Prices of Crude Oil and Petroleum, Products in Eight Refining Markets, Prospective Regional Markets for Coal Conversion Plant Products Projected to 1980 and 1985, prepared for Office of Coal Research, U.S. Department of the Interior, Washington, D.C., September 1974; and U.S. Department of Commerce, "Price Indexes," Survey of Current Business, U.S. Government Printing Office, Washington, D.C., August 1981.

[38]Walsh, Natalie, Montana Department of Energy, Telephone Interview, Helena, Montana, December 1981; McLane, Nancy, 1980 Montana Energy Almanac, Energy Division and Facility Siting Division, Department of Natural Resources and Conservation, Helena, Montana, October 1980; and Steele, Linda, 1980, op. cit.

value of the processed metal were available by company for the years 1960 through 1980.[39] All processed metals were assumed to be sold out of the processing region. County value of metal processing was determined from plant location and summed to the regional level giving the metal processing final demand vector.

Thermal-Electric Generation (Sector 14)

Sales outside the local region of electricity generated by burning coal constituted the thermal-electric generation final demand vector. Wyoming thermal-electric production was available for 1960 to 1980.[40] Colstrip I and II generating units were assumed to be the only coal-fired units exporting electricity from Montana. Total coal-fired electricity generated was allocated to Colstrip I and II on the basis of their proportion of coal-fired generating capacity. Export rates were determined and applied to total production by Colstrip I and II to calculate electricity exported.[41] The amount of thermal-electric generation available for export was multiplied by the price to obtain sales for final demand.[42]

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 assumed to be the business and personal service final demand vector. Montana's tourism expenditures were available for 1979 at the county level.[43] Trend

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[39]Rylo, James H., 1978, op. cit.

[40]Steele, Lynda, 1980, op. cit.

[41]Ibid.

[42]Ibid.

[43]Montana Governor's Office of Commerce and Small Business Development, The Economic Impact of Tourism in Montana, submitted to the Montana Department of Highways, Working Paper No. 5, September 1980.

estimates were obtained to backcast the 1979 value to 1960.[44] 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 is published annually for Montana for 1958 to 1967.[45] Defense expenditures, veterans benefits, Old Age and Survivor's Insurance payments, Workman's Compensation, and the federal payroll are also included as basic income.[46] The household sector final demand vectors for Montana were calculated by adding total grants (less highway construction), defense 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 1967 to 1980 for Montana.[47] The final demand vector for 1967 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

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[44]Wilson, John, Telephone Interview, Travel Promotion Unit, Montana State Department of Highways, September 1981.

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

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

[47]U.S. Department of Commerce, 1967-1980, op. cit.

state during the period 1967 to 1980 was used to allocate the household final demand vector to the regions for the years 1960 to 1966.

Employment

Employment data were available by sector for Montana at the state level for the years 1960 to 1980.[48] State employment data were disaggregated to the county level by creating allocators from County Business Patterns.[49] County employment was summed to the regional level to yield regional employment by sector for the years 1960 to 1980.

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[48]Employment Security Division, State of Montana Department of Labor and Industry, Montana Annual Statewide Labor Force Report, Montana Employment Security Division, Helena, Montana, 1960-1980.

[49]U.S. Department of Commerce, Bureau of the Census, County Business Patterns, U.S. Government Printing Office, Washington, D.C., 1960-1979.

APPENDIX B

TABLES FOR REGIONS 2-11 AND THE STATE OF MONTANA

APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MONTANA E-D EXPANSION AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980

Region	County Number	County Name	City Number	City Name	Population 1960	Population 1970	Population 1980
1	1	Daniels	1	Scobey	1,726	1,486	1,382
	2	Dawson	2	Bloomfield*	40	28	28
			3	Glendive	7,058	6,305	5,978
			4	Lindsay*	40	40	40
			5	Richey	480	389	417
	3	McCone	6	Brockway*	80	75	50
			7	Circle	1,117	964	931
	4	Richland	8	Fairview	1,006	956	1,366
			9	Lambert*	150	250	300
			10	Savage*	300	275	274
			11	Sidney	4,564	4,543	5,726
	5	Roosevelt	12	Brockton	367	401	374
			13	Culbertson	919	821	887
			14	Froid	418	330	323
			15	Poplar	1,565	1,389	995
			16	Wolf Point	3,585	3,095	3,074
	6	Sheridan	17	Medicine Lake	452	393	408
			18	Plentywood	2,121	2,381	2,476
	7	Wibaux	19	Wibaux	766	644	782
2	8	Carter	20	Alzada*	50	50	50
			21	Ekalaka	738	663	620
	9	Custer	22	Ismay	59	40	31
			23	Miles City	9,665	9,023	9,602
	10	Fallon	24	Baker	2,365	2,584	2,354
			25	Plevna	263	189	191
	11	Garfield	26	Jordan	557	529	485
	12	Powder River	27	Belle Creek*	150	300	150
			28	Broadus	628	799	712
	13	Prairie	29	Fallon*	300	200	300
			30	Terry	1,140	870	929
	14	Rosebud	31	Ashland*	150	531	238
			32	Birney*	20	13	30
			33	Colstrip*	200	200	1,476
			34	Forsyth	2,032	1,873	2,553
			35	Lame Deer*	300	650	1,002
			36	Rosebud*	140	225	158
3	15	Blaine	37	Chinook	2,326	1,813	1,660
			38	Harlem	1,267	1,094	1,023
			39	Hays*	600	500	370
			40	Turner	175	150	258
	16	Hill	41	Havre	10,740	10,558	10,891
			42	Rudyard*	600	600	450

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MONTANA E-D EXPANSION AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

Region	County Number	County Name	City Number	City Name	Population 1960	Population 1970	Population 1980
	17	Phillips	43	Dodson	313	196	158
			44	Loring*	50	25	40
			45	Malta	2,239	2,195	2,367
			46	Saco	490	356	252
			47	Whitewater*	100	100	75
	18	Valley	48	Fort Peck*	650	450	250
			49	Glasgow	6,398	4,700	4,455
			50	Hinsdale*	400	390	200
			51	Nashua	796	513	495
			52	Opheim	457	306	210
4	19	Fergus	53	Denton	410	398	356
			54	Grass Range	222	181	139
			55	Lewiston	7,408	6,437	7,104
			56	Moore	216	219	229
			57	Winifred	220	190	155
	20	Petroleum	58	Winnett	360	271	207
5	21	Big Horn	59	Busby*	300	300	163
			60	Crow Agency*	700	1,000	406
			61	Hardin	2,789	2,733	3,300
			62	Lodge Grass	687	806	771
			63	Spring Creek*[a]	0	0	10
	22	Carbon	64	Bridger	824	717	724
			65	Fromberg	367	364	469
			66	Joliet	452	412	580
			67	Red Lodge	2,278	1,844	1,896
	23	Golden Valley	68	Ryegate	314	261	273
	24	Musselshell	69	Roundup	2,842	2,116	2,119
	25	Stillwater	70	Absarokee*	600	600	767
			71	Columbus	1,281	1,173	1,439
	26	Treasure	72	Hysham	494	373	449
	27	Wheatland	73	Harlowton	1,734	1,375	1,181
			74	Judith Gap	185	160	213
	28	Yellowstone	75	Billings	52,851	61,581	66,798
			76	Broadview	160	123	120
			77	Laurel	4,601	4,454	5,481
6	29	Cascade	78	Belt	757	656	825
			79	Cascade	604	714	773
			80	Great Falls	55,357	60,091	56,725
			81	Stockett*	400	500	500
	30	Chouteau	82	Big Sandy	954	827	835
			83	Fort Benton	1,887	1,863	1,693
			84	Geraldine	364	370	305

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MONTANA E-D EXPANSION AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

Region	County Number	County Name	City Number	City Name	Population 1960	Population 1970	Population 1980
	31	Glacier	85	Browning	2,011	1,700	1,226
			86	Cut Bank	4,539	4,004	3,688
	32	Judith Basin	87	Hobson	207	192	261
			88	Stanford	615	505	595
	33	Liberty	89	Chester	1,158	936	963
	34	Meagher	90	White Sulpher Springs	1,519	1,200	1,302
	35	Pondera	91	Conrad	2,665	2,770	3,074
			92	Valier	724	651	640
	36	Teton	93	Choteau	1,966	1,586	1,798
			94	Dutton	504	415	359
			95	Fairfield	752	638	650
	37	Toole	96	Shelby	4,017	3,111	3,142
			97	Sunburst	882	604	476
7	38	Gallatin	98	Belgrade	1,057	1,307	2,336
			99	Bozeman	13,361	18,670	21,645
			100	Manhattan	889	816	988
			101	Three Forks	1,161	1,188	1,247
			102	West Yellowstone*	150	756	735
	39	Park	103	Gardiner*	400	600	700
			104	Livingston	8,229	6,883	6,994
	40	Sweet Grass	105	Big Timber	1,660	1,592	1,690
8	41	Broadwater	106	Townsend	1,528	1,371	1,587
	42	Jefferson	107	Boulder	1,394	1,342	1,441
			108	Whitehall	898	1,035	1,030
	43	Lewis and Clark	109	Augusta*	400	500	500
			110	East Helena	1,490	1,651	1,647
			111	Helena	20,227	22,730	23,938
			112	Lincoln*	400	1,005	900
9	44	Beaverhead	113	Dillon	3,690	4,548	3,976
			114	Lima	397	351	272
			115	Wisdom*	180	154	200
	45	Deer Lodge	116	Anaconda	12,054	9,771	12,158
	46	Madison	117	Ennis	525	501	660
			118	Sheridan	539	636	646
			119	Twin Bridges	509	613	437
			120	Virginia City	194	149	192
	47	Silver Bow	121	Butte	27,877	23,368	37,205
			122	Melrose*	200	218	102
			123	Walkerville*	1,453	1,097	887
10	48	Granite	124	Drummond	577	494	414
			125	Philipsburg	1,107	1,128	1,138

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APPENDIX TABLE 1. COMMUNITIES FOR INCLUSION IN THE MONTANA E-D EXPANSION AND THEIR POPULATIONS, BY COUNTY AND REGION, 1960, 1970, AND 1980 (CONTINUED)

Region	County Number	County Name	City Number	City Name	Population 1960	Population 1970	Population 1980
	49	Lake	126	Polson	2,314	2,464	2,798
			127	Ronan	1,334	1,347	1,530
			128	St. Ignatius	940	925	877
	50	Mineral	129	Alberton	356	363	368
			130	Superior	1,242	993	1,054
	51	Missoula	131	Missoula	27,090	29,497	33,388
			132	Seeley Lake*	500	800	1,200
	52	Powell	133	Avon*	200	200	200
			134	Deer Lodge	4,681	4,306	4,023
			135	Elliston*	200	190	200
	53	Ravalli	136	Darby	398	538	581
			137	Hamilton	2,475	2,499	2,661
			138	Stevensville	784	829	1,207
	54	Sanders	139	Hot Springs	585	664	601
			140	Plains	769	1,046	1,116
			141	Thompson Falls	1,274	1,356	1,478
11	55	Flathead	142	Columbia Falls	2,132	2,652	3,112
			143	Kalispell	10,151	10,526	10,648
			144	Whitefish	2,965	3,349	3,703
	56	Lincoln	145	Eureka	1,229	1,195	1,119
			146	Libby	2,828	3,286	2,748
			147	Rexford	450	243	130
			148	Troy	855	1,046	1,088
		North Dakota	149	Beach	1,460	1,408	1,381
			150	Bowman	1,730	1,762	2,071
			151	Alexander	269	208	358
			152	Dickinson	9,971	12,405	15,893
			153	Fortuna	185	216	98
			154	Marmarth	319	247	190
			155	Medora	133	129	94
			156	Watford City	1,865	1,768	2,119
			157	Williston	11,866	11,280	13,336
		Idaho	158	Bonners Ferry	1,921	1,909	1,906
			159	Mullan	1,477	1,279	1,269
			160	Wallace	2,412	2,206	1,736
		South Dakota	161	Belle Fourche	4,087	4,236	4,692
		Wyoming	162	Lovell	2,451	2,371	2,447
			163	Powell	4,740	4,807	5,310
			164	Sheridan	11,651	10,856	15,146

*Unincorporated Municipality

[a]For calculating baseline non-ag muni allocators for Spring Creek, a population of 10 was used for 1960 and 1970.

APPENDIX TABLE 2. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MONTANA REGION 2, 1960-1980, (1980 = BASE DOLLARS), MILLION 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	(14) Elec Gen	(15) Retail	(17) Bus & Pers Serv	(20) H.H.
1960	88.5	31.3	--	--	42.7	--	6.5	--	3.8	2.4	--	--	4.2	1.4	28.3
1961	81.9	25.9	--	.2	38.7	--	6.5	--	4.2	.7	--	--	4.6	1.5	38.2
1962	60.1	32.3	--	.2	37.6	--	7.0	--	4.7	1.6	--	--	5.0	1.7	32.5
1963	64.6	42.0	--	.2	38.8	--	8.6	--	5.1	2.2	--	--	5.3	1.8	39.4
1964	72.1	37.1	--	.1	35.4	--	10.4	--	5.5	.4	--	--	5.7	1.9	34.0
1965	83.4	30.4	--	.2	32.3	.1	11.5	--	5.9	.3	--	--	6.1	2.1	40.7
1966	98.7	36.5	--	.2	31.7	--	9.7	--	6.2	.4	--	--	6.7	2.2	37.3
1967	83.5	39.6	--	.1	36.2	.1	9.6	--	6.1	.3	--	--	7.2	2.4	45.1
1968	99.1	37.6	--	2.2	75.8	1.0	13.5	--	6.3	.1	--	--	7.8	2.6	46.0
1969	110.2	37.0	--	--	64.7	.2	15.4	--	6.5	.1	--	--	8.5	2.8	47.2
1970	99.2	39.9	--	9.0	48.1	.2	13.7	--	7.1	.2	--	--	9.3	3.1	46.9
1971	108.1	33.9	--	22.4	43.8	.1	9.8	--	7.3	.1	--	--	10.0	3.3	46.7
1972	125.5	48.4	--	23.3	43.8	.5	5.2	--	7.5	.1	--	--	10.7	3.6	49.5
1973	142.2	65.5	--	29.1	51.5	.6	17.8	--	7.4	--	--	--	11.7	3.9	53.7
1974	110.5	83.4	--	29.6	101.7	1.2	11.5	--	7.7	--	--	--	13.0	4.3	52.2
1975	93.7	59.3	--	57.8	101.7	1.0	19.7	--	9.0	--	--	5.8	13.2	4.4	59.3
1976	90.9	46.8	--	73.2	101.7	.4	15.0	--	8.7	--	--	18.0	13.6	4.5	60.6
1977	102.0	39.1	--	73.5	96.4	.8	5.6	--	7.6	--	--	17.4	14.0	4.7	65.5
1978	122.7	54.9	--	73.2	82.0	1.0	8.8	--	7.8	--	--	24.7	13.1	4.4	69.9
1979	133.6	44.6	--	101.8	75.9	3.1	5.0	--	8.8	--	--	22.4	11.9	4.0	65.6
1980	114.4	47.4	--	97.9	112.7	6.4	3.3	--	8.1	--	--	22 2	12.9	4.3	94.0

APPENDIX TABLE 3. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MONTANA REGION 3, 1960-1980, (1980 = BASE DOLLARS), MILLION 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	(14) Elec Gen	(15) Retail	(17) Bus & Pers Serv	(20) H.H.
1960	51.3	78.1	--	--	.9	--	2.4	--	8.8	1.3	--	--	6.4	2.2	51.5
1961	55.2	58.0	--	--	.8	--	2.4	--	9.1	1.5	--	--	7.0	2.3	69.6
1962	52.4	77.7	--	--	.6	--	2.6	--	9.3	1.2	--	--	7.6	2.5	59.3
1963	46.2	87.9	--	--	.5	--	3.2	--	9.5	.8	--	--	8.1	2.7	71.8
1964	49.8	78.3	.2	--	.5	--	3.9	--	9.7	.5	--	--	8.7	2.9	62.0
1965	58.0	74.7	--	--	.5	--	4.3	--	9.8	.6	--	--	9.4	3.1	74.1
1966	67.7	96.6	--	--	.5	--	3.6	--	10.2	.9	--	--	10.2	3.4	67.9
1967	63.8	88.9	--	--	.5	--	3.6	--	10.0	.9	--	--	11.0	3.7	82.2
1968	69.0	72.4	--	--	.5	--	3.2	--	10.1	.9	--	--	11 9	4.0	101.0
1969	68.7	70.5	--	--	.5	--	2.2	--	16.2	.8	--	--	13.0	4.3	79.5
1970	64.4	92.1	--	--	.5	--	2.6	--	17.0	.8	--	--	14.1	4.7	95.6
1971	70.8	81.5	--	--	.5	--	3.0	--	17.4	.9	--	--	15.2	5.1	110.4
1972	80.4	117.0	--	--	.7	--	7.1	--	15.4	.7	--	--	16.4	5.5	125.6
1973	90.0	156.7	--	--	4.4	--	3.9	--	13.0	--	--	--	17.9	6.0	123.2
1974	64.5	198.2	--	--	4.3	.1	2.5	--	13.6	--	--	--	19.8	6.6	119.7
1975	55.1	164.8	--	--	5.3	.2	3.5	--	15.8	--	--	--	20.2	6.7	121.9
1976	55.1	135.6	--	--	5.6	--	4.5	--	15.5	--	--	--	20.8	6.9	117.7
1977	53.2	108.6	--	--	8.0	--	3.9	--	15.2	--	--	--	21.3	7.1	94.9
1978	71.3	135.6	--	--	9.1	.5	6.1	--	15.6	--	--	--	20.0	6.7	97.4
1979	78.6	105.9	--	--	14.6	5.2	2.8	--	16.3	--	1.7	--	18.2	6.1	86.4
1980	67.4	112.5	--	--	14.4	1.9	8.9	--	15.0	--	21.8	--	19.6	6.5	82.5

APPENDIX TABLE 4. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MONTANA REGION 4, 1960-1980, (1980 = BASE DOLLARS), MILLION 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	(14) Elec Gen	(15) Retail	(17) Bus & Pers Serv	(20) H.H.
1960	26.6	22.0	--	--	.3	.6	1.0	1.0	4.0	--	--	--	2.5	.8	9.8
1961	29.1	18.5	--	--	.4	.6	1.0	1.1	4.0	--	--	--	2.7	.9	13.3
1962	21.2	25.3	--	--	.4	.7	1.0	1.2	4.0	--	--	--	2.9	1.0	11.3
1963	21.7	26.3	--	--	.4	.8	1.3	1.3	3.8	--	--	--	3.2	1.1	13.7
1964	22.2	22.5	--	--	.4	.7	1.6	1.5	3.7	--	--	--	3.4	1.1	11.8
1965	26.5	20.4	--	--	.3	.5	1.8	1.3	3.6	--	--	--	3.7	1.2	14.1
1966	31.3	24.9	--	--	.3	.5	1.5	1.1	3.4	--	--	--	4.0	1.3	12.9
1967	26.2	25.1	--	--	.3	.4	1.5	.8	3.2	--	--	--	4.1	1.4	15.7
1968	31.0	20.8	--	--	.3	.5	--	.9	3.3	--	--	--	4.6	1.5	17.9
1969	32.1	19.5	--	--	.3	.5	.3	.9	3.3	--	--	--	5.0	1.7	18.4
1970	30.8	21.6	--	--	.2	.4	.3	.6	3.4	--	--	--	5.5	1.8	18.7
1971	36.1	20.3	--	--	.3	.4	.2	1.0	2.9	--	--	--	5.9	2.0	19.1
1972	40.1	27.4	--	--	.3	.5	1.1	2.0	3.3	--	--	--	6.4	2.1	17.1
1973	42.9	36.3	--	--	.3	.5	.7	2.6	3.6	--	--	--	7.0	2.3	19.5
1974	30.1	46.4	--	--	.4	.5	1.7	1.9	4.3	--	--	--	7.7	2.6	19.4
1975	28.5	34.3	--	--	.4	.5	1.2	1.5	5.1	--	--	--	7.9	2.6	20.6
1976	26.7	26.8	--	--	.4	.7	5.8	1.8	5.1	--	--	--	8.1	2.7	20.5
1977	31.1	24.0	--	--	.5	.1	.8	2.3	4.7	--	--	--	8.3	2.8	22.9
1978	40.5	30.6	--	--	.5	.8	3.5	3.0	5.7	--	--	--	7.8	2.6	22.8
1979	45.1	23.3	1.0	--	.6	.8	1.9	2.9	6.0	--	--	--	7.1	2.4	22.1
1980	38.7	24.8	.9	--	.9	.7	2.6	1.7	5.5	--	--	--	7.6	2.5	23.8

APPENDIX TABLE 5. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MONTANA REGION 5, 1960-1980, (1980 = BASE DOLLARS), MILLION 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	(14) Elec Gen	(15) Retail	(17) Bus & Pers Serv	(20) H.H.
1960	95.7	58.4	10.1	1.8	--	--	11.6	.4	89.4	120.1	--	--	27.8	9.3	96.7
1961	82.0	49.0	7.7	1.5	--	--	11.6	.4	90.4	119.1	--	--	30.3	10.1	130.6
1962	83.1	65.4	--	1.1	--	--	12.4	.5	90.8	140.5	--	--	32.6	10.9	111.2
1963	68.8	76.3	--	.8	--	--	15.3	.5	91.3	133.1	--	--	35.0	11.7	134.8
1964	79.9	69.8	--	.7	--	--	18.5	.5	91.8	153.7	--	--	37.5	12.5	116.5
1965	95.2	60.6	--	1.0	--	--	20.6	.5	91.4	157.2	--	--	40.4	13.5	139.1
1966	108.4	68.7	--	1.3	--	--	17.4	.5	93.3	154.1	--	--	43.7	14.6	127.4
1967	99.1	74.5	--	.7	--	--	17.2	.3	92.3	168.4	--	--	47.4	15.8	154.4
1968	102.7	69.0	--	--	--	--	24.8	.4	94.5	176.2	--	--	51.3	17.1	157.5
1969	108.4	62.4	--	--	--	.5	27.4	.9	97.8	168.7	--	--	55.8	18.6	166.7
1970	127.7	65.5	.2	.3	--	1.1	25.1	1.3	102.8	178.8	--	--	60.9	20.3	172.6
1971	137.5	58.2	.2	.3	--	.1	23.1	3.0	102.9	193.9	--	--	65.6	21.9	178.2
1972	170.7	70.4	--	2.8	--	1.0	4.6	2.4	109.7	212.2	--	--	70.6	23.5	168.0
1973	169.4	83.7	--	16.4	--	--	19.7	2.7	115.5	240.9	--	--	77.0	25.7	190.0
1974	126.9	127.9	--	46.7	--	.4	15.9	1.4	125.2	370.9	--	--	85.2	28.4	223.7
1975	103.9	88.7	--	90.1	--	.5	36.9	2.3	125.6	407.6	--	--	87.0	29.0	198.0
1976	106.9	67.4	--	88.4	--	.9	17.0	2.1	129.1	445.6	--	--	89.4	29.8	205.9
1977	124.7	63.6	--	90.3	--	1.0	11.3	1.8	147.2	444.3	--	--	91.9	30.6	219.8
1978	146.6	80.0	--	79.4	--	1.1	19.6	1.7	154.0	428.0	--	--	86.0	28.7	254.6
1979	155.5	71.4	--	128.4	--	1.6	14.0	2.2	164.3	579.6	--	--	78.3	26.1	229.6
1980	133.2	75.9	--	118.4	--	1.5	19.3	1.2	150.9	636.5	--	--	84.6	28.2	223.0

APPENDIX TABLE 6. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MONTANA REGION 6, 1960-1980, (1980 = BASE DOLLARS), MILLION 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	(14) Elec Gen	(15) Retail	(17) Bus & Pers Serv	(20) H.H.
1960	88.2	163.3	7.0	--	13.6	--	17.5	3.1	62.3	20.5	--	--	25.0	8.3	149.0
1961	89.6	136.3	.3	--	13.3	--	17.5	3.4	64.5	19.3	--	--	27.3	9.1	201.4
1962	82.9	161.7	--	--	12.9	--	18.8	3.7	66.2	20.8	--	--	29.4	9.8	171.5
1963	69.2	146.6	--	--	13.6	--	23.2	3.9	68.0	20.7	--	--	31.6	10.5	207.8
1964	71.3	156.5	.2	--	16.8	--	28.0	4.4	69.7	18.0	--	--	33.8	11.3	179.6
1965	86.5	179.3	.2	--	20.1	--	31.1	3.8	70.7	20.3	--	--	36.4	12.1	214.5
1966	96.5	222.8	--	--	22.9	--	26.3	3.3	73.4	18.9	--	--	39.4	13.1	196.5
1967	92.5	211.0	--	--	19.3	--	26.0	2.5	67.7	20.6	--	--	42.7	14.2	238.0
1968	103.2	173.2	.2	--	18.9	--	15.4	2.7	69.2	20.9	--	--	46.3	15.4	259.2
1969	105.5	159.8	.4	--	20.5	--	29.3	2.7	68.2	19.0	--	--	50.3	16.8	256.3
1970	100.4	202.7	.2	--	20.5	--	37.2	1.7	66.6	20.7	--	--	54.8	18.3	266.2
1971	117.4	181.9	.2	--	21.3	--	43.5	2.9	65.6	21.9	--	--	59.2	19.7	275.7
1972	135.8	244.7	--	--	18.0	--	350.1	4.2	69.7	22.5	--	--	63.6	21.2	277.7
1973	148.4	276.7	--	--	16.1	.4	12.5	7.9	65.2	27.8	--	--	69.4	23.1	312.3
1974	93.2	327.4	--	--	29.6	--	21.2	5.6	72.7	45.0	--	--	76.8	25.6	311.1
1975	91.2	300.0	.1	--	27.4	.2	25.7	3.1	78.4	44.7	--	--	78.5	26.2	309.5
1976	93.3	271.5	--	--	30.8	.3	30.7	5.3	78.8	47.0	--	--	80.6	26.9	298.4
1977	98.3	205.0	--	--	33.0	.3	26.8	6.7	77.8	40.5	--	--	82.9	27.6	512.2
1978	124.2	248.5	--	--	30.2	.3	13.5	8.9	82.9	39.2	--	--	77.5	25.8	308.6
1979	131.3	207.5	1.9	--	41.6	.2	18.9	8.7	85.2	49.2	--	--	70.6	23.5	312.7
1980	112.5	220.5	1.7	--	59.1	.3	11.7	5.1	78.2	59.3	--	--	76 2	25.4	300.3

APPENDIX TABLE 7. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MONTANA REGION 7, 1960-1980, (1980 = BASE DOLLARS), MILLION 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	(14) Elec Gen	(15) Retail	(17) Bus & Pers Serv	(20) H.H.
1960	40.8	17.1	--	--	--	10.7	4.6	7.6	11.3	--	--	--	27.1	9.0	33.0
1961	36.6	15.7	--	--	--	10.3	4.6	8.3	12.1	--	--	--	29.6	9.9	44.7
1962	38.3	21.2	--	--	--	10.3	4.9	9.2	12.8	--	--	--	31.8	10.6	38.0
1963	32.7	20.2	--	--	--	9.6	6.0	9.6	13.5	--	--	--	34.2	11.4	46.1
1964	34.2	18.8	.2	--	--	8.1	7.3	9.0	14.3	--	--	--	36.6	12.2	39.8
1965	39.3	20.0	.2	--	--	7.1	8.1	8.8	14.8	--	--	--	39.5	13.2	47.6
1966	44.6	21.4	--	--	--	7.6	6.9	10.6	16.2	--	--	--	42.7	14.2	43.6
1967	39.6	22.3	--	--	--	6.3	6.8	11.1	16.4	--	--	--	46.3	15.4	52.8
1968	44.9	19.4	.2	--	--	10.4	4.4	13.7	16.2	--	--	--	50.1	16.7	60.9
1969	51.6	18.9	--	--	--	12.2	10.7	13.5	17.0	--	--	--	54.5	18.2	57.7
1970	50.8	21.0	--	--	--	10.4	7.1	9.2	16.8	--	--	--	59.4	19.8	56.8
1971	53.4	18.8	--	--	--	10.4	3.9	12.0	17.5	--	--	--	64.1	21.4	56.0
1972	60.8	24.3	--	--	--	11.3	3.2	12.8	18.8	--	--	--	68.9	23.0	59.8
1973	64.8	30.1	--	--	--	11.4	6.9	19.8	21.6	--	--	--	75.1	25.0	63.8
1974	45.4	33.6	--	--	--	13.9	8.6	14.2	22.7	--	--	--	83.2	27.7	62.6
1975	40.4	24.8	--	--	--	14.2	6.7	8.1	23.7	--	--	--	85.0	28.3	69.0
1976	41.2	21.6	--	--	--	14.7	23.5	14.2	26.2	--	--	--	87.3	29.1	77.4
1977	44.8	19.2	--	--	--	18.8	3.1	21.0	27.3	--	--	--	89.8	29.9	77.7
1978	52.9	23.7	--	--	--	16.1	6.3	22.0	29.4	--	--	--	83.9	28.0	77.2
1979	56.5	20.7	--	--	--	19.7	8.6	19.6	31.2	--	--	--	76.5	25.5	80.7
1980	48.4	22.0	--	--	--	16.8	6.0	9.6	28.6	--	--	--	82.6	27.5	82.6

APPENDIX TABLE 8. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MONTANA REGION 8, 1960-1980, (1980 = BASE DOLLARS), MILLION 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	(14) Elec Gen	(15) Retail	(17) Bus & Pers Serv	(20) H.H.
1960	23.0	8.7	1.0	--	--	--	6.8	6.1	14.3	--	--	--	12.1	4.1	73.7
1961	21.7	8.2	4.3	--	--	--	6.8	6.8	15.1	--	--	--	13.3	4.4	99.5
1962	21.0	10.2	4.5	--	--	--	7.3	7.5	15.8	--	--	--	14.3	4.8	84.7
1963	18.8	10.8	6.2	--	--	5.2	9.0	7.8	16.6	--	--	--	15.3	5.1	102.7
1964	18.2	9.0	6.9	--	--	8.4	10.9	8.9	17.3	--	--	--	16.4	5.5	88.7
1965	22.1	9.5	6.7	--	--	8.6	12.1	7.6	17.8	--	--	--	17.7	5.9	106.0
1966	25.8	9.9	4.2	--	--	8.3	10.2	6.6	18.7	--	--	--	19.1	6.4	97.1
1967	20.7	13.4	1.4	--	--	8.8	10.1	5.0	17.6	--	--	--	20.8	6.9	117.6
1968	25.6	9.2	2.6	--	--	7.7	7.8	5.4	17.2	--	--	--	22.5	7.5	99.3
1969	27.0	8.8	4.3	--	--	11.2	24.0	5.5	19.2	--	--	--	24.4	8.1	96.0
1970	25.0	10.8	.4	--	--	9.9	15.6	3.5	19.5	--	--	--	26.6	8.9	99.3
1971	29.0	9.4	.4	--	--	10.9	8.1	5.8	18.8	--	--	--	28.7	9.6	102.5
1972	30.6	12.8	.2	--	--	9.2	21.2	7.7	21.2	--	--	--	30.9	10.3	123.8
1973	34.1	14.0	.3	--	--	13.3	1.9	15.7	23.2	--	.1	--	33.7	11.2	144.8
1974	22.4	15.4	.9	--	--	14.5	6.1	11.1	24.2	--	.2	--	37.3	12.4	140.8
1975	20.5	12.9	.6	--	--	15.8	18.4	9.1	26.6	--	.4	--	38.1	12.7	165.0
1976	19.3	13.4	.4	--	--	19.4	8.1	10.6	30.5	--	.1	--	39.1	13.1	180.7
1977	22.2	13.2	.3	--	--	19.0	19.2	13.5	31.9	--	.1	--	40.2	13.4	215.9
1978	27.6	15.9	.7	--	--	19.8	9.4	17.8	33.7	--	.4	--	37.6	12.5	199.3
1979	29.8	12.6	1.7	--	--	15.7	12.0	17.4	35.0	--	.2	--	34.3	11.4	208.8
1980	25.5	13.4	1.6	--	--	17.6	17.3	10.3	32.1	--	.3	--	37.0	12.3	199.1

APPENDIX TABLE 9. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MONTANA REGION 9, 1960-1980, (1980 = BASE DOLLARS), MILLION 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	(14) Elec Gen	(15) Retail	(17) Bus & Pers Serv	(20) H.H.
1960	48.6	7.9	8.8	--	--	6.8	6.8	3.5	45.6	--	--	--	15.5	5.2	54.8
1961	42.6	7.6	11.0	--	--	6 6	6.8	3.9	45.9	--	154.7	--	16.9	5.6	74.1
1962	47.0	8.2	31.9	--	--	7.7	7.3	4.3	45.8	--	157.1	--	18.2	6.1	63.1
1963	37.9	8.0	29.7	--	--	8.6	9.0	4.5	45.9	--	138.5	--	19.6	6.5	76.4
1964	39.6	7.9	32.4	--	--	10.3	10.9	3.6	45.9	--	176.6	--	20.9	7.0	66.0
1965	46.7	10.2	38.3	--	--	3.4	12.1	4.3	45.5	--	217.0	--	22.6	7.5	78.9
1966	55.8	9.7	18.7	--	--	12.3	10.2	5.3	46.8	--	221.7	--	24.4	8.1	72.3
1967	39.4	9.4	8.1	--	--	11.0	10.2	5.1	40.0	--	110.7	--	26.5	8.8	87.5
1968	58.2	8.7	8.2	--	--	7.8	8.9	6.5	41.1	--	125.8	--	28.7	9.6	91.8
1969	63.8	9.2	11.7	--	--	9.6	23.1	6.3	46.0	--	204.9	--	31.2	10.4	90.0
1970	55.6	9.0	14.2	--	--	11.7	19.0	4.1	44.8	--	267.0	--	34 0	11.3	91.6
1971	57.9	8.1	8.1	--	--	8.1	15.3	5.7	41.3	--	169 2	--	36.7	12.2	93.1
1972	68.4	10.4	11.9	--	--	5.2	19.6	5.3	44.5	--	226.2	--	39.4	13.1	97.1
1973	72.6	13.4	22.0	--	--	6.8	10.8	6.6	46.6	--	261.7	--	43.0	14.3	104.2
1974	47.9	14.8	30.4	--	--	6.6	13.3	4.8	54.1	--	332.9	--	47.6	15.9	102.8
1975	41.3	11.6	17.4	--	--	4.3	12.2	2 7	55.1	--	180.7	--	48.6	16.2	112.2
1976	52.7	10.7	20.8	--	--	7.1	13.3	4.7	55.7	--	202.0	--	50.0	16.6	119.2
1977	49.3	9.8	22.2	--	--	9.1	9.2	7.0	51.3	--	153.9	--	51.3	17.1	138.0
1978	71.5	14.0	18.9	--	--	9 5	4.6	7.3	47.9	--	127.1	--	48.0	16.0	136.8
1979	80.1	9.6	40.3	--	--	11.6	9.9	6.5	48.8	--	185.9	--	43.8	14.6	144.9
1980	68.6	10.2	37.0	--	--	9.1	9.0	3.2	44.8	--	104.2	--	47.2	15.7	147.0

APPENDIX TABLE 10. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MONTANA REGION 10, 1960-1980, (1980 = BASE DOLLARS), MILLION 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	(14) Elec Gen	(15) Retail	(17) Bus & Pers Serv	(20) H.H.
1960	58.1	18.5	2.8	--	--	9.2	14.6	176.2	69.3	--	--	--	19.1	5.8	97.6
1961	56.9	18.7	3.3	--	--	8.5	14.6	185.8	70.6	--	--	--	18.9	6.3	131.9
1962	60.2	20.5	2.5	--	--	10.1	15.7	203.7	71.3	--	--	--	20.4	6.8	112.3
1963	52.7	17.5	.5	--	--	9.5	19.3	216.7	72.1	--	--	--	21.9	7.3	136.1
1964	49.2	18.9	1.5	--	--	9.8	23.3	213.1	72.9	--	--	--	23.4	7.8	117.6
1965	55.4	19.4	1.4	--	--	14.8	25.9	213.6	73.0	--	--	--	25.3	8.4	140.5
1966	63.8	18.3	2.3	--	--	15.7	21.9	213.4	84.1	--	--	--	27.3	9.1	128.7
1967	61.9	19.4	.7	--	--	15.4	21.7	207.7	83.5	--	--	--	29.6	9.9	155.9
1968	69.9	17.3	3.0	--	--	13.9	29.5	240.9	86 9	--	--	--	32.1	10.7	152.7
1969	70.7	17.4	2.7	--	--	5.7	15.6	242.0	90.7	--	--	--	34.8	11.6	147.1
1970	62.0	17.4	2.7	--	--	3.0	27.3	184.8	83.6	--	.1	--	38.0	12.7	161.9
1971	66.1	17.7	.7	--	--	4.3	37.9	213.1	90.6	--	.1	--	41.0	13.7	175.6
1972	77.3	19.1	.4	--	--	4.0	14.6	241.8	94.3	--	.1	--	44.1	14.7	172.3
1973	81.1	23.8	.7	--	--	4.2	20.7	305.3	101.2	--	.3	--	48.1	16.0	195.7
1974	51.2	30.0	1.4	--	--	5.5	16.7	243.5	100.6	--	.7	--	53.2	17.7	204.3
1975	53.1	20.7	2.5	--	--	8.9	25.7	223.9	90.5	--	1.7	--	54.4	18.1	211.1
1976	52.7	21.5	2.2	--	--	5.9	15.2	273.2	101.1	--	1.7	--	55.9	18.6	206.3
1977	47.9	20.4	1.4	--	--	5.2	32.0	306.1	120.7	--	1.4	--	57.4	19.1	248.2
1978	66.7	21.6	3.8	--	--	6.2	31.9	328.8	136.2	--	--	--	53.7	17.9	240.8
1979	74.1	19.5	3.5	--	--	5.7	20.6	297.2	133.6	--	5.7	--	48.9	16.3	261.7
1980	63.5	20.7	3.2	--	--	6.1	33.1	226.0	122.7	--	6.5	--	52.8	17.6	238.3

APPENDIX TABLE 11. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MONTANA REGION 11, 1960-1980, (1980 = BASE DOLLARS), MILLION 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	(14) Elec Gen	(15) Retail	(17) Bus & Pers Serv	(20) H.H.
1960	11.0	7.7	.3	--	--	--	3.6	69 3	54.9	--	--	--	19.3	6.4	63.7
1961	10.3	7.2	--	--	--	--	3.6	80.9	56.0	--	--	--	21.1	7.0	86.0
1962	11.8	8.7	.3	--	--	--	3.8	90.7	56.6	--	--	--	22.7	7.6	73.2
1963	9.7	8.6	--	--	--	--	4.7	102.6	57.4	--	--	--	24.3	8.1	88.8
1964	8.8	8.2	.2	--	--	--	5.7	103 0	58.1	--	--	--	26.0	8.7	76.7
1965	10.4	8.4	.2	--	--	--	6.3	115.1	58.3	--	--	--	28 1	9.4	91.6
1966	12.0	8.3	.2	--	--	--	5.4	119.3	70.4	--	--	--	30.4	10.1	83.9
1967	11.8	8.4	--	--	--	--	5.3	111.1	71.8	--	--	--	33.0	11.0	101.7
1968	12.4	7.5	.2	--	--	--	.7	150.7	81.2	--	--	--	35.7	11.9	178.8
1969	11.3	7.6	.4	--	--	--	3.5	150.9	76.5	--	--	--	38.8	12.9	153.4
1970	12.6	8.6	.2	--	--	--	4.4	114.2	71.9	--	--	--	42.3	14.1	136.8
1971	13.9	7.8	.2	--	--	--	5.3	129.2	74.9	--	--	--	45.6	15.2	122.0
1972	14.8	10.2	--	--	--	--	2.3	148.5	76.7	--	--	--	49.1	16.4	102.2
1973	17.3	12.3	--	--	--	--	1.7	173.8	84.9	--	--	--	53.5	17.8	105.1
1974	10.9	14.7	--	--	--	--	3.1	150.6	84.0	--	--	--	59.2	19.7	111.9
1975	12.3	10.4	.1	--	--	--	9.9	130.0	86.2	--	--	--	60.5	20.2	110.8
1976	11.5	9.6	--	--	--	--	5.7	180.5	95.8	--	--	--	62.2	20 7	141.1
1977	9.8	8.2	--	--	--	--	6.7	191.7	99.7	--	--	--	63.9	21 3	140.6
1978	12.4	10.0	--	--	--	--	4.1	195.3	107.8	--	--	--	59.8	19.9	141.7
1979	12.0	8.3	--	--	--	--	13.3	202.4	108.5	--	--	--	54.5	18.2	139.7
1980	10.3	8.9	--	--	--	--	15.5	143.1	99.6	--	--	--	58.8	19.6	114.1

APPENDIX TABLE 12. SALES FOR FINAL DEMAND, BY ECONOMIC SECTOR, MONTANA, 1960-1980, (1980 = BASE DOLLARS), MILLION 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	(14) Elec Gen	(15) Retail	(17) Bus & Pers Serv	(20) H.H.
1960	573.2	518.6	30.2	2.9	81.2	27.3	79.2	267.2	372.9	144.3	--	--	170.2	56.1	692.5
1961	550.4	427.4	26.3	2.9	79.2	26.0	79.2	290.6	381.3	140.7	156.3	--	184.0	61.3	935.8
1962	517.2	569.4	39.0	2.6	78.4	28.8	85.1	320.8	386.6	164.1	159.9	--	197.9	66.0	796.7
1963	459.5	604.2	36.4	2.3	78.5	33.5	104.9	346.7	392.7	156.9	138.5	--	212.4	70.8	965.7
1964	492.0	548.7	41.5	2.1	65.2	37.4	126.7	343.9	398.6	173.1	176.6	--	227.2	75.8	834.3
1965	579.8	543.9	47.6	2.4	81.0	34.4	140.8	354.8	400.5	181.1	217.0	--	245.2	81.7	996.9
1966	668.0	653.2	25.6	2.8	86.8	44.4	119.1	360.2	432.5	177.9	221.7	--	265.3	88.4	912.9
1967	599.2	652.2	10.3	2.1	85.4	42.0	117.9	343.5	418.4	194.1	110.7	--	287.5	95.8	1,105.8
1968	686.1	555.0	14.2	3.7	122.5	41.2	123.9	421.2	435.1	202.2	125.8	--	311.4	103.8	1,226.3
1969	720.6	534.3	19.4	--	111.6	39.8	155.7	422.6	453.2	192.8	204.9	--	338.4	112.8	1,177.9
1970	689.9	638.4	17.8	10.1	94.4	36.6	155.2	319.3	447.3	264.4	267.1	--	369.1	123.0	1,211.0
1971	754.9	559.9	9.6	23.5	89.4	34.2	151.5	372.5	452.1	221.0	169.2	--	398 1	132.7	1,242.9
1972	878.3	765.3	12.6	27.2	85.0	31.8	451.6	424.6	477.0	239.3	226 2	--	428.1	142.7	1,254.2
1973	946.2	964.7	23.2	47.4	93.5	37.3	99.4	534.4	497.2	272.4	262.1	--	466.9	155.6	1,378.9
1974	668.2	1,187.7	32.7	78.2	170.2	42.7	105.4	432.9	524.8	421.2	333.6	--	516.9	172.3	1,410.3
1975	594.2	942.1	20.5	150.0	169.7	45.6	172.2	380.7	537.5	458.8	182.8	5.8	528.0	176.0	1,442.8
1976	612.6	796.0	23.4	163.6	176.2	49 5	143.8	492.3	573.5	502.2	203.8	18.0	542.5	180.8	1,496.4
1977	651.5	640.1	24.1	165.6	177.2	54.2	128.8	550.0	614.5	494.2	155.4	17.4	557.7	185.9	1,818.7
1978	807.4	806.3	23.4	154.3	166.5	55.3	115.6	584.8	609.2	476.9	127.5	24.7	521.5	173.8	1,632.3
1979	871.8	659.1	48.4	232.4	204.2	63.6	111.8	556.9	678.1	645.8	193.5	22.4	475.4	158.4	1,637.2
1980	746.8	700.4	44.4	218.5	326.1	60.4	128.9	400.2	622.5	717.2	132.8	22.2	513.0	171.0	1,599.2

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

Sector	Equation
(1) Ag, Livestock	Y = -4,712,286 + 2,444.82(X)
(2) Ag, Crops	Y = -1,635,078 + 851.388(X)
(3) Metal Mining	Y = 0
(4) Coal Mining	Y = -10,128,310 + 5,166.47(X)
(5) Pet/NG Exp/Ext	Y = -7,031,569 + 3,600.49(X)
(6) Nonmetallic Mining	Y = -107,462.2 + 56.0982(X)
(7) Construction	Y = -46,855.66 + 26.5701(X)
(8) Lumber	Y = 0
(9) Ag Proc & Misc Manufacturing	Y = -443,719.9 + 228.49(X)
(10) Pet Refining	Y = 0
(11) Metal Processing	Y = 0
(12) Transportation	Y = 0
(13) Comm & Public Utilities	Y = 0
(14) Electric Generation	Y = 23,100[b]
(15) Retail	Y = -1,183,425 + 604.681(X)
(16) Fin, Ins, Real Estate	Y = 0
(17) Business & Personal Service	Y = -393,949.9 + 201.306(X)
(18) Prof & Social Service	Y = 0
(19) Government	Y = 0
(20) Households	Y = -3,744,797 + 1,931.9(X)

[a]Robust regressions with intercept adjustment technique.
[b]The average of the last three years.

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

Sector	Equation
(1) Ag, Livestock	Y = -1,652,761 + 872.192(X)
(2) Ag, Crops	Y = -5,699,159 + 2,940.93(X)
(3) Metal Mining	Y = 0
(4) Coal Mining	Y = 0
(5) Pet/NG Exp/Ext	Y = -821,842.1 + 421.912(X)
(6) Nonmetallic Mining	Y = 154.9858 + 1.2024(X)
(7) Construction	Y = -76,120 + 41.483(X)
(8) Lumber	Y = 0
(9) Ag Proc & Misc Manufacturing	Y = -781,718.4 + 403.11(X)
(10) Pet Refining	Y = 0
(11) Metal Processing	Y = -42,364.36 + 25.378(X)
(12) Transportation	Y = 0
(13) Comm & Public Utilities	Y = 0
(14) Electric Generation	Y = 0
(15) Retail	Y = -1,804,871 + 922.214(X)
(16) Fin, Ins, Real Estate	Y = 0
(17) Business & Personal Service	Y = -602,543.4 + 307.875(X)
(18) Prof & Social Service	Y = 0
(19) Government	Y = 0
(20) Households	Y = -5,194,787 + 2,671.16(X)

[a]Robust regressions with intercept adjustment technique.

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

Sector	Equation
(1) Ag, Livestock	Y = -1,483,362 + 770.878(X)
(2) Ag, Crops	Y = -494,340.4 + 263.182(X)
(3) Metal Mining	Y = -4,545.504 + 2.61822(X)
(4) Coal Mining	Y = 0
(5) Pet/NG Exp/Ext	Y = -12,886.82 + 6.85212(X)
(6) Nonmetallic Mining	Y = -999.1157 + 0.892711(X)
(7) Construction	Y = -68,640.94 + 36.0504(X)
(8) Lumber	Y = -139,833.9 + 71.9754(X)
(9) Ag Proc & Misc Manufacturing	Y = -182,130.3 + 94.9766(X)
(10) Pet Refining	Y = 0
(11) Metal Processing	Y = 0
(12) Transportation	Y = 0
(13) Comm & Public Utilities	Y = 0
(14) Electric Generation	Y = 0
(15) Retail	Y = -704,477.1 + 359.948(X)
(16) Fin, Ins, Real Estate	Y = 0
(17) Business & Personal Service	Y = -234,852.1 + 119.996(X)
(18) Prof & Social Service	Y = 0
(19) Government	Y = 0
(20) Households	Y = -1,253,148 + 645.121(X)

[a]Robust regressions with intercept adjustment technique

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

Sector	Equation
(1) Ag, Livestock	Y = -6,001,336 + 3,107.4(X)
(2) Ag, Crops	Y = -1,253,219 + 671 884(X)
(3) Metal Mining	Y = 0
(4) Coal Mining	Y = -12,099,980 + 6,172.25(X)
(5) Pet/NG Exp/Ext	Y = 0
(6) Nonmetallic Mining	Y = -143,507 + 73.2594(X)
(7) Construction	Y = -257,405.6 + 139.049(X)
(8) Lumber	Y = -188,039.2 + 95.9248(X)
(9) Ag Proc & Misc Manufacturing	Y = -6,932,316 + 3,583.78(X)
(10) Pet Refining	Y = -43,727,500 + 22,384(X)
(11) Metal Processing	Y = 0
(12) Transportation	Y = 0
(13) Comm & Public Utilities	Y = 0
(14) Electric Generation	Y = 0
(15) Retail	Y = -7,764,075 + 3,967.16(X)
(16) Fin, Ins, Real Estate	Y = 0
(17) Business & Personal Service	Y = -2,582,680 + 1,319.69(X)
(18) Prof & Social Service	Y = 0
(19) Government	Y = 0
(20) Households	Y = -12,464,230 + 6,420.61(X)

[a]Robust regressions with intercept adjustment technique.

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

Sector	Equation
(1) Ag, Livestock	Y = -3,466,829 + 1,814.71(X)
(2) Ag, Crops	Y = -10,409,240 + 5,376.51(X)
(3) Metal Mining	Y = 1,200[b]
(4) Coal Mining	Y = 0
(5) Pet/NG Exp/Ext	Y = -2,086,553 + 1,076.94(X)
(6) Nonmetallic Mining	Y = -32,620.93 + 16.6267(X)
(7) Construction	Y = 280,056.6 - 134.154(X)
(8) Lumber	Y = -363,848.2 + 187.773(X)
(9) Ag Proc & Misc Manufacturing	Y = -1,538,688 + 819.408(X)
(10) Pet Refining	Y = -3,423,303 + 1,755.58(X)
(11) Metal Processing	Y = 0
(12) Transportation	Y = 0
(13) Comm & Public Utilities	Y = 0
(14) Electric Generation	Y = 0
(15) Retail	Y = -7,002,793 + 3,578.14(X)
(16) Fin, Ins, Real Estate	Y = 0
(17) Business & Personal Service	Y = -2,336,099 + 1,193.63(X)
(18) Prof & Social Service	Y = 0
(19) Government	Y = 0
(20) Households	Y = -15,840,440 + 8,163.62(X)

[a]Robust regressions with intercept adjustment technique.
[b]The average of the last three years.

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

Sector	Equation
(1) Ag, Livestock	Y = -1,436,592 + 752.878(X)
(2) Ag, Crops	Y = -362,557.9 + 194.485(X)
(3) Metal Mining	Y = 0
(4) Coal Mining	Y = 0
(5) Pet/NG Exp/Ext	Y = 0
(6) Nonmetallic Mining	Y = -921,199.5 + 474.587(X)
(7) Construction	Y = -100,732.4 + 54.4485(X)
(8) Lumber	Y = -1,281,311 + 656.41(X)
(9) Ag Proc & Misc Manufacturing	Y = -1,822,771 + 936.555(X)
(10) Pet Refining	Y = 0
(11) Metal Processing	Y = 0
(12) Transportation	Y = 0
(13) Comm & Public Utilities	Y = 0
(14) Electric Generation	Y = 0
(15) Retail	Y = -7,584,382 + 3,875.32(X)
(16) Fin, Ins, Real Estate	Y = 0
(17) Business & Personal Service	Y = -2,528,061 + 1,291.74(X)
(18) Prof & Social Service	Y = 0
(19) Government	Y = 0
(20) Households	Y = -4,679,217 + 2,406.16(X)

[a]Robust regressions with intercept adjustment technique.

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

Sector	Equation
(1) Ag, Livestock	Y = -499,345.2 + 266.42(X)
(2) Ag, Crops	Y = -545,572.1 + 282.881(X)
(3) Metal Mining	Y = 1,300[b]
(4) Coal Mining	Y = 0
(5) Pet/NG Exp/Ext	Y = 0
(6) Nonmetallic Mining	Y = -1,837,460 + 937.897(X)
(7) Construction	Y = -601,971.1 + 310.855(X)
(8) Lumber	Y = -734,985.9 + 379.248(X)
(9) Ag Proc & Misc Manufacturing	Y = -1,938,250 + 996.891(X)
(10) Pet Refining	Y = 0
(11) Metal Processing	Y = -15,779.57 + 8.12921(X)
(12) Transportation	Y = 0
(13) Comm & Public Utilities	Y = 0
(14) Electric Generation	Y = 0
(15) Retail	Y = -3,394,896 + 1,734.68(X)
(16) Fin, Ins, Real Estate	Y = 0
(17) Business & Personal Service	Y = -1,130,253 + 577.513(X)
(18) Prof & Social Service	Y = 0
(19) Government	Y = 0
(20) Households	Y = -12,724,880 + 6,535.53(X)

[a]Robust regressions with intercept adjustment technique.
[b]The average of the last three years.

APPENDIX TABLE 20. REGRESSION EQUATIONS[a] FOR PROJECTING FINAL DEMAND VECTORS FOR 20-SECTOR MONTANA I-O MODEL, MONTANA REGION 9, (1980 = BASE DOLLARS), THOUSAND DOLLARS

Sector	Equation
(1) Ag, Livestock	Y = -2,422,024 + 1,261.59(X)
(2) Ag, Crops	Y = -240,758.2 + 127.414(X)
(3) Metal Mining	Y = -815,995 + 428.747(X)
(4) Coal Mining	Y = 0
(5) Pet/NG Exp/Ext	Y = 0
(6) Nonmetallic Mining	Y = -74,802.56 + 42.9066(X)
(7) Construction	Y = -238,233.7 + 124.402(X)
(8) Lumber	Y = -220,794.5 + 114.49(X)
(9) Ag Proc & Misc Manufacturing	Y = -116,542.8 + 82.7652(X)
(10) Pet Refining	Y = 0
(11) Metal Processing	Y = -2,837,922 + 1,505.05(X)
(12) Transportation	Y = 0
(13) Comm & Public Utilities	Y = 0
(14) Electric Generation	Y = 0
(15) Retail	Y = -4,338,693 + 2,216.9(X)
(16) Fin, Ins, Real Estate	Y = 0
(17) Business & Personal Service	Y = -1,443,974 + 737.82
(18) Prof & Social Service	Y = 0
(19) Government	Y = 0
(20) Households	Y = -8,298,848 + 4,267.82(X)

[a]Robust regressions with intercept adjustment technique.

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

Sector	Equation
(1) Ag, Livestock	Y = -610,346.3 + 342.996(X)
(2) Ag, Crops	Y = -225,423.6 + 124.38(X)
(3) Metal Mining	Y = -51,072.02 + 27.5895(X)
(4) Coal Mining	Y = 0
(5) Pet/NG Exp/Ext	Y = 0
(6) Nonmetallic Mining	Y = 6,000[b]
(7) Construction	Y = -974,727.9 + 507.21(X)
(8) Lumber	Y = -11,621,760 + 6,019.09(X)
(9) Ag Proc & Misc Manufacturing	Y = -4,848,405 + 2,517.31(X)
(10) Pet Refining	Y = 0
(11) Metal Processing	Y = -5,368.727 + 4.77017(X)
(12) Transportation	Y = 0
(13) Comm & Public Utilities	Y = 0
(14) Electric Generation	Y = 0
(15) Retail	Y = -4,801,855 + 2,453.82(X)
(16) Fin, Ins, Real Estate	Y = 0
(17) Business & Personal Service	Y = -1,611,683 + 823.534(X)
(18) Prof & Social Service	Y = 0
(19) Government	Y = 0
(20) Households	Y = -14,579,660 + 7,495.75(X)

[a]Robust regressions with intercept adjustment technique.
[b]The average of the last three years.

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

Sector	Equation
(1) Ag, Livestock	Y = -79,540.56 + 46.0603(X)
(2) Ag, Crops	Y = -137,803.9 + 74.2521(X)
(3) Metal Mining	Y = 0
(4) Coal Mining	Y = 0
(5) Pet/NG Exp/Ext	Y = 0
(6) Nonmetallic Mining	Y = 0
(7) Construction	Y = -28,382.48 + 19.8934(X)
(8) Lumber	Y = -12,743,630 + 6,533.82(X)
(9) Ag Proc & Misc Manufacturing	Y = -5,180,845 + 2,672.47(X)
(10) Pet Refining	Y = 0
(11) Metal Processing	Y = 0
(12) Transportation	Y = 0
(13) Comm & Public Utilities	Y = 0
(14) Electric Generation	Y = 0
(15) Retail	Y = -5,399,542 + 2,758.97(X)
(16) Fin, Ins, Real Estate	Y = 0
(17) Business & Personal Service	Y = -1,795,682 + 917.551(X)
(18) Prof & Social Service	Y = 0
(19) Government	Y = 0
(20) Households	Y = -6,546,626 + 3,376.37(X)

[a]Robust regressions with intercept adjustment technique.

APPENDIX TABLE 23. REGRESSION EQUATIONS[a] FOR PROJECTING FINAL DEMAND VECTORS FOR 20-SECTOR MONTANA I-O MODEL, MONTANA (1980 = BASE DOLLARS), THOUSAND DOLLARS

Sector	Equation
(1) Ag, Livestock	Y = -24,778,530 + 12,935.9(X)
(2) Ag, Crops	Y = -24,148,030 + 12,573.3(X)
(3) Metal Mining	Y = 436,884.9 - 201.29(X)
(4) Coal Mining	Y = -22,300,580 + 11,376.3(X)
(5) Pet/NG Exp/Ext	Y = -12,625,200 + 6,500.24(X)
(6) Nonmetallic Mining	Y = -2,829,416 + 1,460.71(X)
(7) Construction	Y = -3,265,076 + 1,710.74(X)
(8) Lumber	Y = -27,667,380 + 14,247.4(X)
(9) Ag Proc & Misc Manufacturing	Y = -25,581,970 + 13,255.1(X)
(10) Pet Refining	Y = -48,072,000 + 24,613.4(X)
(11) Metal Processing	Y = -3,239,381 + 1,714.18(X)
(12) Transportation	Y = 0
(13) Comm & Public Utilities	Y = 0
(14) Electric Generation	Y = 23,100[b]
(15) Retail	Y = -47,048,590 + 24,040.4(X)
(16) Fin, Ins, Real Estate	Y = 0
(17) Business & Personal Service	Y = -15,699,030 + 8,021.62(X)
(18) Prof & Social Service	Y = 0
(19) Government	Y = 0
(20) Households	Y = -89,938,700 + 46,290(X)

[a]Robust regressions with intercept adjustment technique.
[b]The average of the last three years.

APPENDIX TABLE 24. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MONTANA REGION 2, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS), MILLION DOLLARS

Sector	1981	1985	1990	1995	2000	2005
(1) Ag, Livestock	128.4	138.2	150.4	162.6	174.9	187.1
(2) Ag, Crops	50.6	54.0	58.3	62.5	66.8	71.1
(3) Metal Mining	---	---	---	---	---	---
(4) Coal Mining	101.3	121.9	147.7	173.6	199.4	225.2
(5) Pet/NG Exp/Ext	97.4	111.8	129.8	147.8	165.8	183.8
(6) Nonmetallic Mining	3.6	3.8	4.1	4.3	4.6	4.9
(7) Construction	5.7	5.8	5.9	6.1	6.2	6.3
(8) Lumber & Assoc Prod	---	---	---	---	---	---
(9) Ag Proc & Misc Mfg	8.6	9.6	10.7	11.8	13.0	14.1
(10) Pet Refining	---	---	---	---	---	---
(11) Metal Processing	---	---	---	---	---	---
(14) Electric Generation	23.1	23.1	23.1	23.1	23.1	23.1
(15) Retail	13.8	16.2	19.2	22.3	25.3	28.3
(17) Bus & Pers Service	4.6	5.4	6.4	7.4	8.4	9.4
(20) Households	80.3	88.0	97.7	107.4	117.0	126.7

APPENDIX TABLE 25. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MONTANA REGION 3, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS), MILLION DOLLARS

Sector	1981	1985	1990	1995	2000	2005
(1) Ag, Livestock	74.1	77.6	82.0	86.3	90.7	95.1
(2) Ag, Crops	123.8	135.6	150.3	165.0	179.7	194.4
(3) Metal Mining	---	---	---	---	---	---
(4) Coal Mining	---	---	---	---	---	---
(5) Pet/NG Exp/Ext	13.5	15.2	17.3	19.4	21.5	23.6
(6) Nonmetallic Mining	2.5	2.5	2.5	2.6	2.6	2.6
(7) Construction	6.0	6.1	6.3	6.5	6.8	7.0
(8) Lumber & Assoc Prod	---	---	---	---	---	---
(9) Ag Proc & Misc Mfg	16.4	18.0	20.0	22.0	24.0	26.1
(10) Pet Refining	---	---	---	---	---	---
(11) Metal Processing	7.8	7.9	8.1	8.2	8.3	8.4
(14) Electric Generation	---	---	---	---	---	---
(15) Retail	21.1	24.8	29.4	34.0	38.6	43.2
(17) Bus & Pers Service	7.0	8.2	9.8	11.3	12.8	14.4
(20) Households	94.1	104.7	118.1	131.5	144.8	158.2

APPENDIX TABLE 26. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MONTANA REGION 4, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS), MILLION DOLLARS

Sector	1981	1985	1990	1995	2000	2005
(1) Ag, Livestock	42.9	46.0	49.9	53.7	57.6	61.4
(2) Ag, Crops	26.7	27.8	29.1	30.4	31.7	33.0
(3) Metal Mining	0.6	0.6	0.7	0.7	0.7	0.7
(4) Coal Mining	---	---	---	---	---	---
(5) Pet/NG Exp/Ext	0.7	0.7	0.7	0.8	0.8	0.8
(6) Nonmetallic Mining	0.8	0.8	0.8	0.8	0.8	0.8
(7) Construction	2.7	2.8	3.0	3.2	3.4	3.6
(8) Lumber & Assoc Prod	2.6	2.9	3.3	3.6	4.0	4.4
(9) Ag Proc & Misc Mfg	5.9	6.3	6.7	7.2	7.7	8.2
(10) Pet Refining	---	---	---	---	---	---
(11) Metal Processing	---	---	---	---	---	---
(14) Electric Generation	---	---	---	---	---	---
(15) Retail	8.2	9.6	11.4	13.2	15.0	16.8
(17) Bus & Pers Service	2.7	3.2	3.8	4.4	5.0	5.6
(20) Households	24.1	26.7	29.9	33.2	36.4	39.6

APPENDIX TABLE 27. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MONTANA REGION 5, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS), MILLION DOLLARS

Sector	1981	1985	1990	1995	2000	2005
(1) Ag, Livestock	151.3	163.7	179.2	194.8	210.3	225.8
(2) Ag, Crops	77.1	79.7	83.1	86.5	89.8	93.2
(3) Metal Mining	---	---	---	---	---	---
(4) Coal Mining	121 0	145.7	176.6	207.4	238.3	269.2
(5) Pet/NG Exp/Ext	---	---	---	---	---	---
(6) Nonmetallic Mining	1.5	1.8	2.2	2.5	2.9	3.3
(7) Construction	17.9	18.4	19.1	19.8	20.5	21.2
(8) Lumber & Assoc Prod	1.8	2.2	2.7	3.2	3.7	4.1
(9) Ag Proc & Misc Mfg	163.5	177.9	195.8	213.7	231.6	249.5
(10) Pet Refining	592.8	682.3	794.2	906.1	1,018.1	1,130.0
(11) Metal Processing	---	---	---	---	---	---
(14) Electric Generation	---	---	---	---	---	---
(15) Retail	90.9	106.7	126.6	146.4	166.2	186.1
(17) Bus & Pers Service	30.3	35.5	42.1	48.7	55.3	61.9
(20) Households	248.5	274.2	306.3	338.4	370.5	402.6

APPENDIX TABLE 28. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MONTANA REGION 6, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS), MILLION DOLLARS

Sector	1981	1985	1990	1995	2000	2005
(1) Ag, Livestock	126.2	133.5	142.6	151.7	160.7	169.8
(2) Ag, Crops	236.2	257.7	284.6	311.5	338.4	365.2
(3) Metal Mining	1.2	1.2	1.2	1.2	1.2	1.2
(4) Coal Mining	---	---	---	---	---	---
(5) Pet/NG Exp/Ext	45.7	50.0	55.4	60.8	66.2	71.6
(6) Nonmetallic Mining	0.3	0.4	0.5	0.5	0.6	0.7
(7) Construction	14.4	13.8	13.2	12.5	11.8	11.2
(8) Lumber & Assoc Prod	7.9	8.6	9.6	10.5	11.5	12.4
(9) Ag Proc & Misc Mfg	83.7	87.0	91.1	95.2	99.3	103.4
(10) Pet Refining	52.7	59.7	68.5	77.3	86.1	94.8
(11) Metal Processing	---	---	---	---	---	---
(14) Electric Generation	---	---	---	---	---	---
(15) Retail	81.9	96.2	114.1	132.0	149.9	167.8
(17) Bus & Pers Service	27.2	32.0	38.0	43.9	49.9	55.9
(20) Households	323.5	356.1	397.0	437.8	478.6	519.4

APPENDIX TABLE 29. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MONTANA REGION 7, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS), MILLION DOLLARS

Sector	1981	1985	1990	1995	2000	2005
(1) Ag, Livestock	54.1	57.1	60.8	64.6	68.4	72.1
(2) Ag, Crops	22.5	23.3	24.2	25.2	26.2	27.1
(3) Metal Mining	---	---	---	---	---	---
(4) Coal Mining	---	---	---	---	---	---
(5) Pet/NG Exp/Ext	---	---	---	---	---	---
(6) Nonmetallic Mining	18.4	20.3	22.7	25.1	27.5	29.8
(7) Construction	7.0	7.2	7.5	7.8	8.1	8.3
(8) Lumber & Assoc Prod	18.3	21.0	24.2	27.5	30.8	34.1
(9) Ag Proc & Misc Mfg	31.6	35.3	40.0	44.7	49.4	54.0
(10) Pet Refining	---	---	---	---	---	---
(11) Metal Processing	---	---	---	---	---	---
(14) Electric Generation	---	---	---	---	---	---
(15) Retail	88.7	104.2	123.6	143.0	162.3	181.7
(17) Bus & Pers Service	29.5	34.7	41.2	47.6	54.1	60.5
(20) Households	84.9	94.6	106.6	118.6	130.6	142.7

APPENDIX TABLE 30. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MONTANA REGION 8, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS), MILLION DOLLARS

Sector	1981	1985	1990	1995	2000	2005
(1) Ag, Livestock	28.1	29.2	30.5	31.8	33.2	34.5
(2) Ag, Crops	14.5	15.6	17.0	18.4	19.9	21.3
(3) Metal Mining	1.3	1.3	1.3	1.3	1.3	1.3
(4) Coal Mining	---	---	---	---	---	---
(5) Pet/NG Exp/Ext	---	---	---	---	---	---
(6) Nonmetallic Mining	19.5	23.3	28.0	32.7	37.3	42.0
(7) Construction	13.5	14.7	16.3	17.8	19.4	20.9
(8) Lumber & Assoc Prod	15.9	17.4	19.3	21.2	23.1	25.0
(9) Ag Proc & Misc Mfg	35.5	39.5	44.5	49.5	54.5	59.5
(10) Pet Refining	---	---	---	---	---	---
(11) Metal Processing	0.3	0.3	0.4	0.4	0.5	0.5
(14) Electric Generation	---	---	---	---	---	---
(15) Retail	39.7	46.7	55.3	64.0	72.7	81.4
(17) Bus & Pers Service	13.2	15.5	18.4	21.3	24.1	27.0
(20) Households	215.4	241.6	274.2	306.9	339.6	372.3

APPENDIX TABLE 31. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MONTANA REGION 9, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS), MILLION DOLLARS

Sector	1981	1985	1990	1995	2000	2005
(1) Ag, Livestock	75.9	80.9	87.2	93.5	99.8	106.2
(2) Ag, Crops	11.5	12.0	12.6	13.3	13.9	14.5
(3) Metal Mining	32.9	34.6	36.7	38.9	41.0	43.2
(4) Coal Mining	---	---	---	---	---	---
(5) Pet/NG Exp/Ext	---	---	---	---	---	---
(6) Nonmetallic Mining	10.1	10.3	10.5	10.7	10.9	11.1
(7) Construction	8.0	8.5	9.2	9.8	10.4	11.0
(8) Lumber & Assoc Prod	5.8	6.3	6.9	7.4	8.0	8.6
(9) Ag Proc & Misc Mfg	47.3	47.6	48.0	48.4	48.9	49.3
(10) Pet Refining	---	---	---	---	---	---
(11) Metal Processing	142.0	148.0	155.6	163.1	170.6	178.1
(14) Electric Generation	---	---	---	---	---	---
(15) Retail	50.7	59.6	70.7	81.8	92.8	103.9
(17) Bus & Pers Service	16.9	19.8	23.5	27.2	30.9	34.6
(20) Households	151.4	168.5	189.8	211.1	232.5	253.8

APPENDIX TABLE 32. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MONTANA REGION 10, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS), MILLION DOLLARS

Sector	1981	1985	1990	1995	2000	2005
(1) Ag, Livestock	68.7	70.1	71.8	73.5	75.3	77.0
(2) Ag, Crops	20.8	21.3	21.9	22.5	23.2	23.8
(3) Metal Mining	3.5	3.6	3.8	3.9	4.0	4.2
(4) Coal Mining	---	---	---	---	---	---
(5) Pet/NG Exp/Ext	---	---	---	---	---	---
(6) Nonmetallic Mining	6.0	6.0	6.0	6.0	6.0	6.0
(7) Construction	29.5	31.5	34.1	36.6	39.1	41.7
(8) Lumber & Assoc Prod	296.0	320.1	350.2	380.3	410.4	440.4
(9) Ag Proc & Misc Mfg	135.8	145.9	158.5	171.1	183.6	196.2
(10) Pet Refining	---	---	---	---	---	---
(11) Metal Processing	4.1	4.1	4.1	4.1	4.2	4.2
(14) Electric Generation	---	---	---	---	---	---
(15) Retail	56.7	66.5	78.7	91.0	103.3	115.6
(17) Bus & Pers Service	18.9	22.2	26.3	30.4	34.5	38.6
(20) Households	261.9	291.9	329.3	366.8	404.3	441.8

APPENDIX TABLE 33. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MONTANA REGION 11, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS), MILLION DOLLARS

Sector	1981	1985	1990	1995	2000	2005
(1) Ag, Livestock	11.6	11.8	12.0	12.3	12.5	12.7
(2) Ag, Crops	9.2	9.5	9.8	10.2	10.6	10.9
(3) Metal Mining	---	---	---	---	---	---
(4) Coal Mining	---	---	---	---	---	---
(5) Pet/NG Exp/Ext	---	---	---	---	---	---
(6) Nonmetallic Mining	---	---	---	---	---	---
(7) Construction	11.0	11.1	11.2	11.3	11.4	11.5
(8) Lumber & Assoc Prod	193.3	219.4	252.1	284.8	317.4	350.1
(9) Ag Proc & Misc Mfg	110.6	121 3	134.6	148.0	161.4	174.7
(10) Pet Refining	---	---	---	---	---	---
(11) Metal Processing	---	---	---	---	---	---
(14) Electric Generation	---	---	---	---	---	---
(15) Retail	63.2	74.2	88.0	101.8	115.6	129.4
(17) Bus & Pers Service	21.0	24.7	29.3	33.9	38.5	43.0
(20) Households	138.5	152.0	168.9	185.8	202.7	219.6

APPENDIX TABLE 34. PROJECTED FINAL DEMAND VECTORS FOR BASIC ECONOMIC SECTORS, MONTANA, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS), MILLION DOLLARS

Sector	1981	1985	1990	1995	2000	2005
(1) Ag, Livestock	834.5	886.2	950.9	1,015.6	1,080.3	1,145.0
(2) Ag, Crops	747.1	797.3	860.2	923.1	985.9	1,048.8
(3) Metal Mining	38.3	37.5	36.5	35.5	34.5	33.5
(4) Coal Mining	224.4	269.9	326.8	383.7	440.6	497.5
(5) Pet/NG Exp/Ext	245.2	271.2	303.7	336.2	368.7	401.2
(6) Nonmetallic Mining	62.7	68.6	75.9	83.2	90.5	97.8
(7) Construction	122.1	129.0	137.5	146.1	154.6	163.2
(8) Lumber & Assoc Prod	542.4	599.4	670.6	741.9	813.1	884.4
(9) Ag Proc & Misc Mfg	663.1	716.1	782.4	848.6	914.9	981.2
(10) Pet Refining	662.5	760.9	884.0	1,007.1	1,130.1	1,253.2
(11) Metal Processing	154.6	161.5	170.1	178.6	187.2	195.8
(14) Electric Generation	23.1	23.1	23.1	23.1	23.1	23.1
(15) Retail	551.4	647.5	767.7	887.9	1,008.1	1,128.3
(17) Bus & Pers Service	183.7	215.8	255.9	296.0	336.1	376.2
(20) Households	1,715.5	1,900.6	2,132.1	2,363.5	2,595.0	2,826.4

APPENDIX TABLE 35. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MONTANA REGION 2, 1960-1980, (1980 = BASE DOLLARS), MILLION 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	(12) Trans	(13) Coms & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) house-holds	TOTAL
1960	113.2	72.8	--	--	47.1	1.6	23.7	--	64.3	2.4	--	2.9	17.0	--	128.1	26.6	11.4	12.7	16.9	190.2	730.8
1961	105.6	64.8	--	.2	42.6	1.5	23.2	--	60.8	.7	--	2.8	16.9	--	126.4	26.3	11.3	12.8	16.8	192.7	705.3
1962	79.5	63.4	--	.2	41.4	1.4	22.1	--	50.0	1.6	--	2.5	14.9	--	112.9	23.2	10.4	11.1	14.7	168.0	617.2
1963	86.3	76.2	--	.2	42.8	1.6	25.7	--	55.2	2.2	--	2.8	17.0	--	130.7	27.0	12.0	12.9	17.0	194.7	704.1
1964	94.9	74.0	--	.1	38.9	1.6	26.9	--	59.2	.4	--	2.7	16.7	--	128.8	26.5	11.8	12.6	16.7	169.7	701.3
1965	109.5	71.6	--	.2	35.5	1.8	28.6	--	65.6	.3	--	2.9	17.9	--	137.1	28.3	12.7	13.6	17.9	205.9	743.3
1966	127.2	83.3	--	.2	34.9	1.8	28.0	--	75.7	.4	--	3.1	19.4	--	150.5	31.0	13.8	14.7	19.6	221.7	826.2
1967	109.7	81.9	--	.1	39.8	1.9	28.3	--	67.7	.3	--	3.1	19.3	--	149.5	30.7	13.9	14.7	19.4	222.6	802.8
1968	123.4	85.4	--	2.2	83.3	3.2	38.1	--	77.3	.1	--	4.1	23.3	--	170.8	35.1	15.7	17.0	22.4	256.1	964.6
1969	142.9	90.2	--	--	71.1	2.5	39.6	--	83.8	.1	--	4.1	23.8	--	177.6	36.4	16.4	17.6	23.2	265.1	994.1
1970	129.9	89.6	--	9.0	52.9	2.3	35.9	--	79.4	.4	--	3.7	22.8	--	173.3	35.3	16.3	17.0	22.4	256.5	946.5
1971	140.6	87.0	--	22.4	48.1	2.2	32.2	--	84.6	.5	--	3.8	23.6	--	178.5	36.2	16.8	17.7	23.1	265.4	982.5
1972	162.9	109.9	--	23.3	48.1	2.7	30.1	--	97.4	.5	--	4.2	26.7	--	204.5	41.6	19.2	20.1	26.4	300.7	1,118.2
1973	155.5	135.6	--	29.1	56.6	3.5	47.5	--	110.5	.5	--	5.0	31.7	--	243.7	49.6	22.5	23.8	31.4	355.8	1,332.2
1974	149.3	143.1	--	29.6	111.7	4.1	45.8	--	96.1	.5	--	5.6	32.6	--	243.9	49.2	22.9	23.5	31.0	351.7	1,340.6
1975	129.4	112.3	--	58.8	111.8	3.9	53.7	--	87.5	1.0	--	5.5	32.6	5.8	234.5	47.4	22.1	23.4	30.1	348.9	1,308.5
1976	125.8	98.2	--	76.1	111.8	3.1	48.8	--	85.3	1.4	--	5.5	32.6	18.0	230.4	47.0	21.7	23.4	29.8	347.6	1,306.3
1977	123.4	93.4	--	76.3	105.0	3.3	38.9	--	88.4	1.4	--	5.4	32.7	17.4	230.9	47.1	22.0	23.7	30.0	351.7	1,306.8
1978	164.9	119.2	--	77.1	90.2	3.9	44.0	--	103.8	1.5	--	5.7	36.0	24.7	260.8	54.0	24.2	26.6	34.0	395.2	1,465.8
1979	177.9	113.4	--	105.4	83.5	6.0	40.4	--	111.4	1.9	--	5.9	37.4	22.4	265.1	54.9	24.1	27.5	34.8	405.5	1,517.5
1980	157.4	109.4	--	101.5	123.9	9.5	44.2	--	101.0	1.9	--	6.6	40.9	22.2	282.1	58.6	25.7	29.8	37.3	443.2	1,595.1

APPENDIX TABLE 36. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MONTANA REGION 3, 1960-1980, (1980 = BASE DOLLARS), MILLION 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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) House-holds	TOTAL
1960	73.9	112.9	--	--	1.1	1.4	18.1	--	59.9	1.3	--	2.4	18.2	--	153.9	31.6	14.3	14.6	19.4	221.9	744.7
1961	78.4	93.2	--	--	1.0	1.4	18.4	--	60.2	1.5	--	2.4	18.8	--	154.8	32.0	14.4	15.4	19.9	235.2	746.8
1962	75.9	113.4	--	--	.8	1.5	19.1	--	61.7	1.2	--	2.5	19.2	--	162.1	33.2	15.2	15.5	20.4	235.8	777.5
1963	70.2	122.6	--	--	.6	1.6	21.2	--	60.7	.8	--	2.6	20.9	--	176.4	36.2	16.5	17.0	22.2	259.4	823.0
1964	73.3	113.5	.2	--	.6	1.5	20.6	--	61.2	.5	--	2.5	19.5	--	165.2	33.6	15.8	15.8	20.7	239.8	784.1
1965	93.3	113.2	--	--	.6	1.7	22.5	--	66.0	.6	--	2.7	21.3	--	178.2	36.4	16.9	17.3	22.5	264.3	848.0
1966	96.9	141.0	--	--	.6	1.9	23.7	--	75.6	.9	--	3.1	23.4	--	199.4	40.6	18.9	18.9	25.0	286.4	956.2
1967	92.6	131.4	--	--	.6	1.8	24.1	--	72.4	.9	--	3.1	24.0	--	202.0	41.2	19.4	19.5	25.4	297.5	955.9
1968	99.0	116.0	--	--	.6	1.9	24.5	--	73.7	.9	--	3.2	25.2	--	207.5	42.4	20.0	20.7	26.4	316.6	978.5
1969	98.3	117.2	--	--	.6	1.8	21.8	--	83.0	.8	--	3.0	23.2	--	194.6	39.2	19.2	18.8	24.4	285.9	931.6
1970	96.1	140.1	--	--	.6	2.0	25.2	--	86.1	.8	--	3.4	26.5	--	223.3	45.2	21.9	21.5	27.9	328.8	1,049.4
1971	104.2	131.7	--	--	.6	2.1	26.7	--	89.5	.9	--	3.5	27.9	--	232.2	47.0	22.9	22.9	29.3	349.6	1,050.9
1972	119.5	173.5	--	--	.8	2.6	35.8	--	98.0	.7	--	4.2	33.6	--	281.4	57.2	27.2	27.4	35.4	419.2	1,316.5
1973	133.6	219.1	--	--	4.8	2.8	36.4	--	105.7	--	--	4.8	37.5	--	318.7	64.6	30.7	30.3	39.7	462.1	1,490.6
1974	146.0	254.7	--	--	4.7	3.0	36.2	--	98.7	--	--	4.9	38.4	--	334.3	67.3	32.6	30.9	40.9	470.8	1,523.3
1975	92.8	216.0	--	--	5.8	2.8	34.4	--	91.9	--	--	4.5	35.3	--	304.7	61.0	30.2	28.5	37.3	435.2	1,380.4
1976	90.3	183.9	--	--	6.2	2.4	32.8	--	86.6	--	--	4.1	32.5	--	278.9	55.5	28.2	26.3	34.1	401.2	1,262.7
1977	84.4	152.9	--	--	8.8	2.1	28.1	--	79.7	--	--	3.6	27.7	--	239.3	46.9	25.0	22.2	28.9	338.3	1,087.8
1978	108.5	189.8	--	--	10.0	3.0	34.2	--	95.2	--	--	4.2	32.1	--	275.7	54.9	27.7	25.5	33.7	388.7	1,253.4
1979	114.5	160.4	--	--	16.0	7.6	28.8	--	95.4	--	1.7	4.2	29.9	--	248.8	49.6	25.0	23.3	30.8	354.4	1,190.4
1980	101.5	162.6	--	--	15.8	4.3	34.8	--	88.3	--	22.1	4.6	29.9	--	248.8	49.4	25.3	23.2	30.9	350.5	1,191.9

APPENDIX TABLE 37. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MONTANA REGION 4, 1960-1980, (1980 = BASE DOLLARS), MILLION 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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) House-holds	TOTAL
1960	25.6	37.5	--	--	.3	1.1	6 1	1.0	26.4	--	--	.9	6.1	--	51.1	10.4	4.9	4.7	6.4	70.8	263.3
1961	23.6	34.8	--	--	.4	1.2	6.4	1 1	27.4	--	--	.9	6.4	--	53.0	10.8	5.1	5.1	6.8	75.7	273.6
1962	29.5	39.0	--	--	.4	1.2	6.2	1.2	23.9	--	--	.9	6.1	--	51.8	10.5	5.2	4.8	6.4	71.2	258.2
1963	30.3	40.3	--	--	.4	1.4	6.9	1.3	24.1	--	--	.9	6.6	--	55.3	11.2	5.5	5.1	6.9	76.7	272.9
1964	30.5	35.2	--	--	.4	1.2	6.7	1.5	23.6	--	--	.9	6.1	--	51.4	10.3	5.2	4.8	6.4	70.8	256.2
1965	35.7	35.6	--	--	.3	1.1	7.3	1.3	25 6	--	--	.9	6.5	--	54.8	11.0	5.5	5.1	6.8	76.8	274.5
1966	41.8	42.3	--	--	.3	1.1	7.6	1.1	28.7	--	--	1.0	7.2	--	61.0	12.2	6.1	5.6	7.6	84.0	307.7
1967	35.6	40.4	--	--	.3	1.0	7.4	.8	25.6	--	--	1.0	7.0	--	59.6	11.9	6.1	5.5	7.4	83.0	292.7
1968	41.4	37.7	--	--	.3	1.1	6.1	.9	27.9	--	--	1 0	7.3	--	61.3	12.2	6.3	5.8	7.7	86.8	303.8
1969	42.7	36.8	--	--	.3	1.1	6.5	.9	28.4	--	--	1.0	7.4	--	62.1	12.4	6.5	5.9	7.7	88.0	307.6
1970	41.4	38.7	--	--	.2	1.0	6.5	.6	28.2	--	--	1.0	7.5	--	63.7	12.6	6.6	5.9	7.8	89.2	310.9
1971	47.7	39.0	--	--	.3	1.0	6.8	1.0	30.2	--	--	1.1	8.0	--	67.1	13.2	7.1	6.3	8.3	94.2	331.3
1972	53.1	49.6	--	--	.3	1.2	8.5	2.0	34.3	--	--	1.3	8.9	--	75.9	15.0	8.0	7.0	9.3	103.9	377.4
1973	57.4	59.7	--	--	.3	1.3	9.3	2.6	38.0	--	--	1.5	10.3	--	88.0	17.4	9.3	8.1	10.8	119.9	433.8
1974	43.0	66.2	--	--	.4	1.3	10 3	1.9	33.5	--	--	1.4	10.1	--	88.7	17.3	9.5	7.8	10.6	117.4	419.5
1975	43.3	52.9	--	--	.4	1.2	8 8	1.5	32.1	--	--	1.3	9.1	--	79.0	15.3	8.6	7.1	9.4	106.1	373.2
1976	37.5	44.1	--	--	.4	1.5	13.0	1.8	30.0	--	--	1.2	8.6	--	74.0	14.2	8.3	6.7	8.8	100.1	350.4
1977	42.8	42.5	--	--	.6	.8	8.0	2.3	31.4	--	--	1.2	8.7	--	74.5	14.3	8.5	6.8	9.0	102.3	353.6
1978	54.9	54 1	--	--	.6	1.7	12.2	3.0	39.6	--	--	1.5	10.4	--	88.0	17.3	9.5	8.2	10.8	121.4	433 2
1979	59.5	48.1	1.1	--	.7	1.6	10.2	3.0	41.5	--	--	1.5	10.1	--	83.6	16.6	9.0	7.9	10.4	117.4	422.6
1980	52.3	46 9	1.0	--	1.0	1.5	10.7	1.8	37.3	--	--	1.4	9.8	--	81.8	16.1	8.8	7.6	10.1	114.4	402.4

APPENDIX TABLE 38. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MONTANA REGION 5, 1960-1980, (1980 = BASE DOLLARS), MILLION 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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) House-holds	TOTAL
1960	167.7	163.6	11.5	1.8	11.5	2.9	41.9	.8	226.2	120.1	.1	6.0	36.1	--	295.3	58.2	31.3	27.7	36.9	418.4	1,638.0
1961	135.1	149.6	8.7	1.5	11.4	3.0	43.3	.7	220 1	119.1	.1	5.9	37.7	--	306.6	60.4	32.8	29.5	38.4	448.5	1,650.1
1962	134.5	167.7	--	1.1	13.4	3.0	44.1	.5	223.2	140.5	--	5.6	37.1	--	308.9	60.0	33.6	28.7	37.9	435.2	1,674.9
1963	120.2	175.0	--	.8	12.7	3.2	49.1	.5	218.8	133.1	--	5.7	39.5	--	329.6	64.1	35.9	30.9	40.3	470.3	1,729.6
1964	132.4	172.3	--	.7	14.7	3.2	51.6	.5	224.5	153.7	--	5 8	38.7	--	324.6	62.3	36.1	29.8	39.4	452.8	1,743.0
1965	152.0	168.8	--	1.0	15.0	3.5	56.4	.5	232.2	157.2	--	6.2	42 2	--	349.9	67.4	38.8	32.8	42.8	498.3	1,864.9
1966	159.3	183.8	--	1.3	14.7	3.5	53.8	.5	244 0	154.1	--	6.4	43.1	--	361.6	69.1	40.6	33.2	43.8	502.4	1,925.3
1967	159.6	186.7	--	.7	16.1	3.7	56.2	.3	239.2	168.4	--	6.7	45.9	--	384.8	73.5	43.4	35.7	46.6	543.3	2,010.5
1968	164.9	183.8	--	--	16.8	3.9	64.7	.4	244.7	176.2	--	7.0	47.1	--	395.3	74.9	45.2	36.5	47.6	555.7	2,064.5
1969	173.0	181.5	--	--	16.1	4.6	68.5	.9	253.3	168.7	--	7.2	48.9	--	410.4	77.3	47.6	37.9	49.2	576.7	2,121.7
1970	193.4	195.1	.2	.3	17.1	5.5	69.1	1.3	274.1	178.8	--	7.8	52.5	--	441.4	83.0	51.5	40.6	52.9	616.7	2,287.1
1971	210.5	192.3	.2	.3	18.5	4 5	68.3	3.0	279.2	193.9	--	8.0	53.9	--	453.2	83.7	53.9	41.6	54.1	631.9	2,352.0
1972	252.2	222.9	--	2.8	20.3	5.2	52.4	2.4	311 7	212.3	--	8.6	57.2	--	484.7	90.3	57.6	43.8	57.7	663.2	2,545.3
1973	256.0	242.1	--	16.4	23.0	5.0	73.0	2.7	325.7	241.2	--	9.5	63.5	--	536.2	99.9	63.5	48.7	63.7	737.5	2,807.8
1974	214.6	292.2	--	46.7	35.5	5.7	77.2	1.4	329.3	371.7	--	10.8	71.6	--	601.0	111.8	70.7	54.7	71.3	829.0	3,165.1
1975	194.9	231.5	--	90.1	39.0	6.0	95.2	2.3	312.7	409.1	--	10.6	68.5	--	564.4	103.2	68.0	51.4	66.3	773.9	3,077.2
1976	187.7	211.8	--	88.4	42.7	5.8	74.5	2.1	317.1	447.1	--	10.6	67.4	--	553.7	100.7	67.7	50.6	65.1	763.2	3,056.1
1977	213.4	226.8	--	90.3	42.5	6.0	72 0	1.8	358.9	445.8	--	11 1	71.6	--	586.5	107.4	71.0	53.9	69.4	813.1	3,241.7
1978	244.0	258.3	--	79.4	41.0	6.9	86.0	1.7	386.5	429.3	--	11.9	78.2	--	635.4	119.4	73.5	59.8	76.8	904.0	3,492.0
1979	255.8	259.7	--	128.4	55.5	7.4	83.2	2.2	410.0	581.8	--	12.9	80.7	--	635.9	120.6	71.4	60.7	78.1	911.7	3,756.0
1980	226.9	247.0	--	118 4	60.9	7.2	86.8	1.2	374.3	638.5	--	12.7	77.9	--	620.1	115.8	71.6	58.3	75.2	876.6	3,669.5

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

	Sector																				
Year	(1) Ag. Livstk	(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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) House-holds	TOTAL
1960	144.8	258.9	7.9	--	16.9	3.9	58.7	3.4	193.6	20.5	.1	6.6	47.2	--	393.3	79.5	39.0	37.4	49.1	568.2	1,929.2
1961	148.4	232.8	.3	--	16.5	4.0	61.4	3.5	196.1	19.3	--	6.6	50.5	--	414.2	84.0	41.2	40.9	52.2	624.7	1,996.5
1962	140.8	258.3	--	--	16.2	4.0	61.8	3.7	198.2	20.8	--	6.6	49.3	--	412.4	82.7	41.7	39.4	51.1	599.2	1,986.2
1963	126.3	233.7	--	--	16.9	4.1	67.9	4.0	192.8	20.7	--	6.7	51.2	--	423.7	85.1	43.2	41.4	52.8	632.5	2,007.7
1964	128.5	250.9	.2	--	20.2	4.3	71.9	4.5	197.6	18.0	--	6.7	50.1	--	419.1	83.3	43.5	39.9	51.5	607.4	1,997.3
1965	151.6	293.5	.2	--	24.0	4.9	81.8	3.9	213.4	20.3	--	7.7	57.7	--	480.4	96.0	49.0	46.2	59.5	704.7	2,264.5
1966	156.5	336.2	--	--	27.0	5.0	79.8	3.3	230.1	18.9	--	8.2	60.6	--	513.7	102.1	52.5	48.0	62.9	730.6	2,445.5
1967	162.7	319.3	--	--	23.2	5.1	81.4	2.5	217.9	20.6	--	8.3	63.3	--	532.4	105.8	54.7	50.8	65.4	775.5	2,488.8
1968	174.4	293.7	.2	--	22.8	4.8	70.2	2.7	221.4	20.9	--	8.2	63.2	--	526.8	104.4	55.2	51.0	65.0	780.3	2,455.0
1969	176.7	269.6	.5	--	24.3	5.1	84.0	2.8	219.2	19.0	--	8.3	63.1	--	526.4	103.4	56.1	50.7	64.6	776.0	2,449.8
1970	174.9	314.0	.2	--	24.5	5.7	96.3	1.7	221.2	20.7	--	8.9	68.0	--	573.5	112.3	61.0	54.5	69.8	833.4	2,640.3
1971	195.0	297.8	.2	--	25.5	5.9	103.7	2.9	226.7	21.9	--	9.1	69.7	--	584.4	114.0	63.0	55.8	71.1	852.7	2,699.3
1972	233.9	380.6	--	--	21.9	15.9	432.4	4.3	261.1	22.5	--	13.4	96.0	--	784.3	154.2	79.3	74.1	95.6	1,128.0	3,797.5
1973	242.2	414.3	--	--	20.3	6.6	84.7	8.0	260.6	27.8	--	10.9	83.5	--	713.3	139.4	77.0	67.1	86.4	1,022.6	3,264.7
1974	182.1	453.2	--	--	36.8	6.4	96.2	5.7	250.8	45.0	--	11.2	85.0	--	735.6	142.1	80.6	67.6	87.6	1,032.0	3,317.9
1975	178.7	426.2	.1	--	34.4	6.6	98.5	3.1	255.1	44.7	--	10.9	82.9	--	717.5	138.0	79.2	65.9	85.2	1,007.4	3,234.5
1976	178.9	396.1	--	--	38.3	6.6	101.4	5.4	252.3	47.0	--	10.7	80.5	--	694.2	132.7	78.1	63.7	82.2	972.1	3,140.1
1977	194.2	330.6	--	--	40.1	7.4	112.0	6.8	251.7	40.5	--	12.0	98.0	--	804.6	158.1	87.6	80.8	99.3	1,244.4	3,567.8
1978	215.1	355.8	--	--	35.9	6.3	84.8	9.0	273.4	39.2	--	10.9	81.6	--	696.7	134.3	77.8	65.0	83.5	990.0	3,190.2
1979	220.9	345.3	2.2	--	50.4	6.2	89.4	8.9	275.0	49.2	--	10.9	79.9	--	668.2	129.9	73.6	63.7	81.2	970.2	3,125.0
1980	197.6	347.4	1.9	--	70.6	6.0	82.2	5.2	253.8	59.3	--	10.8	78.2	--	659.5	126.6	74.0	61.7	79.1	942.0	3,055.9

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

Year	Sector																				
	(1) Ag. Livsk	(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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) House-holds	TOTAL
1960	58.6	44.3	--	--	--	12.1	15.4	7.7	49.2	--	--	2.2	14.5	--	122.7	21.0	17.8	10.4	13.5	152.8	542.1
1961	54.6	42.1	--	--	--	11.8	16.3	8.4	48.6	--	--	2.3	15.5	--	131.4	22.4	19.3	11.3	14.4	167.5	565.9
1962	57.0	49.1	--	--	--	11.8	16.8	9.3	51.6	--	--	2.4	15.7	--	136.1	22.9	20.3	11.3	14.6	165.8	565.7
1963	51.1	46.6	--	--	--	11.1	18.4	9.7	49.9	--	--	2.4	16.3	--	141.4	23.6	21.4	11.9	15.1	175.0	593.7
1964	52.8	46.1	.2	--	--	9.6	19.2	9.1	51.8	--	--	2.4	15.7	--	140.1	22.8	21.8	11.3	14.6	166.9	584.2
1965	59.9	50.0	.2	--	--	8.7	21.3	8.9	56.2	--	--	2.6	17.3	--	154.7	25.3	23.7	12.7	16.2	187.3	645.0
1966	65.8	54.6	--	--	--	9.2	20.6	10.7	62.0	--	--	2.7	18.0	--	162.3	26.3	25.3	13.0	16.8	191.7	650.0
1967	61.8	54.1	--	--	--	7.9	21.2	11.2	60.2	--	--	2.8	18.7	--	171.0	27.5	27.0	13.8	17.6	203.2	697.8
1968	69.0	53.3	.2	--	--	12.2	20.2	13.9	63.1	--	--	3.1	20.9	--	185.8	30.0	29.6	15.2	19.3	224.4	760.1
1969	77.7	56.1	--	--	--	14.3	27.3	13.7	65.5	--	--	3.3	22.2	--	197.9	31.6	31.6	15.9	20.4	234.5	815.2
1970	77.0	58.0	--	--	--	12.3	23.4	9.3	68.0	--	--	3.2	21.8	--	201.5	31.2	32.6	15.6	20.1	231.2	805.1
1971	80.5	57.2	--	--	--	12.2	20.5	12.1	70.6	--	--	3.3	22.3	--	207.6	31.7	34.7	15.9	20.4	233.8	822.8
1972	90.9	67.3	--	--	--	13.3	21.5	13.0	78.4	--	--	3.7	24.5	--	228.2	35.1	37.7	17.5	22.6	257.6	911.1
1973	97.9	77.5	--	--	--	13.7	27.6	20.0	87.3	--	--	4.2	27.3	--	253.0	39.2	42.1	19.6	25.2	286.0	1,020.7
1974	75.8	74.6	--	--	--	16.2	28.3	14.4	79.0	--	--	4.0	26.6	--	253.7	37.5	43.5	18.6	24.1	273.3	969.4
1975	69.6	63.8	--	--	--	16.4	25.5	8.2	76.6	--	--	3.7	25.8	--	248.4	36.0	42.8	17.9	23.3	267.1	925.0
1976	72.4	62.9	--	--	--	17.5	44.5	14.4	81.9	--	--	4.2	28.4	--	266.5	39.5	45.6	20.0	25.5	295.4	1,018.7
1977	76.7	62.4	--	--	--	21.2	24.2	21.3	85.5	--	--	4.4	28.8	--	267.5	39.5	47.2	20.1	25.6	294.6	1,018.9
1978	85.6	71.7	--	--	--	18.6	28.2	22.3	94.2	--	--	4.5	29.3	--	269.6	41.2	46.1	20.9	26.6	304.8	1,064.4
1979	90.7	70.9	--	--	--	22.4	30.6	19.8	98.8	--	--	4.5	29.8	--	265.0	41.7	43.5	21.2	27.0	310.9	1,076.6
1980	50.8	67.4	--	--	--	19.2	26.8	9.7	89.8	--	--	4.1	28.3	--	263.1	39.8	43.6	20.0	25.7	298.8	1,017.1

APPENDIX TABLE 41. GROSS BUSINESS VOLUMES OF ECONOMIC SECTORS ESTIMATED BY THE INPUT-OUTPUT MODEL, MONTANA REGION 8, 1960-1980, (1980 = BASE DOLLARS), MILLION 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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) House-holds	TOTAL
1960	37.8	30.5	1.1	--	--	1.1	18.2	6.2	43.5	--	--	1.8	13.8	--	109.2	21.6	12.8	11.5	13.7	174.0	496.8
1961	38.3	30.7	4.9	--	--	1.2	20.7	7.1	45.3	--	--	2.3	16.8	--	130.4	26.2	14.8	14.2	16.7	215.7	585.1
1962	35.9	32.7	5.1	--	--	1.2	20.1	7.8	45.9	--	.1	2.2	15.6	--	122.9	24.2	14.6	12.9	15.5	196.0	553.6
1963	35.1	33.7	7.0	--	--	6.7	23.9	8.1	47.2	--	.1	2.7	18.5	--	141.1	28.1	16.4	15.1	18.0	230.0	632.5
1964	34.8	31.7	7.8	--	--	10.0	24.8	9.3	47.4	--	.1	2.7	17.7	--	133.8	26.2	16.2	14.0	16.9	211.9	605.4
1965	40.9	34.6	7.6	--	--	10.4	28.0	8.0	51.4	--	.1	2.9	20.1	--	152.1	30.0	17.8	16.1	19.3	244.6	683.8
1966	45.0	36.8	4.8	--	--	10.0	25.4	6.8	54.7	--	--	2.7	19.3	--	149.0	28.9	17.8	15.4	18.6	233.4	662.7
1967	43.3	33.5	1.6	--	--	10.6	26.9	5.1	51.3	--	--	2.7	21.1	--	164.2	31.9	19.2	17.1	20.4	261.4	712.3
1968	44.7	35.1	3.0	--	--	9.3	22.9	5.6	52.0	--	--	2.6	19.2	--	151.8	28.8	18.7	15.3	18.5	233.4	660.9
1969	41.7	34.5	4.9	--	--	13.0	32.4	5.7	53.1	--	.1	2.2	11.8	--	98.5	16.2	14.8	7.7	10.4	111.8	452.5
1970	45.2	38.4	.5	--	--	11.9	31.4	3.6	56.3	--	--	2.6	20.4	--	163.1	30.2	20.4	15.9	19.4	243.2	702.3
1971	50.1	38.1	.5	--	--	12.7	24.3	5.9	57.3	--	--	2.7	21.0	--	167.9	30.9	21.7	16.4	19.9	249.4	718.6
1972	54.8	44.8	.2	--	--	11.6	40.7	7.8	64.2	--	--	3.2	24.7	--	197.2	36.9	24.8	19.6	23.6	298.2	852.3
1973	61.0	49.4	.3	--	--	15.5	23.8	15.9	70.9	--	.1	3.6	27.8	--	218.3	41.2	28.3	22.2	26.5	335.2	940.1
1974	47.4	47.0	1.0	--	--	16.7	27.1	11.3	66.2	--	.2	3.5	27.0	--	215.0	39.6	28.4	21.2	25.5	322.6	839.5
1975	47.4	45.9	.7	--	--	18.6	42.0	9.2	70.1	--	.4	3.8	30.2	--	237.4	44.4	30.1	23.9	28.5	355.5	998.1
1976	47.8	48.9	.5	--	--	22.1	33.1	10.7	77.0	--	.1	4.0	32.2	--	250.5	47.2	31.7	25.5	30.4	390.3	1,051.9
1977	54.5	51.9	.3	--	--	22.3	48.5	13.7	82.9	--	.1	4.6	37.2	--	286.2	54.9	35.2	29.9	35.3	457.5	1,214.9
1978	50.0	57.6	.9	--	--	22.8	37.7	18.0	88.7	--	.4	4.6	35.9	--	275.2	53.1	34.2	28.8	34.1	437.2	1,198.9
1979	62.9	55.3	1.9	--	--	18.7	40.9	17.7	91.8	--	.2	4.6	36.2	--	276.2	54.1	33.3	29.5	34.8	448.3	1,266.8
1980	56.9	52.9	1.8	--	--	20.7	44.8	10.5	84.1	--	.3	4.4	35.0	--	269.6	51.8	32.6	28.1	33.4	429.8	1,155.5

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

Year	Sector (1) Ag. Lestk	(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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) House-holds	TOTAL
1960	74.1	59.9	10.0	--	--	8.5	20.8	3.9	112.2	--	.1	3.1	18.2	--	141.4	27.8	16.0	13.7	17.8	205.8	732.0
1961	71.1	59.8	12.5	--	--	8.6	25.5	4.4	114.4	--	156.9	7.7	27.8	--	181.2	37.9	19.7	19.6	27.2	284.1	1,059.2
1962	76.4	62.2	36.2	--	--	9.8	26.3	5.6	117.0	--	159.5	9.2	29.0	--	185.4	38.9	20.6	19.9	28.1	286.3	1,110.3
1963	65.2	58.7	33.7	--	--	10.8	28.3	5.7	112.1	--	140.6	8.6	28.8	--	188.1	39.0	21.1	20.1	27.9	292.6	1,082.2
1964	64.5	59.5	36.7	--	--	12.6	30.4	4.9	113.8	--	179.3	9.8	30.5	--	192.2	40.0	21.8	20.5	29.2	295.5	1,145.2
1965	78.8	65.5	43.4	--	--	5.7	34.3	5.9	119.3	--	220.2	11.5	34.3	--	216.6	45.5	24.3	23.5	33.5	338.0	1,300.3
1966	89.7	69.3	21.2	--	--	14.9	32.5	6.1	126.5	--	224.8	10.7	34.9	--	220.8	45.7	25.1	23.5	33.6	337.2	1,316.4
1967	67.6	57.0	9.2	--	--	13.2	29.6	5.5	102.6	--	112.2	6.6	28.0	--	196.0	38.6	23.4	20.0	26.9	294.8	1,031.4
1968	91.1	64.7	9.3	--	--	10.1	30.4	6.9	115.9	--	127.5	7.3	30.7	--	216.7	42.9	25.9	22.2	29.9	325.3	1,156.7
1969	101.0	71.9	13.3	--	--	12.6	47.9	6.8	130.3	--	207.7	10.2	37.1	--	247.8	49.9	29.1	25.8	35.8	373.1	1,400.1
1970	92.2	68.6	16.1	--	--	14.7	44.5	4.7	125.4	--	270.7	11.9	39.9	--	256.6	51.9	30.3	27.0	39.3	388.1	1,460.8
1971	92.5	65.0	9.2	--	--	10.7	38.5	6.1	117.7	--	171.5	8.7	34.1	--	238.6	46.3	29.6	24.0	32.9	350.1	1,275.5
1972	107.7	74.7	13.5	--	--	8.1	45.7	5.8	131.6	--	229.3	10.8	39.1	--	267.8	52.7	32.6	27.3	38.0	395.1	1,479.9
1973	114.9	81.8	24.9	--	--	9.7	39.3	7.5	139.8	--	265.4	12.7	43.3	--	291.5	57.7	35.8	29.9	42.1	431.4	1,627.7
1974	89.2	79.6	34.5	.1	--	9.6	42.4	6.1	141.2	--	337.6	15.1	46.2	--	300.4	59.5	37.7	31.0	44.6	442.6	1,716.3
1975	78.0	72.3	19.7	--	--	6.8	37.6	3.4	134.5	--	183.3	9.8	37.2	--	269.6	50.8	34.9	26.3	36.1	366.3	1,366.5
1976	93.1	76.8	23.6	--	--	10.0	41.1	5.6	143.1	--	204.9	11.0	41.1	--	291.7	55.7	37.3	28.9	39.7	422.7	1,526.0
1977	68.7	71.6	25.2	--	--	11.9	37.3	8.0	132.9	--	156.2	9.9	40.4	--	293.8	55.6	38.1	29.1	38.8	429.8	1,467.1
1978	114.1	82.1	21.4	--	--	12.3	33.3	8.1	139.3	--	129.0	9.2	40.3	--	298.1	56.8	37.6	29.5	39.0	437.2	1,467.4
1979	126.2	82.5	45.7	--	--	14.9	41.7	8.2	147.4	--	188.8	12.5	46.3	--	320.3	63.6	38.4	33.2	44.8	488.3	1,702.6
1980	110.4	75.0	41.9	--	--	12.0	37.9	4.7	131.7	--	105.9	9.6	40.4	--	298.7	57.2	36.9	29.8	39.2	445.1	1,476.4

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

Year	Sector																			
	(1) Ag. Livstk	(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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) House-holds	TOTAL
1960	99.4	94.6	3.2	--	--	12.4	49.9	178.4	168.1	--	.1	8.3	40.0	--	265.3	57.7	48.3	33.2	36.1	413.4	1,508.2
1961	100.7	96.3	3.7	--	--	11.9	53.7	188.1	171.4	--	.1	8.9	44.3	--	293.8	64.3	52.3	37.2	40.3	472.0	1,639.2
1962	104.4	99.8	2.8	--	--	13.6	55.1	206.2	174.7	--	.1	9.3	44.5	--	292.2	63.9	54.9	37.2	40.0	459.9	1,658.6
1963	97.5	95.0	.5	--	--	13.2	61.4	219.3	172.8	--	.1	9.6	47.3	--	309.6	67.8	58.3	39.8	42.4	495.6	1,730.1
1964	92.6	95.3	1.7	--	--	13.5	63.6	215.7	171.7	--	.1	9.4	45.4	--	298.0	64.7	57.3	37.9	40.5	467.4	1,674.6
1965	102.1	99.1	1.6	--	--	19.0	69.3	216.2	176.8	--	.1	10.0	49.5	--	326.4	70.6	60.1	41.2	44.3	517.2	1,803.4
1966	113.6	108.2	2.6	--	--	19.9	65.4	216.0	200.3	--	.1	10.2	50.0	--	331.4	71.2	61.0	41.1	44.7	515.3	1,853.9
1967	113.1	109.9	.8	--	--	19.7	67.2	210.2	199.4	--	.1	10.2	52.3	--	351.6	75.1	62.6	43.3	47.2	553.2	1,914.8
1968	124.5	112.6	3.4	--	--	18.5	78.5	243.8	210.8	--	2	11.4	55.9	--	372.3	79.8	69.0	46.4	50.1	592.2	2,059.4
1969	125.3	115.2	3.1	--	--	9.6	63.5	244.9	217.3	--	.2	11.1	53.9	--	365.2	77.7	69.3	45.3	48.7	564.2	2,014.4
1970	113.4	106.8	3.1	--	--	6.9	71.5	187.1	199.1	--	.2	9.6	50.4	--	355.7	73.7	62.1	42.1	46.3	547.4	1,875.4
1971	122.1	114.4	.8	--	--	8.9	87.1	215.6	215.5	--	.2	10.7	55.9	--	391.0	81.4	69.3	46.7	51.1	603.1	2,073.5
1972	136.5	122.9	.5	--	--	8.1	65.9	244.7	229.0	--	.2	11.4	57.9	--	403.5	84.1	74.8	48.7	52.8	617.4	2,158.3
1973	146.9	135.9	.8	--	--	9.0	80.8	308.9	247.3	--	.5	13.6	67.3	--	460.1	97.0	88.4	56.9	60.7	709.9	2,483.9
1974	110.4	130.0	1.6	--	--	9.8	71.1	246.4	228.8	--	.9	11.8	61.7	--	437.1	89.6	80.1	51.8	56.2	665.3	2,252.4
1975	110.6	114.1	2.8	--	--	13.5	78.6	226.6	210.9	--	1.9	11.5	60.9	--	431.3	87.8	77.3	50.7	55.3	660.0	2,193.6
1976	112.9	122.2	2.5	--	--	10.3	71.8	276.8	230.3	--	1.9	12.6	63.9	--	446.3	91.8	85.3	53.8	57.6	680.7	2,320.4
1977	115.2	133.7	1.5	--	--	10.5	96.6	309.7	264.7	--	1.6	14.1	72.8	--	504.0	104.9	94.5	61.6	65.8	783.6	2,634.9
1978	140.8	152.5	4.3	--	--	11.9	100.0	332.8	302.9	--	.2	15.3	76.7	--	525.0	110.7	98.2	64.6	69.4	817.1	2,822.2
1979	143.8	151.3	4.0	--	--	11.0	87.5	300.8	301.8	--	6.0	14.6	75.9	--	521.7	110.6	92.7	64.1	69.5	826.9	2,787.1
1980	131.2	140.0	3.6	--	--	11.3	91.7	228.8	274.2	--	6.7	12.5	67.5	--	479.6	98.8	81.2	56.2	62.3	742.7	2,455.1

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

Year	Sector (1) Ag. Lstk	(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.	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) House-holds	TOTAL
1960	32.7	52.0	.3	--	--	1.3	21.0	70.1	109.0	--	--	3.7	19.8	--	146.0	29.3	25.6	16.4	18.3	214.6	760.2
1961	34.1	52.7	--	--	--	1.5	24.0	81.9	111.8	--	--	4.2	23.2	--	168.5	34.2	29.4	19.5	21.4	256.4	862.6
1962	35.7	55.2	.3	--	--	1.5	24.2	91.8	113.9	--	.1	4.4	23.0	--	167.2	33.7	31.0	19.2	21.1	246.8	869.0
1963	34.9	55.5	--	--	--	1.7	27.5	103.8	115.2	--	.1	4.9	25.6	--	184.0	37.4	34.3	21.6	23.4	277.5	947.0
1964	33.3	54.9	.2	--	--	1.6	27.5	104.2	115.4	--	.1	4.8	24.5	--	177.5	35.5	34.2	20.5	22.2	260.0	916.4
1965	36.9	56.5	.2	--	--	1.8	30.7	116.5	117.8	--	.1	5.3	27.4	--	197.1	39.7	37.9	23.1	24.8	293.6	1,009.4
1966	40.9	64.8	.2	--	--	1.8	30.4	120.7	139.7	--	.1	5.5	28.1	--	204.0	40.7	39.5	23.5	25.4	296.0	1,051.4
1967	42.2	66.2	--	--	--	1.9	31.4	112.4	142.7	--	.1	5.5	29.7	--	219.1	43.4	40.4	24.8	27.2	321.5	1,108.4
1968	51.1	74.3	.2	--	--	2.4	37.4	152.5	163.8	--	.1	7.4	41.5	--	296.5	61.0	52.5	35.6	38.3	469.6	1,494.1
1969	47.6	70.4	.5	--	--	2.4	37.9	152.7	154.1	--	.1	7.2	38.9	--	279.6	56.5	51.9	33.1	35.5	429.3	1,397.5
1970	46.6	68.1	.2	--	--	2.2	34.5	115.5	145.4	--	.1	6.1	34.6	--	259.9	50.5	46.5	28.9	31.8	384.4	1,255.2
1971	45.5	69.7	.2	--	--	2.2	35.7	130.7	151.3	--	.1	6.5	34.8	--	260.8	50.3	49.3	28.9	31.6	375.4	1,275.7
1972	45.5	73.7	--	--	--	2.1	32.9	150.2	155.2	--	.1	6.8	34.7	--	259.6	49.5	52.6	28.7	31.0	360.5	1,287.1
1973	55.6	83.0	--	--	--	2.3	35.6	175.8	172.4	--	.1	7.7	38.3	--	284.2	54.5	58.9	31.7	34.1	392.7	1,426.8
1974	48.3	82.5	--	--	--	2.3	35.8	152.4	167.4	--	.1	7.2	37.4	--	287.5	53.5	57.7	30.7	33.5	389.7	1,365.8
1975	49.8	79.6	.1	--	--	2.4	41.1	131.5	170.9	--	.1	6.8	36.2	--	283.7	51.9	55.1	29.4	32.6	360.6	1,351.7
1976	54.1	86.2	--	--	--	2.7	44.1	182.6	189.8	--	.1	8.4	43.7	--	327.5	62.4	65.5	36.2	39.1	460.3	1,602.8
1977	53.2	85.9	--	--	--	2.8	46.1	193.9	195.9	--	.1	8.8	44.7	--	333.6	63.6	67.9	37.1	39.8	467.5	1,641.7
1978	57.7	95.0	--	--	--	2.8	44.4	197.6	211.6	--	.1	8.9	45.6	--	336.9	65.2	67.5	37.9	40.8	477.8	1,689.8
1979	57.1	93.4	--	--	--	3.0	54.0	204.8	212.4	--	.1	9.1	45.9	--	332.6	65.6	66.8	38.3	41.0	479.4	1,703.4
1980	50.5	86.1	--	--	--	2.7	48.9	144.8	193.4	--	.1	7.3	38.4	--	295.7	55.2	57.3	31.2	34.6	402.3	1,448.2

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

Year	Sector (1) Ag. Stock	(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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) house-holds	TOTAL
1960	[illegible]	1,065.9	34.2	2.9	102.9	47.8	296.2	271.5	1,111.6	144.4	.4	41.0	250.3	--	1,975.0	397.0	237.8	197.0	248.4	2,853.7	10,159.6
1961	819.6	972.0	29.8	3.0	100.4	47.5	315.1	295.0	1,114.2	140.8	158.8	46.8	277.3	--	2,123.5	430.8	257.0	220.2	273.9	3,197.7	10,873.4
1962	835.2	1,115.1	44.2	2.7	101.8	50.7	322.1	326.1	1,123.8	164.1	162.6	48.9	277.4	--	2,153.2	433.0	267.3	217.4	273.9	3,129.4	11,048.8
1963	781.5	1,139.9	41.3	2.4	101.2	57.1	359.6	352.2	1,115.4	156.9	140.9	50.4	297.2	--	2,304.8	463.9	286.6	235.3	292.7	3,400.2	11,561.2
1964	813.7	1,093.7	47.0	2.2	88.1	61.1	369.4	349.6	1,132.2	173.1	179.5	50.9	286.9	--	2,225.9	443.5	283.4	224.1	281.2	3,218.4	11,323.7
1965	934.2	1,130.3	54.0	2.5	106.2	60.3	409.6	360.8	1,194.8	181.1	220.5	56.2	318.1	--	2,451.8	490.3	307.5	249.8	312.2	3,656.1	12,446.2
1966	1,051.1	1,303.5	29.0	2.9	112.3	71.3	398.3	365.4	1,315.9	178.0	225.1	57.6	330.4	--	2,582.6	512.7	324.1	256.9	325.2	3,701.5	13,143.8
1967	977.7	1,270.2	11.7	2.1	112.3	69 0	405.5	347.9	1,257.1	194.1	112.4	53.9	336.9	--	2,669.4	526.3	334.5	266.1	331.9	3,873.8	13,152.9
1968	1,092.3	1,215.1	16.1	3.8	153.8	69.8	434.6	426.7	1,330.1	202.3	127.8	59.2	362.2	--	2,824.0	558.1	362.7	287.0	353.8	4,153.9	14,033 1
1969	1,137.4	1,218.8	22.0	.1	140.9	69.5	467.3	428.3	1,380.0	192.8	208.0	62.3	367.6	--	2,869.1	562.7	373.4	288.8	358.4	4,169.2	14,315 8
1970	1,111.0	1,317.9	20.2	10.2	128.9	66.6	469.6	323.7	1,370.9	264.6	271.0	62.7	374.6	--	2,977.0	577.2	377.0	292.2	368.2	4,269.6	14,652.8
1971	1,139.0	1,262.5	10.9	23.6	119.3	64.3	470.1	377.2	1,406 1	221.4	171.7	61.3	378.5	--	3,024.2	581.9	394.6	297.2	370.1	4,325.5	14,749.3
1972	1,375.3	1,558.7	14.3	27.3	116.2	74.0	820.0	430.1	1,564.9	239.8	229.5	72.6	437.9	--	3,495.4	676.0	446.2	340.5	428.6	4,942.5	17,289.6
1973	1,482.2	1,819.5	25.3	47.5	128.7	72.7	498.2	541.6	1,677.3	273.2	266.1	79.4	471.6	--	3,779.4	732.9	495.1	369.9	464.2	5,328.5	18,554.1
1974	1,378.3	1,975.3	37.1	78.3	227.2	78.5	516.1	439.3	1,608.2	422.5	388.5	81.7	480.1	--	3,897.1	744.5	505.3	370.9	471.4	5,393.3	18,843.5
1975	1,076.7	1,697.8	23.2	151.0	230.4	81.3	562.6	386.0	1,550.6	461.4	185.6	73.7	455.8	5.8	3,707.0	699.6	484.8	352.5	442.7	5,155.6	17,774.1
1976	1,103.5	1,563.5	26.5	166.5	241.7	84.9	542.6	499.0	1,608.9	505.1	207.0	77.5	465.8	18.0	3,725.3	705.3	503.9	361.4	448.2	5,231.6	18,086.0
1977	1,173.1	1,444.5	27.3	168 4	242.0	90.9	553.7	557.4	1,692.1	497.2	158.0	80 2	496.8	17.4	3,919.5	748.4	530.6	391.2	476.6	5,676.2	18,938.3
1978	1,353 5	1,677.5	26.5	159.3	228.6	92.8	545.6	592.6	1,789.1	479.7	129.7	81.7	501.0	24.7	3,966.7	764.6	529.9	393.3	484.1	5,675.7	19,495.7
1979	1,434.0	1,588.7	54.9	236.1	286.2	101.8	548.4	565.3	1,926.9	649.9	196.8	86.5	509.5	22.4	3,930.2	767.5	511.2	397.1	489.7	5,734.8	20,037.8
1980	1,273.4	1,546.2	50.3	222.2	426.9	97.6	556.0	406.6	1,759.6	721.1	135.2	81.1	487.8	22.2	3,830.9	733.2	492.8	375 6	467.5	5,498.2	19,184.3

APPENDIX TABLE 46. EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 2, 1960-1980

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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
	Sector																		
1960	3,241	--	--	307	--	523	--	414	15	--	669	207	--	1,730	208	182	651	1,576	--
1961	3,091	--	--	307	--	538	--	409	5	--	633	207	--	1,703	205	178	666	1,636	--
1962	3,158	--	--	307	--	590	--	441	10	--	603	204	--	1,703	205	186	669	1,665	--
1963	3,157	--	--	408	--	513	--	394	17	--	801	206	--	2,159	206	359	1,142	1,759	--
1964	3,010	--	--	359	--	464	--	373	3	--	791	206	--	2,207	209	361	1,169	1,813	--
1965	2,961	--	--	230	--	484	--	551	2	--	499	195	--	2,135	230	404	1,171	1,861	--
1966	3,195	--	--	280	--	476	--	625	2	--	608	217	--	2,067	253	463	1,279	1,931	--
1967	3,289	--	--	149	--	381	--	623	2	--	458	211	--	1,951	240	445	1,407	2,061	--
1968	3,034	--	392	459	--	372	--	665	1	--	439	163	--	1,952	272	445	1,470	2,229	--
1969	3,153	--	262	331	--	356	--	645	1	--	432	209	--	2,099	321	431	1,408	2,473	--
1970	3,350	--	225	251	--	428	--	663	1	--	541	217	--	2,070	287	438	1,379	2,203	--
1971	3,281	--	250	175	--	369	--	583	1	--	475	250	--	2,059	303	466	1,430	2,127	--
1972	3,127	--	300	252	--	363	--	561	--	--	503	251	4	2,026	310	485	1,482	2,295	--
1973	3,457	--	180	221	--	311	--	756	--	--	455	225	8	1,988	259	528	1,484	2,672	--
1974	3,727	--	307	342	--	498	--	818	--	--	937	158	3	2,241	281	381	2,774	2,491	--
1975	3,333	--	483	309	--	541	--	747	--	--	837	204	45	2,206	313	498	2,503	2,843	--
1976	3,191	--	425	327	7	519	--	881	--	--	801	342	92	2,190	353	632	2,153	2,679	--
1977	3,288	--	433	231	7	595	--	861	--	--	738	201	147	2,203	343	445	2,105	2,763	--
1978	3,135	--	590	241	7	644	--	620	--	--	914	134	131	2,473	341	489	2,326	2,951	--
1979	3,052	--	660	229	6	678	--	855	--	--	815	164	149	2,506	323	306	2,866	2,679	--
1980	2,970	--	704	256	6	658	--	852	--	--	793	178	156	2,517	328	341	3,057	2,890	--

APPENDIX TABLE 47. EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 3, 1960-1980

	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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Hous-hold
1960	4,341	--	--	28	2	889	--	683	8	--	934	286	--	2,664	319	342	1,572	2,890	--
1961	4,151	--	--	28	2	914	--	674	11	--	834	286	--	2,623	314	336	1,607	3,003	--
1962	4,251	--	--	28	2	1,003	--	727	7	--	849	281	--	2,623	314	350	1,616	3,093	--
1963	4,262	--	--	30	1	1,012	--	678	6	--	729	287	--	2,778	250	375	1,387	3,228	--
1964	4,071	--	--	27	1	916	--	641	4	--	719	287	--	2,840	294	376	1,444	3,116	--
1965	3,863	--	--	37	1	1,176	--	651	4	--	720	262	--	2,677	285	383	1,467	3,232	--
1966	4,026	--	--	33	--	850	--	623	5	--	790	260	--	2,773	295	341	1,517	3,474	--
1967	3,944	--	--	25	--	650	--	652	5	--	673	244	--	2,712	297	380	1,779	3,561	--
1968	3,547	--	--	45	--	538	--	686	4	--	649	240	--	2,869	310	405	1,821	3,197	--
1969	3,543	--	--	39	--	501	--	759	4	--	597	223	--	2,661	314	307	1,987	3,064	--
1970	3,784	--	--	21	--	593	--	729	4	--	653	264	--	2,570	312	344	2,167	3,215	--
1971	3,697	--	--	59	--	971	--	658	4	--	472	303	--	2,765	356	355	2,021	3,139	--
1972	3,526	--	--	25	--	812	--	595	3	--	440	298	--	2,831	388	497	2,138	3,379	--
1973	3,900	--	--	64	--	777	--	846	--	--	555	287	--	2,962	398	339	3,027	3,722	--
1974	4,209	--	--	130	--	649	--	1,132	--	--	410	251	--	2,855	422	574	2,055	3,619	--
1975	3,740	--	--	221	--	607	--	1,138	--	--	373	270	--	2,972	475	630	2,752	4,039	--
1976	3,571	--	--	254	--	813	--	967	--	--	515	220	--	3,094	468	671	2,924	3,565	--
1977	3,664	--	--	45	7	742	--	1,059	--	--	579	215	--	2,974	448	464	3,368	3,312	--
1978	3,481	--	--	17	17	734	--	1,038	--	--	482	228	--	3,140	572	454	3,117	3,279	--
1979	3,374	--	--	221	6	688	--	1,123	--	--	509	250	--	3,449	583	325	3,579	3,150	--
1980	3,267	--	--	247	6	668	--	1,119	--	--	494	271	--	3,464	592	363	3,817	3,172	--

APPENDIX TABLE 48. EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 4, 1960-1980

	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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	1,509	--	--	83	--	196	--	301	--	--	271	84	--	1,202	125	100	470	819	--
1961	1,445	--	--	83	--	202	--	297	--	--	257	84	--	1,184	123	98	491	851	--
1962	1,433	--	--	83	--	221	--	321	--	--	246	62	--	1,184	123	102	494	877	--
1963	1,490	--	--	19	--	180	--	288	--	--	241	60	--	1,009	108	60	639	915	--
1964	1,425	--	--	17	--	163	--	273	--	--	238	80	--	1,031	110	63	695	856	--
1965	1,377	--	--	2	9	153	--	237	--	--	202	72	--	961	111	57	827	879	--
1966	1,459	--	--	2	5	175	--	223	--	--	221	78	--	1,017	113	63	799	941	--
1967	1,475	--	--	3	2	122	--	194	--	--	195	71	--	1,077	121	183	509	969	--
1968	1,336	--	--	3	3	174	--	185	--	--	178	66	--	981	125	60	726	1,027	--
1969	1,363	--	--	3	6	104	--	196	--	--	77	82	--	1,066	113	72	785	1,046	--
1970	1,436	--	--	--	2	138	--	203	--	--	70	96	--	1,007	127	43	851	1,045	--
1971	1,386	--	--	--	5	196	--	197	--	--	76	68	--	998	138	63	730	1,061	--
1972	1,304	--	--	--	35	126	--	195	--	--	141	56	--	1,050	148	143	409	1,035	--
1973	1,423	--	--	--	22	177	--	242	--	--	97	39	--	1,067	140	153	374	1,169	--
1974	1,511	--	--	60	21	159	99	352	--	--	149	60	--	966	146	63	561	1,035	--
1975	1,351	--	--	9	21	187	118	347	--	--	125	57	--	985	146	61	587	1,109	--
1976	1,293	--	--	62	11	217	137	349	--	--	119	54	--	879	150	119	458	1,067	--
1977	1,330	--	--	--	14	326	--	362	--	--	120	58	--	928	153	57	827	1,177	--
1978	1,269	--	--	--	7	302	--	367	--	--	124	55	--	968	177	133	955	1,303	--
1979	1,235	--	--	--	5	269	75	416	--	--	10	138	--	981	174	190	978	1,233	--
1980	1,201	--	--	--	5	261	61	414	--	--	9	150	--	986	177	212	1,043	1,241	--

APPENDIX TABLE 49. EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 5, 1960-1980

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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	5,316	--	346	1,110	13	2,532	--	4,087	749	--	6,200	823	2	8,322	1,608	1,640	4,432	6,656	--
1961	5,096	--	346	1,110	13	2,602	--	4,034	847	--	5,867	823	2	8,193	1,584	1,609	4,532	6,916	--
1962	5,231	--	385	1,110	15	2,856	--	4,352	856	--	5,635	808	2	8,194	1,584	1,679	4,558	7,123	--
1963	5,258	--	367	610	21	4,066	--	3,484	1,018	--	5,103	843	2	8,133	1,607	1,741	4,575	7,434	--
1964	5,034	--	367	552	21	4,109	--	3,294	1,066	--	5,036	843	3	8,316	1,631	1,748	4,763	7,776	--
1965	4,837	--	560	621	12	4,351	--	4,373	954	--	4,991	834	2	8,405	1,651	1,891	4,819	7,985	--
1966	5,092	--	519	523	23	3,201	--	4,537	866	--	3,999	890	63	8,730	1,659	1,943	5,444	8,262	--
1967	5,115	--	240	510	22	2,991	--	4,852	867	--	4,553	824	70	8,644	1,589	1,965	5,422	9,069	--
1968	4,601	--	--	637	23	3,153	--	4,598	872	--	4,431	849	88	9,044	1,658	2,025	5,676	9,556	--
1969	4,665	--	--	717	15	2,746	--	4,994	788	--	4,480	800	96	9,530	1,734	2,014	6,105	9,2[illegible]3	--
1970	4,924	--	113	713	24	3,117	--	5,407	963	--	4,016	951	102	9,223	1,646	1,999	6,690	9,325	--
1971	4,758	--	125	520	25	3,313	--	5,497	877	--	3,761	874	99	9,544	1,852	2,079	6,312	9,870	--
1972	4,481	--	142	442	7	3,251	--	5,400	975	--	3,922	984	104	10,240	1,957	2,076	7,015	9,964	--
1973	4,896	--	250	562	--	3,779	--	7,098	973	--	4,466	921	119	10,567	2,100	2,528	7,462	9,320	--
1974	5,212	--	270	401	137	3,932	196	6,676	969	--	4,149	1,039	107	11,533	1,844	2,612	7,767	10,610	--
1975	4,651	--	240	451	111	3,504	340	6,395	977	--	3,949	1,028	71	11,770	1,983	2,499	8,581	11,655	--
1976	4,443	--	347	481	142	4,431	415	6,776	1,015	--	4,916	1,086	85	13,896	2,134	2,923	8,920	12,061	--
1977	4,565	--	433	966	159	4,543	344	7,458	969	--	5,002	1,151	98	12,929	2,127	2,459	9,249	13,412	--
1978	4,346	--	760	1,212	162	4,762	604	7,675	987	--	5,761	969	100	14,135	2,605	2,608	10,540	13,391	--
1979	4,221	--	777	856	259	4,079	641	8,114	897	--	6,660	1,263	102	14,849	2,470	2,599	11,993	13,763	--
1980	4,098	--	829	957	259	3,958	522	8,084	868	--	6,473	1,369	102	14,912	2,509	2,894	12,790	13,861	--

APPENDIX TABLE 50. EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 6, 1960-1980

	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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) House-holds
1960	7,369	4	--	467	11	5,391	277	3,630	123	1,695	2,780	833	48	9,043	1,527	1,686	4,809	8,094	--
1961	7,042	3	--	467	11	5,540	280	3,642	137	1,605	2,631	833	49	8,903	1,505	1,654	4,917	8,410	--
1962	7,202	3	--	467	13	6,081	296	3,929	127	1,561	2,526	818	46	8,904	1,505	1,725	4,945	8,662	--
1963	7,208	--	--	544	11	4,337	231	3,373	158	1,619	3,032	898	46	8,172	1,499	1,425	5,042	9,040	--
1964	6,686	--	--	492	11	3,969	229	3,189	125	1,670	2,992	898	47	8,355	1,521	1,431	5,249	8,813	--
1965	6,637	--	--	390	7	3,244	193	3,184	123	1,529	2,262	918	48	8,580	1,513	1,476	5,345	9,050	--
1966	7,011	--	--	427	6	4,775	282	3,485	106	1,672	3,913	878	46	8,991	1,563	1,649	5,272	9,678	--
1967	7,065	10	--	417	7	3,697	232	3,469	106	1,246	3,370	886	52	9,007	1,592	1,542	5,618	10,108	--
1968	6,383	--	--	469	22	3,642	253	3,393	103	1,721	3,611	836	52	8,877	1,652	1,471	6,067	10,319	--
1969	6,491	--	--	562	7	3,819	205	3,099	89	2,409	3,696	1,046	50	9,589	1,713	1,633	5,854	10,246	--
1970	6,889	--	--	336	17	2,927	149	3,808	111	1,510	3,650	907	48	8,596	1,680	1,445	5,778	10,520	--
1971	6,697	--	--	405	9	3,037	147	3,699	99	1,715	3,084	1,035	49	8,824	1,933	1,425	5,317	10,827	--
1972	6,351	--	--	423	8	3,047	--	4,429	104	239	3,566	826	48	9,654	1,972	1,719	6,631	10,826	--
1973	6,986	--	--	341	16	2,858	162	3,439	112	1,166	3,091	1,066	45	9,591	1,988	1,844	6,506	10,552	--
1974	7,492	--	--	392	59	2,751	238	4,069	117	715	2,842	970	48	9,229	2,529	1,628	7,216	11,031	--
1975	6,652	--	--	480	79	2,580	78	3,551	107	683	2,921	833	38	9,412	2,432	1,809	7,342	12,823	--
1976	6,318	--	--	609	15	3,144	229	3,927	112	683	2,846	911	37	9,443	2,407	1,866	8,046	12,568	--
1977	6,464	--	--	692	33	3,674	--	4,407	90	535	2,838	825	30	10,152	2,384	1,628	8,348	12,392	--
1978	6,121	--	--	868	54	3,662	--	4,183	50	632	2,909	755	36	11,873	2,588	1,736	9,727	13,317	--
1979	5,916	--	--	1,108	17	3,744	149	4,206	76	--	3,177	972	34	11,130	2,464	1,909	9,711	11,871	--
1980	5,712	--	--	1,238	17	3,633	121	4,190	83	--	3,088	1,054	33	11,177	2,503	2,126	10,356	11,956	--

APPENDIX TABLE 51. EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 7, 1960-1980

	Sector																		
Year	(1) & (2) Agric	(3) Metal Mining	(4) Coal Mining	(5) Pet/NG Exp/Exp	(6) Nonmetallic Mining	(7) Constr	(8) Lumber	(9) Ag Proc & Misc Mfg	(10) Pet Refining	(11) Metal Proc	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Household
1960	2,294	--	--	--	6	637	371	648	--	--	794	248	--	2,992	391	465	1,505	2,161	--
1961	2,182	--	--	--	6	655	375	640	--	--	742	243	--	2,946	385	456	1,539	2,246	--
1962	2,222	--	--	--	7	719	396	690	--	--	713	244	--	2,946	385	476	1,547	2,313	--
1963	2,215	--	--	--	5	780	443	897	--	--	671	247	--	2,875	357	492	1,407	2,414	--
1964	2,304	--	--	--	5	706	439	848	--	--	662	247	--	2,959	352	494	1,464	2,594	--
1965	2,055	--	--	--	3	724	520	800	--	--	603	248	--	3,102	386	530	1,751	2,664	--
1966	2,198	--	--	--	7	810	612	865	--	--	721	269	--	3,250	372	524	1,737	2,778	--
1967	2,245	--	--	--	6	729	525	836	--	--	610	327	--	3,438	418	565	1,737	3,079	--
1968	2,054	--	--	--	--	798	453	908	--	--	713	321	--	3,494	419	611	1,802	3,231	--
1969	2,119	--	--	--	1	622	764	673	--	--	491	295	--	3,483	414	629	1,832	3,065	--
1970	2,225	--	--	--	47	685	341	1,019	--	--	548	364	--	3,299	421	576	2,027	3,214	--
1971	2,138	--	--	--	52	657	582	949	--	--	842	268	--	3,438	468	601	1,973	3,383	--
1972	2,004	--	--	--	17	823	491	933	--	--	862	257	--	3,932	546	673	2,302	3,436	--
1973	2,176	--	--	--	16	1,186	680	1,282	--	--	906	268	--	4,187	674	818	2,293	3,463	--
1974	2,190	--	--	--	53	1,174	701	1,320	--	--	874	305	--	4,590	630	831	2,786	3,645	--
1975	2,086	--	--	--	64	1,018	446	1,173	--	--	840	360	--	4,768	631	867	2,822	4,028	--
1976	2,026	--	--	--	56	1,083	667	1,299	--	--	898	341	--	4,506	673	1,026	2,750	4,218	--
1977	2,116	--	--	--	57	1,370	610	1,586	--	--	738	384	--	5,135	728	1,100	2,842	4,715	--
1978	2,045	--	--	--	7	1,599	926	1,585	--	--	1,106	336	--	6,346	892	1,240	3,198	4,718	--
1979	2,015	--	--	--	44	1,441	819	1,734	--	--	1,003	414	--	6,148	871	862	4,171	4,796	--
1980	1,936	--	--	--	43	1,399	667	1,777	--	--	975	448	--	6,175	865	960	4,449	4,830	--

APPENDIX TABLE 52. EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 8, 1960-1980

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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
	Sector																		
1960	1,111	39	--	--	--	1,265	78	689	--	336	975	968	27	2,393	630	366	2,310	2,163	--
1961	1,057	36	--	--	--	1,300	79	680	--	319	922	968	27	2,356	621	359	2,362	2,247	--
1962	1,080	33	--	--	--	1,427	83	734	--	310	806	950	26	2,356	621	374	2,375	2,314	--
1963	1,080	157	--	--	--	1,024	115	809	--	305	531	971	26	2,479	627	478	2,452	2,415	--
1964	1,028	184	--	--	--	926	114	765	--	315	524	971	26	2,535	637	480	2,553	2,763	--
1965	999	74	--	--	--	1,143	139	799	--	187	523	957	27	2,903	633	550	2,602	2,842	--
1966	1,064	90	--	--	--	1,216	167	869	--	189	599	999	25	2,882	658	556	2,670	2,941	--
1967	1,032	57	--	--	--	843	130	825	--	135	582	1,030	29	2,836	712	562	2,913	3,327	--
1968	985	137	--	--	--	774	--	960	--	--	492	1,060	29	3,016	787	489	3,336	3,470	--
1969	1,012	73	--	--	--	756	--	1,004	--	288	491	963	28	3,224	823	516	3,524	3,412	--
1970	1,049	143	--	--	--	902	--	998	--	224	453	957	27	2,920	840	461	3,735	3,474	--
1971	993	56	--	--	--	896	--	915	--	247	459	915	28	2,984	944	699	3,647	3,742	--
1972	916	31	--	--	--	1,059	--	763	--	378	518	1,070	27	3,162	1,073	749	4,141	3,607	--
1973	975	67	--	--	--	1,473	278	845	--	478	540	1,061	25	3,369	1,078	738	4,153	3,446	--
1974	1,012	73	--	--	--	1,361	82	1,122	--	358	649	1,109	27	3,377	955	811	4,033	3,696	--
1975	956	65	--	--	--	1,011	384	1,367	--	341	450	1,511	21	3,719	886	756	4,243	4,292	--
1976	962	108	--	--	--	1,125	389	1,185	--	341	212	1,165	20	3,958	1,167	780	4,491	4,625	--
1977	1,039	26	--	--	--	1,337	465	1,136	--	268	223	1,425	16	4,048	1,221	654	4,615	5,377	--
1978	1,035	29	--	--	--	1,508	323	1,321	--	316	389	1,462	20	4,794	1,312	787	4,660	5,256	--
1979	1,052	26	--	--	--	1,234	292	1,273	--	582	414	1,907	19	4,794	1,209	847	4,817	5,266	--
1980	1,064	19	--	--	--	1,197	238	1,268	--	459	402	2,068	18	4,814	1,228	944	5,137	5,304	--

APPENDIX TABLE 53. EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 9, 1960-1980

	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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	1,335	4,136	--	--	87	1,333	--	1,855	--	961	1,505	886	2	4,896	726	704	2,822	3,950	--
1961	1,286	3,860	--	--	87	1,370	--	1,831	--	910	1,425	886	2	4,821	715	690	2,886	4,104	--
1962	1,325	3,493	--	--	105	1,503	--	1,976	--	835	1,308	870	2	4,821	715	720	2,902	4,227	--
1963	1,339	3,692	--	--	78	1,764	--	3,037	--	771	1,506	849	2	4,912	723	711	2,936	4,412	--
1964	1,268	4,323	--	--	78	1,596	--	2,872	--	795	1,406	849	2	5,022	734	713	3,057	4,753	--
1965	1,250	4,411	--	--	99	1,298	--	1,799	--	1,433	1,441	797	2	4,982	703	666	3,170	4,850	--
1966	1,331	4,490	--	--	94	921	--	1,577	--	1,504	1,542	795	2	5,086	763	671	3,291	4,941	--
1967	1,350	3,056	--	--	84	1,243	--	1,567	--	1,495	1,522	854	2	5,079	668	570	3,490	5,001	--
1968	1,229	1,879	--	--	45	838	--	1,551	--	--	1,430	821	2	4,675	708	662	3,154	4,957	--
1969	1,260	3,134	--	--	42	824	--	1,603	--	1,309	1,319	746	2	5,002	632	652	3,568	4,938	--
1970	1,335	3,677	--	--	61	922	--	1,604	--	1,206	1,325	820	2	4,840	668	635	3,899	5,110	--
1971	1,298	2,645	--	--	49	1,033	--	1,487	--	1,420	1,361	760	2	5,150	699	567	3,672	5,086	--
1972	1,229	3,234	--	--	73	895	--	1,259	--	2,170	1,171	673	2	5,166	671	532	3,802	5,215	--
1973	1,351	3,685	--	--	118	1,257	--	1,622	--	1,117	1,296	820	2	5,145	693	565	4,105	5,034	--
1974	1,446	3,860	--	--	91	1,669	219	1,642	--	1,612	1,355	1,034	2	5,428	681	1,005	3,218	5,353	--
1975	1,335	2,844	--	--	111	1,130	78	1,790	--	1,593	1,389	886	2	5,013	655	884	3,810	5,905	--
1976	1,316	2,142	--	--	97	1,183	119	1,723	--	1,593	1,201	978	2	5,120	607	979	3,640	6,012	--
1977	1,395	1,841	--	--	98	911	187	1,826	--	1,249	1,004	1,031	0	5,029	629	736	3,723	6,159	--
1978	1,368	1,873	--	--	100	1,169	201	2,327	--	632	737	848	1	5,403	631	759	4,193	5,850	--
1979	1,366	2,005	--	--	77	939	185	2,263	--	1,165	976	1,159	1	5,294	1,537	752	4,099	5,937	--
1980	1,363	1,432	--	--	77	911	151	2,254	--	918	969	1,256	1	5,316	1,561	837	4,372	5,960	--

APPENDIX TABLE 54. EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 10, 1960-1980

	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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) House-holds
1960	5,037	321	--	--	87	1,439	4,620	1,672	--	--	1,811	631	188	5,481	740	872	3,235	4,931	--
1961	4,825	300	--	--	87	1,479	4,671	1,848	--	--	1,714	631	189	5,396	729	855	3,207	5,123	--
1962	4,889	271	--	--	104	1,623	4,928	1,994	--	--	1,646	619	179	5,396	729	892	3,326	5,277	--
1963	4,849	251	--	--	165	1,743	5,440	2,096	--	--	1,772	622	180	5,853	770	934	3,528	5,507	--
1964	4,581	293	--	--	165	1,577	5,386	1,982	--	--	1,748	622	184	5,984	781	937	3,672	6,032	--
1965	4,333	115	--	--	186	1,778	5,485	2,152	--	--	1,855	560	187	6,312	815	1,048	3,772	6,194	--
1966	4,489	220	--	--	200	2,062	5,455	2,152	--	--	1,906	484	176	6,636	867	1,148	3,825	6,425	--
1967	4,431	69	--	--	190	1,654	5,081	2,124	--	--	1,932	595	204	6,595	875	1,177	4,136	7,171	--
1968	3,916	242	--	--	213	1,563	5,444	2,200	--	--	1,893	583	201	6,786	933	1,167	4,451	7,626	--
1969	3,894	93	--	--	180	1,685	7,015	2,384	--	--	1,963	591	193	7,149	1,009	1,098	4,520	7,167	--
1970	4,138	180	--	--	82	1,931	5,089	2,234	--	--	1,823	593	186	6,866	913	1,185	4,721	7,149	--
1971	4,026	199	--	--	133	2,074	4,978	2,373	--	--	1,640	635	192	7,096	1,008	1,041	5,249	7,623	--
1972	3,823	435	--	--	194	2,516	5,946	2,186	--	--	1,989	740	188	7,899	1,057	1,181	5,963	7,902	--
1973	4,210	47	--	--	217	3,071	5,802	2,876	--	--	2,040	746	175	8,311	1,117	1,242	6,176	7,595	--
1974	4,521	67	--	--	193	3,047	5,681	3,055	--	--	3,127	876	187	8,634	1,344	1,613	6,670	8,399	--
1975	4,084	189	--	--	186	3,052	5,235	2,990	--	--	2,700	804	146	8,467	1,470	1,484	7,181	9,172	--
1976	3,946	150	--	--	156	2,776	5,355	3,231	--	--	2,231	857	142	9,052	1,593	819	9,261	9,862	--
1977	4,102	232	--	--	166	2,911	6,127	3,483	--	--	2,479	797	115	9,613	2,043	1,414	7,365	11,201	--
1978	3,948	98	--	--	183	4,070	6,649	3,876	--	--	2,878	1,977	140	10,747	1,773	1,663	8,517	11,174	--
1979	3,877	69	--	--	162	3,949	6,018	3,938	--	--	2,600	883	131	11,616	1,717	1,620	7,301	11,472	--
1980	3,833	49	--	--	162	3,832	4,903	3,924	--	--	2,527	958	123	11,656	1,744	1,804	7,787	11,554	--

APPENDIX TABLE 55. EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 11, 1960-1980

	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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	1,720	--	--	--	44	504	3,654	513	--	809	427	274	73	2,423	282	393	1,199	2,908	--
1961	1,641	--	--	--	44	518	3,695	506	--	766	404	274	73	2,386	278	395	1,226	3,021	--
1962	1,678	--	--	--	53	568	3,898	546	--	745	338	269	69	2,386	278	402	1,233	3,112	--
1963	1,679	--	--	--	64	743	3,872	628	--	505	103	60	70	2,782	284	362	1,250	3,248	--
1964	1,601	--	--	--	64	672	3,833	594	--	521	181	60	71	2,845	288	363	1,301	3,441	--
1965	1,500	--	--	--	79	1,433	3,963	629	--	451	494	297	72	2,937	303	381	1,385	3,533	--
1966	1,537	--	--	--	65	867	4,184	708	--	455	506	305	68	3,277	302	458	1,453	3,720	--
1967	1,499	--	--	--	63	2,961	4,431	755	--	324	550	283	79	3,422	319	433	1,591	4,192	--
1968	1,304	--	--	--	94	2,930	4,550	895	--	1,979	439	283	78	3,617	357	527	1,625	4,548	--
1969	1,283	--	--	--	98	2,058	2,716	1,107	--	654	722	294	75	3,555	362	500	1,844	4,203	--
1970	1,354	--	--	--	116	1,737	4,420	369	--	1,680	126	51	72	3,331	201	275	454	4,001	--
1971	1,310	--	--	--	128	1,463	4,893	1,099	--	717	452	303	74	3,288	399	505	1,839	4,371	--
1972	1,236	--	--	--	166	1,409	4,662	3,663	--	1,113	662	321	73	3,593	482	557	2,327	4,257	--
1973	1,352	--	--	--	211	1,019	4,778	1,559	--	639	658	364	69	3,830	526	563	2,563	4,049	--
1974	1,440	--	--	--	140	1,026	4,183	1,140	--	715	552	346	72	4,323	729	662	2,275	4,369	--
1975	1,318	--	--	--	170	931	3,323	1,122	--	683	444	335	138	4,018	641	675	2,299	4,837	--
1976	1,290	--	--	--	310	888	3,789	1,238	--	683	523	413	134	4,292	700	257	2,443	5,215	--
1977	1,356	--	--	--	151	1,291	4,167	788	--	1,249	638	427	109	4,463	617	760	2,711	5,501	--
1978	1,321	--	--	--	153	1,320	4,298	1,141	--	1,474	720	394	132	5,371	740	843	3,481	5,947	--
1979	1,312	--	--	--	119	1,477	5,322	1,040	--	1,553	691	581	123	5,772	768	889	3,722	6,116	--
1980	1,300	--	--	--	119	1,434	4,337	1,036	--	1,224	672	630	120	5,796	780	990	3,970	6,160	--

APPENDIX TABLE 56. EMPLOYMENT BY ECONOMIC SECTOR, MONTANA, 1960-1980

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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
	Sector																		
1960	39,000	4,500	450	2,200	250	15,210	9,000	15,400	900	3,800	17,976	5,600	400	43,972	6,900	7,052	24,890	38,500	--
1961	37,300	4,200	450	2,200	250	15,630	9,100	15,200	1,000	3,600	17,013	5,600	400	43,292	6,800	6,915	25,450	40,000	--
1962	38,200	3,800	500	2,200	300	17,155	9,600	16,400	1,000	3,500	16,338	5,500	400	43,295	6,800	7,216	25,596	41,200	--
1963	38,300	4,100	550	2,100	350	16,745	10,100	16,500	1,200	3,200	15,928	5,500	400	44,245	6,800	7,352	25,730	43,000	--
1964	36,600	4,800	550	1,900	350	15,580	10,000	15,600	1,200	3,300	15,717	5,500	400	45,237	6,900	7,380	26,786	44,700	--
1965	35,200	4,600	700	1,800	400	16,291	10,300	16,000	1,100	3,600	15,612	5,600	400	46,293	7,000	7,738	27,966	45,500	--
1966	37,100	4,600	700	1,700	400	15,837	10,700	16,400	1,000	3,900	15,837	5,650	450	48,056	7,200	8,054	29,216	48,100	--
1967	37,300	3,200	600	1,700	400	15,746	10,400	16,600	1,000	3,200	15,612	5,700	500	48,047	7,200	8,075	30,820	51,500	--
1968	33,600	2,300	600	2,200	400	15,299	10,700	16,900	1,000	3,700	15,166	5,700	500	48,559	7,600	8,249	32,328	53,300	--
1969	34,100	3,300	450	2,300	350	13,897	10,700	17,400	900	4,600	15,068	5,700	500	49,631	7,900	8,336	34,146	52,100	--
1970	36,100	4,000	450	1,600	350	13,768	10,000	17,900	1,100	4,700	14,018	5,700	500	47,936	8,100	8,010	34,168	52,600	--
1971	35,000	2,900	500	1,600	400	14,420	10,600	18,300	1,000	4,100	14,050	5,800	500	49,423	8,500	8,381	35,126	54,400	--
1972	33,100	3,700	500	1,600	500	14,652	11,100	20,800	1,100	3,900	14,781	5,900	500	52,826	9,000	9,254	35,687	55,400	--
1973	36,300	3,800	500	1,600	600	16,328	11,700	21,700	1,100	3,400	15,072	6,200	500	54,259	9,400	10,173	40,568	55,400	--
1974	38,800	4,000	600	1,800	700	16,970	11,400	22,600	1,100	3,400	15,713	6,500	500	56,317	10,000	10,937	42,363	58,200	--
1975	34,800	3,100	750	1,800	750	15,216	10,000	21,900	1,100	3,300	14,713	6,800	500	56,463	10,200	10,563	45,145	64,900	--
1976	33,400	2,400	800	2,100	800	16,903	11,100	23,200	1,200	3,300	14,821	6,850	550	59,528	10,800	10,534	48,014	65,700	--
1977	34,500	2,100	900	2,400	700	18,587	11,900	24,600	1,100	3,300	14,917	7,150	550	60,614	11,200	10,181	49,301	70,600	--
1978	33,000	2,000	1,400	2,900	700	20,531	13,000	25,500	1,100	3,200	16,678	7,600	600	68,611	12,200	11,365	53,615	71,700	--
1979	32,200	2,100	1,500	3,400	700	19,511	13,500	26,600	1,000	3,300	17,760	8,300	600	70,165	12,700	10,756	56,408	70,100	--
1980	31,400	1,500	1,600	3,800	700	18,936	11,000	26,500	1,000	2,600	17,262	9,000	600	70,464	12,900	11,950	60,158	70,600	--

APPENDIX TABLE 57. GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS), BY ECONOMIC SECTOR, MONTANA REGION 2, 1960-1980 (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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) House-holds
1960	57,390	--	---	153,420	---	45,316	--	155,314	160,000	--	4,335	82,126	---	74,040	127,665	62,637	19,508	10,730	--
1961	55,126	--	---	138,762	---	43,123	--	148,655	140,000	--	4,423	81,643	---	74,222	128,293	63,463	19,219	10,209	--
1962	45,250	--	---	134,853	---	37,458	--	113,379	160,000	--	4,112	73,039	---	66,295	113,171	55,914	16,592	8,724	--
1963	51,473	--	---	104,502	---	50,097	--	140,102	129,412	--	3,496	82,524	---	60,537	131,068	33,426	11,296	9,665	--
1964	56,080	--	---	105,420	---	57,974	--	158,713	133,333	--	3,413	81,068	---	58,360	126,794	32,687	10,597	9,211	--
1965	60,824	--	---	154,343	---	59,091	--	119,056	150,000	--	5,812	112,579	---	64,215	123,043	31,436	11,614	9,619	--
1966	66,197	--	---	124,643	---	58,824	--	121,120	200,000	--	5,099	89,401	---	72,811	122,530	29,806	11,493	10,150	--
1967	58,255	--	---	267,114	---	74,278	--	108,658	150,000	--	6,769	91,459	---	76,627	127,517	31,236	10,446	9,322	--
1968	71,127	--	5,759	181,481	---	102,419	--	116,241	100,000	--	9,339	142,545	---	85,743	129,044	35,291	11,555	10,305	--
1969	73,593	--	---	214,804	---	108,197	--	129,922	100,000	--	9,491	113,875	---	88,402	113,396	38,051	12,500	9,381	--
1970	66,327	--	40,000	210,757	---	83,879	--	119,759	400,000	--	6,839	105,069	---	83,720	122,997	37,215	12,328	10,163	--
1971	69,369	--	89,600	274,857	---	87,263	--	145,111	500,000	--	8,000	94,400	---	86,693	119,472	36,052	12,378	10,860	--
1972	87,243	--	77,667	190,873	---	82,920	--	173,619	---	--	8,350	106,375	---	100,938	134,194	39,588	13,503	11,433	--
1973	92,834	--	161,667	256,109	---	152,733	--	146,164	---	--	10,989	140,889	---	122,586	191,506	42,614	16,328	11,752	--
1974	78,455	--	95,417	326,608	---	91,968	--	117,482	---	--	5,977	206,329	---	109,835	175,089	60,105	8,472	12,445	--
1975	72,517	--	121,739	361,612	---	99,261	--	117,135	---	--	6,571	159,804	126,087	106,301	151,438	44,370	8,950	10,587	--
1976	70,197	--	179,059	341,896	442,850	94,027	--	96,822	---	--	6,865	95,322	195,652	105,205	133,144	34,281	10,869	11,124	--
1977	70,499	--	176,212	458,874	471,430	65,378	--	102,671	---	--	7,317	162,667	118,367	104,812	137,318	40,438	11,259	10,780	--
1978	90,593	--	130,678	374,274	557,140	68,323	--	167,419	---	--	6,236	260,657	183,550	105,459	158,358	49,439	11,387	11,463	--
1979	95,446	--	159,697	364,629	1,000,000	59,587	--	130,292	---	--	7,239	228,049	150,336	105,786	169,969	78,758	9,595	12,125	--
1980	89,832	--	144,176	483,984	1,583,350	67,173	--	118,545	---	--	8,323	229,775	142,309	112,078	178,659	75,367	9,748	12,907	--

APPENDIX TABLE 58. GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS), BY ECONOMIC SECTOR, MONTANA REGION 3, 1960-1980 (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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	43,032	--	--	39,286	700,000	20,360	--	87,701	162,500	--	2,570	63,636	--	57,770	99,060	41,813	9,283	6,713	--
1961	41,339	--	--	35,714	700,000	20,131	--	89,318	136,364	--	2,715	65,734	--	59,016	101,911	42,857	9,583	6,627	--
1962	44,531	--	--	28,571	750,000	19,043	--	84,859	171,429	--	2,945	68,327	--	61,799	105,732	43,429	9,592	6,556	--
1963	45,237	--	--	20,000	1,600,000	20,949	--	89,528	133.333	--	3,557	72,822	--	63,499	124,828	44,000	12,257	6,877	--
1964	45,866	--	--	22,222	1,500,000	22,489	--	95,476	125,000	--	3,477	67,944	--	58,169	114,286	42,021	10,542	6,639	--
1965	50,931	--	--	16,216	1,700,000	19,133	--	101,382	150,000	--	3,750	81,298	--	66,567	127,719	44,125	11,793	7,027	--
1966	59,106	--	--	18,182	---	27,882	--	121,348	180,000	--	3,924	83,571	--	71,908	137,627	55,425	12,459	7,301	--
1967	56,084	--	--	24,000	---	36,515	--	111,043	180,000	--	4,606	98,361	--	74,484	138,721	51,053	10,561	7,133	--
1968	60,615	--	--	13,333	---	45,539	--	107,434	225,000	--	4,931	105,000	--	72,325	136,774	49,283	11,367	8,258	--
1969	60,736	--	--	15,789	---	43,513	--	109,354	200,000	--	5,025	104,036	--	73,130	124,841	62,541	9,462	7,963	--
1970	62,421	--	--	28,571	---	43,225	--	118,107	200,000	--	5,207	100,379	--	86,687	144,872	63,663	9,922	8,670	--
1971	63,809	--	--	10,169	---	27,497	--	136,018	225,000	--	7,415	92,079	--	83,978	132,022	64,507	11,004	9,361	--
1972	83,097	--	--	32,000	---	44,089	--	164,430	233,333	--	9,546	112,752	--	99,400	147,423	54,728	12,816	10,477	--
1973	90,436	--	--	75,000	---	46,847	--	124,941	---	--	8,649	130,662	--	107,596	162,312	90,561	10,010	10,666	--
1974	85,697	--	--	36,154	---	55,778	--	87,191	---	--	11,951	152,983	--	117,093	159,479	48,368	15,037	11,302	--
1975	82,391	--	--	25,244	---	56,672	--	80,756	---	--	12,064	125,978	--	102,524	128,421	50,333	10,356	9,235	--
1976	76,785	--	--	24,409	---	40,344	--	89,555	---	--	7,961	147,727	--	90,142	118,530	42,027	9,313	9,571	--
1977	64,765	--	--	195,556	300,000	37,871	--	75,260	---	--	6,218	128,837	--	80,464	104,688	53,879	6,591	6,726	--
1978	85,694	--	--	588,235	176,470	46,594	--	91,715	---	--	8,714	140,789	--	87,603	95,979	61,013	8,181	6,918	--
1979	81,476	--	--	72,398	1,266,670	41,861	--	84,951	---	--	8,252	119,600	--	72,137	85,077	76,923	6,510	9,778	--
1980	80,839	--	--	63,968	716,670	52,096	--	70,910	---	--	9,312	110,332	--	71,824	83,445	69,697	6,078	9,742	--

APPENDIX TABLE 59. GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS), BY ECONOMIC SECTOR, MONTANA REGION 4, 1960-1980 (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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) House-holds
1960	48,443	--	--	3,614	--	31,122	--	87,708	--	--	3,321	72,619	--	42,513	83,200	49,000	10,000	7,814	--
1961	50,796	--	--	4,819	--	31,683	--	92,256	--	--	3,502	76,190	--	44,764	87,805	52,041	10,603	7,992	--
1962	46,190	--	--	4,819	--	29,054	--	74,455	--	--	3,659	74,390	--	43,750	85,366	50,930	9,917	7,295	--
1963	47,383	--	--	21,053	--	39,333	--	83,681	--	--	3,734	82,500	--	54,807	103,704	91,667	7,961	7,541	--
1964	46,807	--	--	23,529	--	41,104	--	86,447	--	--	3,782	76,250	--	49,855	93,636	86,667	7,218	7,477	--
1965	51,779	--	--	150,000	--	47,712	--	108,017	--	--	4,455	90,278	--	57,024	99,099	96,791	6,167	7,736	--
1966	57,642	--	--	150,000	--	43,429	--	128,700	--	--	4,525	92,308	--	59,983	107,965	96,825	7,009	8,077	--
1967	51,661	--	--	100,000	--	60,656	--	131,959	--	--	5,128	98,592	--	55,339	98,347	33,333	10,827	7,482	--
1968	59,207	--	--	100,000	--	35,058	--	150,811	--	--	5,618	110,606	--	62,487	97,600	105,000	7,880	7,498	--
1969	56,327	--	--	100,000	--	62,500	--	144,898	--	--	12,987	90,244	--	58,255	109,735	90,278	7,516	7,361	--
1970	55,760	--	--	---	--	47,101	--	138,916	--	--	14,286	78,125	--	63,257	99,213	153,488	6,933	7,464	--
1971	62,554	--	--	---	--	34,694	--	153,299	--	--	14,474	117,647	--	67,235	95,652	112,698	8,630	7,678	--
1972	77,991	--	--	---	--	67,460	--	175,897	--	--	9,220	158,929	--	72,286	101,351	55,944	17,115	8,977	--
1973	82,291	--	--	---	--	52,542	--	157,025	--	--	15,464	264,103	--	82,474	124,286	60,784	21,658	9,239	--
1974	72,270	--	--	6,667	--	64,780	19,192	95,170	--	--	10,000	168,333	--	91,822	118,493	150,794	13,904	9,661	--
1975	68,956	--	--	44,444	--	47,059	12,712	92,507	--	--	10,400	159,649	--	80,203	104,795	106,173	12,095	8,476	--
1976	63,341	--	--	6,452	--	59,908	13,139	85,960	--	--	10,084	159,259	--	84,187	94,667	69,748	14,629	8,247	--
1977	64,135	--	--	---	--	24,540	--	86,740	--	--	10,000	150,000	--	80,280	93,464	149,123	8,223	7,647	--
1978	65,694	--	--	---	--	40,397	--	107,902	--	--	12,097	189,091	--	90,909	97,740	71,429	8,586	8,289	--
1979	87,368	--	--	---	--	37,918	40,000	99,760	--	--	150,000	73,188	--	85,219	95,402	47,268	8,078	8,435	--
1980	82,598	--	--	---	--	40,996	29,508	90,097	--	--	155,556	65,333	--	82,962	90,960	41,509	7,287	8,139	--

APPENDIX TABLE 60. GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS), BY ECONOMIC SECTOR, MONTANA REGION 5, 1960-1980 (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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	58,559	--	5,202	10,360	223,077	16,548	--	55,346	160,347	--	968	43,864	--	35,484	36,194	19,085	6,250	5,544	--
1961	55,475	--	4,335	10,270	230,769	16,641	--	54,561	140,614	--	1,006	45,808	--	37,422	38,131	20,385	6,509	5,552	--
1962	57,790	--	2,857	12,072	200,000	15,441	--	51,267	164,136	--	994	45,916	--	37,698	37,879	20,012	6,297	5,321	--
1963	56,143	--	2,180	20,920	152,381	12,076	--	62,801	123,127	--	1,117	46,857	--	40,526	39,889	20,620	6,754	5,421	--
1964	60,528	--	1,907	26,630	152,381	12,558	--	68,154	144,184	--	1,152	45,908	--	39,033	38,197	20,652	6,257	5,067	--
1965	66,322	--	1,766	24,155	251,667	12,933	--	53,099	164,780	--	1,242	50,600	--	41,630	40,824	20,518	6,806	5,360	--
1966	69,143	--	2,505	28,107	152,174	16,807	--	53,700	177,945	--	1,600	48,427	--	41,420	41,652	20,896	6,099	5,301	--
1967	67,703	--	2,917	31,569	168,182	18,790	--	49,299	194,233	--	1,472	55,704	--	44,516	45,256	22,037	6,584	5,127	--
1968	75,766	--	---	26,374	169,565	20,520	--	53,219	202,064	--	1,580	55,477	--	43,709	45,175	22,321	6,428	4,981	--
1969	75,991	--	---	22,455	306,667	24,945	--	50,721	214,086	--	1,607	61,125	--	43,064	44,579	23,635	6,298	5,346	--
1970	80,118	--	2,655	23,983	229,167	22,169	--	50,694	185,670	--	1,942	55,205	--	47,959	50,425	25,763	6,069	5,673	--
1971	84,657	--	2,400	35,577	180,000	20,616	--	50,791	221,095	--	2,127	61,671	--	47,485	45,194	25,926	6,591	5,461	--
1972	106,025	--	19,718	45,928	742,857	16,069	--	57,722	217,744	--	2,193	58,130	--	47,334	46,142	27,746	6,244	5,791	--
1973	101,736	--	65,600	40,925	---	19,317	--	45,886	247,893	--	2,127	68,947	--	50,743	47,571	25,119	6,526	6,835	--
1974	95,318	--	172,963	88,529	41,606	19,634	7,143	49,326	303,591	--	2,603	69,912	--	52,111	60,629	25,142	7,043	6,720	--
1975	89,529	--	375,417	65,475	54,054	27,169	6,765	48,898	418,731	--	2,684	66,634	--	47,952	52,042	27,211	6,018	5,659	--
1976	89,917	--	254,755	88,773	40,845	16,813	5,060	46,798	419,812	--	2,156	62,063	--	39,846	47,188	23,161	5,673	5,396	--
1977	96,429	--	208,545	43,993	37,736	15,849	5,233	48,123	450,758	--	2,219	62,207	--	45,363	50,494	28,411	5,828	5,175	--
1978	115,578	--	104,474	33,828	42,593	18,060	2,815	50,358	434,954	--	2,066	80,702	--	44,952	45,335	26,175	5,674	5,735	--
1979	122,127	--	165,251	64,836	28,571	20,397	3,432	50,530	468,606	--	1,937	63,896	--	42,624	48,626	27,472	5,061	5,675	--
1980	115,642	--	142,823	63,636	27,799	21,930	2,299	46,301	719,032	--	1,962	56,903	--	41,584	46,154	24,741	4,558	5,425	--

APPENDIX TABLE 61. GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS), BY ECONOMIC SECTOR, MONTANA REGION 6, 1960-1980 (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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Hous-holds
1960	54,784	1,975,000	--	36,188	354,550	10,889	12,274	52,466	160,156	59	2,446	55,663	--	43,492	52,063	23,132	7,777	6,066	--
1961	54,132	100,000	--	35,332	363,640	11,083	12,500	53,844	140,876	--	2,509	60,624	--	46,524	55,814	24,909	8,301	6,207	--
1962	55,415	---	--	34,600	307,690	10,163	12,500	50,445	163,780	--	2,613	60,269	--	46,316	54,950	24,174	7,968	590	--
1963	50,633	---	--	31,066	372,730	15,470	17,316	57,160	131,013	--	2,216	57,016	--	51,848	56,771	30,316	8,211	5,741	--
1964	55,097	---	--	41,057	390,910	18,115	19,651	51,963	144,000	--	2,239	55,791	--	50,162	54,767	30,398	7,601	5,844	--
1965	65,557	---	--	61,539	700,000	25,216	20,207	67,023	165,041	--.	2,346	62,854	--	55,591	63,450	33,196	8,644	6,575	--
1966	71,702	---	--	63,232	833,330	16,712	11,702	66,026	178,302	--	2,096	69,021	--	57,135	65,323	31,657	9,105	6,499	--
1967	68,224	---	--	55,636	728,570	22,018	10,776	62,814	194,540	--	2,463	71,445	--	59,110	66,457	35,473	9,042	6,470	--
1968	71,803	---	--	48,614	218,180	19,275	10,672	65,252	202,913	--	2,271	75,598	--	59,344	63,196	37,526	8,400	6,259	--
1969	68,757	---	--	43,238	728,570	21,995	13,659	70,733	213,483	--	2,246	60,325	--	61,289	60,362	34,354	8,651	6,305	--
1970	70,968	---	--	72,917	335,290	32,901	11,409	50,088	136,496	--	2,438	74,972	--	66,717	66,845	42,215	9,432	6,635	--
1971	73,585	---	--	62,963	655,560	34,146	19,728	61,287	221,212	--	2,951	67,343	--	65,229	58,976	44,211	9,431	6,567	--
1972	96,756	---	--	51,773	1,987,500	141,910	--	59,952	216,346	--	3,758	116,223	--	81,241	78,195	46,132	11,175	8,831	--
1973	93,974	---	--	59,531	412,500	29,533	49,383	75,778	248,214	--	3,526	78,330	--	74,372	70,121	41,757	10,314	8,204	--
1974	84,797	---	--	93,878	108,470	34,969	23,950	61,637	384,615	--	3,941	87,629	--	79,714	56,188	49,509	9,368	7,941	--
1975	90,935	---	--	71,667	83,540	38,178	39,744	71,839	417,757	--	3,732	93,864	--	76,233	56,743	43,781	8,976	6,644	--
1976	91,010	---	--	62,890	440,000	32,252	23,581	64,248	419,603	--	3,760	88,364	--	73,515	55,131	41,854	7,915	6,540	--
1977	81,188	---	--	58,798	224,240	30,484	--	57,114	450,000	--	4,228	118,789	--	79,255	66,317	53,608	9,679	8,013	--
1978	98,170	---	--	42,512	116,670	23,157	--	65,360	435,5 6	--	3,747	108,079	--	58,679	51,893	44,816	6,682	6,415	--
1979	95,707	---	--	45,487	364,710	23,678	59,732	65,383	647,368	--	3,431	82,202	--	60,036	52,719	38,554	6,560	6,840	--
1980	95,413	---	--	57,028	352,940	22,626	42,975	60,573	714,458	--	3,497	74,194	--	59,005	50,579	34,807	5,558	6,614	--

APPENDIX TABLE 62. GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS), BY ECONOMIC SECTOR, MONTANA REGION 7, 1960-1980 (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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	44,855	--	--	--	2,016,700	24,176	20,755	75,926	--	--	2,806	59,468	--	41,009	53,798	38,280	6,910	6,247	--
1961	44,317	--	--	--	1,966,700	24,886	22,400	75,938	--	--	3,100	62,500	--	44,603	58,162	42,325	7,342	6,411	--
1962	47,750	--	--	--	1,685,700	23,366	23,485	74,783	--	--	3,366	64,344	--	46,198	59,481	42,647	7,305	6,312	--
1963	44,108	--	--	--	2,220,000	23,590	21,896	55,630	--	--	3,577	65,992	--	49,183	66,106	43,496	8,458	6,255	--
1964	47,006	--	--	--	1,920,000	27,196	20,776	61,085	--	--	3,625	63,563	--	47,669	62,983	44,130	7,719	5,628	--
1965	53,479	--	--	--	2,930,000	29,420	17,115	70,250	--	--	4,312	69,758	--	49,871	65,544	44,717	7,253	6,081	--
1966	55,232	--	--	--	1,314,300	25,432	17,484	71,676	--	--	3,745	66,914	--	49,939	70,659	48,282	7,484	6,043	--
1967	51,626	--	--	--	1,316,700	29,081	21,333	72,010	--	--	4,590	57,185	--	49,738	65,790	47,788	7,945	5,710	--
1968	59,542	--	--	--	---	25,313	30,684	69,493	--	--	4,348	65,109	--	53,177	71,599	48,445	8,435	5,973	--
1969	63,143	--	--	--	14,300,000	43,891	17,932	97,325	--	--	6,721	75,254	--	56,819	76,329	50,239	8,679	6,656	--
1970	50,674	--	--	--	261,700	34,161	27,273	66,732	--	--	5,839	59,890	--	61,079	74,109	56,597	7,696	6,254	--
1971	64,406	--	--	--	234,600	31,202	20,790	74,394	--	--	3,919	83,209	--	60,384	67,735	57,737	8,059	6,030	--
1972	78,942	--	--	--	782,400	26,124	26,477	84,030	--	--	4,292	95,331	--	58,037	64,286	56,018	7,602	6,577	--
1973	80,607	--	--	--	656,300	23,272	29,412	68,097	--	--	4,636	101,866	--	60,425	58,160	51,467	8,191	7,266	--
1974	65,391	--	--	--	305,700	24,106	20,542	59,849	--	--	4,577	87,213	--	55,272	59,524	52,347	6,676	6,540	--
1975	63,950	--	--	--	256,300	25,049	18,386	65,303	--	--	4,405	71,667	--	52,097	57,052	49,366	6,343	5,765	--
1976	66,782	--	--	--	312,500	41,090	21,589	63,049	--	--	4,677	83,284	--	59,143	58,692	44,434	7,273	6,046	--
1977	65,737	--	--	--	371,900	17,664	34,918	53,909	--	--	5,962	75,000	--	52,094	54,258	42,909	7,075	5,430	--
1978	77,408	--	--	--	2,657,100	17,636	24,082	59,432	--	--	4,069	87,202	--	42,484	46,188	37,177	6,535	5,628	--
1979	80,199	--	--	--	509,100	21,235	24,176	55,381	--	--	4,407	71,981	--	43,103	47,676	50,464	5,083	5,630	--
1980	74,622	--	--	--	436,400	19,157	14,543	50,535	--	--	4,205	63,170	--	42,607	44,572	45,417	4,495	5,321	--

APPENDIX TABLE 63. GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS), BY ECONOMIC SECTOR, MONTANA REGION 8, 1960-1980 (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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	61,476	28,205	--	--	--	14,387	79,487	63,135	--	--	1,846	14,256	--	45,633	34,286	34,973	4,978	6,334	--
1961	65,155	136,111	--	--	--	15,923	89,873	66,618	--	--	2,495	17,355	--	55,348	42,190	41,225	6,012	7,432	--
1962	64,444	154,545	--	--	--	14,086	93,976	62,534	--	323	2,483	16,421	--	52,165	39,969	39,037	5,432	6,698	--
1963	64,630	44,586	--	--	--	23,340	70,435	58,344	--	328	5,085	19,053	--	56,918	44,817	34,310	6,158	7,453	--
1964	64,689	42,391	--	--	--	26,782	81,579	61,961	--	319	5,153	18,229	--	52,731	41,130	33,750	5,484	6,106	--
1965	75,576	102,703	--	--	--	24,497	57,554	64,330	--	535	5,545	21,003	--	52,394	47,393	32,364	5,990	6,791	--
1966	76,830	53,333	--	--	--	20,888	40,719	62,946	--	--	4,508	19,319	--	51,700	43,921	32,014	5,768	6,324	--
1967	72,828	26,070	--	--	--	31,910	39,231	62,182	--	--	4,639	20,485	--	57,898	44,803	34,164	5,870	6,132	--
1968	81,015	21,898	--	--	--	29,587	---	54,167	--	--	5,285	18,113	--	50,332	36,595	35,241	4,586	5,331	--
1969	75,296	67,123	--	--	--	42,857	---	52,888	--	439	4,481	12,004	--	30,552	19,684	26,682	2,185	3,046	--
1970	79,695	3,497	--	--	--	34,812	---	56,413	--	--	5,740	21,317	--	55,856	35,952	44,252	4,257	5,524	--
1971	88,822	8,929	--	--	--	27,121	---	62,623	--	--	5,882	22,951	--	56,267	32,733	31,044	4,497	5,318	--
1972	108,734	6,452	--	--	--	38,433	---	84,142	--	--	6,178	23,084	--	62,366	34,390	33,111	4,733	6,543	--
1973	113,231	4,478	--	--	--	16,158	57,194	83,905	--	209	6,667	26,202	--	64,797	38,219	38,347	5,346	7,630	--
1974	93,261	13,699	--	--	--	19,912	137,805	59,002	--	559	5,393	24,346	--	63,666	41,423	35,019	5,257	6,699	--
1975	97,594	10,606	--	--	--	41,543	23,958	51,280	--	1,173	8,444	19,987	--	63,834	50,113	29,815	5,633	6,640	--
1976	103,520	4,603	--	--	--	29,422	27,506	64,979	--	293	18,868	27,640	--	63,290	40,446	40,641	5,678	6,573	--
1977	102,406	11,538	--	--	--	36,275	29,462	72,975	--	373	20,628	26,105	--	70,702	44,963	53,012	6,479	6,565	--
1978	113,514	27,586	--	--	--	25,000	55,728	67,146	--	1,266	11,825	24,224	--	57,405	40,473	43,456	6,183	6,488	--
1979	112,833	73,077	--	--	--	33,144	60,616	72,113	--	344	11,111	18,983	--	57,614	44,748	39,315	6,124	6,608	--
1980	103,195	94,737	--	--	--	37,427	44,118	66,325	--	654	10,945	16,925	--	56,003	42,182	34,534	5,470	6,297	--

APPENDIX TABLE 64. GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS), BY ECONOMIC SECTOR, MONTANA REGION 9, 1960-1980 (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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) House-holds
1960	103,300	2,418	--	--	97,701	15,604	--	60,485	--	104	2,060	20,542	--	28,881	38,292	22,727	4,855	4,506	--
1961	101,788	3,238	--	--	98,851	18,613	--	62,480	--	172,418	5,404	31,377	--	37,586	53,007	28,551	6,791	6,628	--
1962	104,604	10,364	--	--	93,333	17,498	--	59,481	--	160,226	6,725	33,333	--	38,457	54,406	28,611	6,857	6,648	--
1963	93,279	9,128	--	--	138,462	16,043	--	36,911	--	182,361	5,711	33,922	--	38,294	53,942	29,677	6,846	6,324	--
1964	99,379	8,490	--	--	161,538	19,048	--	39,624	--	225,535	6,595	35,925	--	36,272	54,496	30,575	6,706	6,144	--
1965	115,440	9,839	--	--	57,576	26,425	--	66,315	--	153,664	7,581	43,036	--	43,477	64,723	36,487	7,413	6,865	--
1966	119,459	4,722	--	--	158,511	35,288	--	80,216	--	141,919	6,939	43,899	--	43,413	59,895	37,407	7,141	6,803	--
1967	92,296	3,011	--	--	157,143	23,813	--	65,475	--	75,050	4,336	32,787	--	38,590	57,784	41,053	5,731	5,379	--
1968	126,770	4,949	--	--	224,344	34,234	--	74,726	--	---	5,105	37,393	--	46,353	60,593	39,124	17,039	6,032	--
1969	137,222	4,244	--	--	300,000	58,131	--	81,285	--	158,671	7,733	49,732	--	49,540	73,167	43,958	7,231	7,250	--
1970	120,449	4,379	--	--	240,984	48,265	--	78,180	--	210,498	8,981	48,659	--	53,017	77,695	47,717	6,925	7,495	--
1971	121,418	3,478	--	--	218,367	37,270	--	79,153	--	120,775	6,392	44,868	--	46,330	66,238	52,205	6,536	6,459	--
1972	148,413	4,174	--	--	110,959	51,062	--	104,527	--	105,668	9,223	58,098	--	51,839	78,540	61,278	7,180	7,287	--
1973	145,596	6,757	--	--	82,203	32,265	--	86,190	--	237,601	9,799	52,805	--	56,657	83,261	63,363	7,284	8,363	--
1974	116,183	8,938	--	--	105,495	25,404	27,854	85,993	--	209,429	11,144	44,681	--	55,241	87,372	37,512	9,633	8,332	--
1975	112,554	6,927	--	--	61,261	33,274	43,590	75,140	--	115,066	7,055	41,987	--	53,780	77,557	39,480	6,993	6,114	--
1976	129,103	11,018	--	--	103,093	34,742	47,059	83,053	--	128,625	9,159	42,025	--	56,973	91,763	38,100	7,940	6,634	--
1977	114,910	13,689	--	--	121,429	40,944	42,781	72,782	--	125,060	9,861	39,185	--	58,421	88,394	51,766	7,816	6,300	--
1978	143,421	11,426	--	--	123,000	28,486	40,299	59,662	--	204,114	11,690	47,524	--	55,173	90,016	49,539	7,036	6,633	--
1979	152,782	22,793	--	--	193,506	44,409	44,324	65,135	--	162,060	12,807	39,948	--	60,503	41,379	51,064	8,100	7,546	--
1980	136,023	29,260	--	--	155,844	41,605	31,126	58,429	--	115,359	10,116	32,166	--	56,189	36,643	44,086	6,816	6,555	--

APPENDIX TABLE 65. GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS), BY ECONOMIC SECTOR, MONTANA REGION 10, 1960-1980 (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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	38,062	9,969	--	--	142,529	34,677	38,515	89,797	--	--	4,583	63,391	--	48,404	77,973	55,390	10,263	7,321	--
1961	40,829	12,333	--	--	136,762	36,308	40,270	92,749	--	--	5,193	70,206	--	54,448	88,203	61,170	11,249	7,667	--
1962	41,767	10,332	--	--	130,769	33,950	41,843	87,613	--	--	5,650	71,890	--	54,151	87,654	61,547	11,185	7,580	--
1963	39,699	2,390	--	--	80,000	35,227	40,313	82,443	--	--	5,418	76,045	--	52,896	88,052	62,420	11,261	7,659	--
1964	41,017	5,802	--	--	81,818	40,330	40,048	86,630	--	--	5,378	72,990	--	49,800	82,843	61,153	10,321	6,714	--
1965	46,454	13,913	--	--	102,151	38,976	39,417	82,156	--	--	5,391	88,393	--	51,711	86,626	57,347	10,923	7,152	--
1966	49,410	11,818	--	--	99,500	31,717	39,597	93,076	--	--	5,352	103,306	--	49,940	82,122	53,135	10,745	6,557	--
1967	50,102	11,594	--	--	103,604	40,629	41,370	93,879	--	--	5,280	87,899	--	53,313	65,829	53,186	10,469	6,542	--
1968	60,547	14,050	--	--	85,854	50,224	44,783	95,818	--	--	6,022	95,083	--	54,863	85,531	59,126	10,425	6,570	--
1969	61,762	33,333	--	--	53,333	37,686	34,911	91,149	--	--	5,655	91,201	--	51,684	77,007	63,115	10,000	6,795	--
1970	53,214	17,222	--	--	84,146	37,027	36,766	89,123	--	--	5,206	84,992	--	51,806	80,723	52,405	8,918	6,476	--
1971	58,743	4,020	--	--	66,917	41,956	43,311	90,813	--	--	6,524	89,031	--	55,102	80,754	66,571	8,697	6,527	--
1972	67,853	1,149	--	--	41,753	26,192	41,154	104,758	--	--	5,732	78,243	--	51,082	79,565	63,336	8,167	6,622	--
1973	67,173	17,021	--	--	41,475	26,311	53,240	85,997	--	--	6,667	90,214	--	55,360	86,840	65,872	9,213	7,992	--
1974	53,174	23,881	--	--	50,777	23,334	43,372	74,894	--	--	3,774	70,434	--	50,625	66,657	49,659	7,766	6,691	--
1975	55,020	14,815	--	--	72,581	25,670	43,286	70,535	--	--	4,259	75,746	--	50,939	59,728	52,089	7,060	6,029	--
1976	59,579	16,667	--	--	66,026	25,865	51,690	71,278	--	--	5,648	74,562	--	49,304	57,627	104,151	5,809	5,841	--
1977	60,678	6,897	--	--	63,253	33,185	50,547	75,998	--	--	5,688	91,343	--	52,429	51,346	66,832	8,364	5,875	--
1978	74,291	43,876	--	--	65,027	24,570	50,053	78,148	--	--	5,316	39,796	--	48,851	62,437	53,050	7,585	6,211	--
1979	77,405	57,971	--	--	67,901	22,163	49,983	76,638	--	--	5,615	85,957	--	44,912	64,415	57,222	8,760	6,058	--
1980	71,312	73,469	--	--	69,753	23,930	46,665	69,878	--	--	4,947	70,459	--	41,111	56,651	45,011	7,217	5,392	--

APPENDIX TABLE 66. GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS), BY ECONOMIC SECTOR, MONTANA REGION 11, 1960-1980 (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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	49,244	--	--	--	29,546	41,667	19,185	212,476	--	--	8,665	72,263	--	60,256	103,901	65,140	13,678	6,293	--
1961	52,895	--	--	--	34,091	46,332	22,165	220,949	--	--	10,396	84,672	--	70,620	123,022	76,364	15,905	7,034	--
1962	54,172	--	--	--	28,302	42,606	23,551	208,608	--	134	11,340	85,502	--	70,075	121,223	77,114	15,572	6,760	--
1963	53,842	--	--	--	26,563	37,012	26,808	183,439	--	198	26,776	426,667	--	66,140	131,690	94,751	17,280	7,204	--
1964	55,091	--	--	--	25,000	40,923	27,185	194,276	--	192	26,519	408,333	--	62,330	123,264	94,215	15,757	6,452	--
1965	62,267	--	--	--	22,785	21,424	29,397	187,281	--	222	10,729	92,256	--	67,109	131,023	99,475	16,679	7,020	--
1966	68,770	--	--	--	27,692	35,063	28,848	197,316	--	220	9,306	92,131	--	62,252	134,768	86,245	16,173	6,828	--
1967	72,315	--	--	--	30,159	10,605	25,367	189,007	--	309	10,600	104,947	--	64,027	136,050	93,303	15,586	6,459	--
1968	55,872	--	--	--	25,532	12,765	33,517	183,017	--	51	14,830	146,643	--	81,974	170,568	95,620	21,903	8,421	--
1969	91,972	--	--	--	24,490	18,327	55,222	139,205	--	153	9,972	132,313	--	78,650	156,077	103,209	17,950	8,446	--
1970	84,712	--	--	--	18,966	19,862	26,131	394,038	--	60	48,413	678,431	--	76,644	251,244	163,091	63,656	7,792	--
1971	90,229	--	--	--	17,188	24,402	26,712	137,671	--	140	7,629	114,851	--	79,319	126,065	97,624	15,715	7,230	--
1972	99,676	--	--	--	12,651	23,367	32,218	42,370	--	90	10,272	108,100	--	72,252	102,697	94,434	12,334	7,282	--
1973	102,515	--	--	--	10,901	34,936	36,794	110,584	--	157	11,702	105,220	--	74,204	103,612	101,029	12,344	8,422	--
1974	90,833	--	--	--	16,429	34,893	36,423	146,842	--	140	13,044	108,092	--	66,505	73,388	87,160	13,495	7,668	--
1975	98,179	--	--	--	14,118	44,146	39,573	152,317	--	146	15,315	103,060	--	70,607	80,967	81,630	12,708	6,740	--
1976	103,760	--	--	--	8,710	49,662	48,192	153,312	--	146	13,463	105,811	--	76,305	89,143	254,864	14,818	7,438	--
1977	103,245	--	--	--	18,543	35,709	46,532	248,604	--	80	13,793	104,684	--	74,798	103,079	85,342	13,685	6,745	--
1978	115,594	--	--	--	18,301	33,636	45,975	185,451	--	68	12,361	115,736	--	62,726	88,108	80,071	10,869	6,861	--
1979	114,710	--	--	--	25,210	36,561	38,482	204,231	--	64	12,169	79,002	--	57,623	85,417	75,141	10,290	6,704	--
1980	105,077	--	--	--	22,689	34,100	33,387	186,680	--	82	10,863	60,952	--	51,018	70,769	57,879	7,859	5,617	--

APPENDIX TABLE 67. GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS), BY ECONOMIC SECTOR, MONTANA, 1960-1980, (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	(12) Trans	(13) Comm & Pub Util	(14) Elec Gen	(15) Retail	(16) F.I.R.E.	(17) Bus & Pers Service	(18) Prof & Soc Serv	(19) Govt	(20) Households
1960	49,936	7,600	6,444	46,773	191,200	19,474	30,167	72,182	160,444	105	2,281	44,696	--	44,915	57,536	33,721	7,915	6,452	--
1961	49,373	7,095	6,667	45,636	190,000	20,160	32,418	73,303	140,800	44,111	2,751	49,518	--	49,051	63,353	37,166	8,652	6,848	--
1962	51,055	11,632	5,400	46,273	169,000	18,776	33,969	68,524	164,100	46,457	2,993	50,436	--	49,733	63,677	37,043	8,494	6,648	--
1963	50,219	10,073	4,364	48,190	163,143	21,475	34,871	67,600	130,750	44,031	3,164	54,036	--	52,092	68,221	38,983	9,145	6,807	--
1964	52,115	9,792	4,000	46,368	174,571	23,710	34,960	72,577	144,250	54,394	3,239	52,164	--	49,205	64,275	38,401	8,366	6,291	--
1965	53,651	11,739	3,571	59,000	150,750	25,143	35,029	74,675	164,636	61,250	3,600	56,804	--	52,963	70,043	39,739	8,932	6,802	--
1966	63,466	6,042	4,143	66,059	178,250	25,150	34,150	80,238	178,000	57,718	3,637	58,478	--	53,742	71,208	40,241	8,793	6,761	--
1967	60,265	3,656	3,500	66,059	172,500	25,753	33,452	75,729	194,100	35,125	3,453	59,105	--	55,558	73,097	41,424	8,634	6,407	--
1968	68,673	7,000	6,333	69,909	174,500	28,407	39,879	78,704	202,300	34,541	3,904	63,544	--	58,156	73,434	43,974	8,878	6,638	--
1969	69,097	6,667	222	61,261	198,571	33,626	40,028	79,310	214,222	45,217	4,129	64,491	--	57,809	71,228	44,783	8,458	6,879	--
1970	67,283	5,050	22,667	71,611	190,286	34,108	32,370	76,587	240,545	57,660	4,473	65,719	--	62,104	71,259	47,066	8,552	7,000	--
1971	70,043	3,759	47,200	74,563	160,750	32,601	35,585	76,836	221,400	41,878	4,363	65,259	--	61,190	68,459	47,083	8,461	6,803	--
1972	88,641	3,865	54,600	72,625	148,000	55,965	38,748	75,236	218,000	58,846	4,912	74,220	--	66,168	75,111	48,217	8,801	7,737	--
1973	90,956	6,921	95,000	80,438	121,167	30,512	46,291	77,295	248,364	78,265	5,268	76,065	--	69,655	77,968	48,668	9,118	8,379	--
1974	81,278	9,275	130,500	126,222	112,143	30,413	38,535	71,159	384,091	114,265	5,200	73,862	--	69,199	74,450	46,201	8,755	8,100	--
1975	79,440	7,484	201,333	128,000	108,400	36,974	38,600	70,804	419,455	56,242	5,009	67,029	11,600	65,654	68,588	45,896	7,808	6,821	--
1976	79,850	11,042	209,125	115,095	106,125	32,101	44,955	69,349	420,917	62,727	5,229	68,000	32,727	62,581	65,306	47,836	7,527	6,822	--
1977	75,786	13,000	187,111	100,833	129,857	29,790	46,840	68,785	452,000	47,879	5,376	69,483	31,636	64,663	66,821	52,117	8,099	6,809	--
1978	91,849	13,250	113,071	78,828	132,571	26,446	45,585	70,161	436,091	40,531	4,899	65,921	41,167	57,646	62,672	46,626	7,336	6,752	--
1979	93,873	26,143	157,400	84,176	145,429	28,107	41,874	72,440	649,900	59,636	4,871	61,386	37,333	56,014	60,433	47,527	7,040	6,986	--
1980	89,796	33,533	138,875	112,342	139,429	29,362	36,964	66,400	721,100	52,000	4,698	54,200	37,000	54,367	56,837	41,135	6,244	6,622	--

APPENDIX TABLE 68. REGRESSION EQUATIONS[a] FOR PROJECTION OF GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR 20-SECTOR MONTANA I-O MODEL, REGION 2 (1980 = BASE DOLLARS), THOUSAND DOLLARS

Sector	Equation
(1) & (2) Agriculture	Y = -3,789.275 + 1.9622(X)
(3) Metal Mining	Y = 10,000[b]
(4) Coal Mining	Y = -19,227.03 + 9.79367(X)
(5) Pet/NG Exp/Ext	Y = -32,797.24 + 16.7871(X)
(6) Nonmetallic Mining	Y = -18,396.3 + 9.82969(X)
(7) Construction	Y = -3,303.961 + 1.70323(X)
(8) Lumber	Y = 10,000[b]
(9) Ag Proc & Misc Manufacturing	Y = 1,942.419 - 0.911864(X)
(10) Pet Refining	Y = 10,000[b]
(11) Metal Processing	Y = 10,000[b]
(12) Transportation	Y = -351.4182 + 0.181337(X)
(13) Comm & Public Utilities	Y = -13,953.31 + 7.17668(X)
(14) Electric Generation	Y = -17,070.73 + 8.71139(X)
(15) Retail	Y = -5,082.098 + 2.6238(X)
(16) Fin, Ins, Real Estate	Y = -4,347.746 + 2.28349(X)
(17) Business & Personal Service	Y = -2,285.038 + 1.18954(X)
(18) Prof & Social Service	Y = 10.277[c]
(19) Government	Y = -267.8655 + 0.141576(X)
(20) Households	Y = 10,000[b]

[a]Robust regression with intercept adjustment technique.
[b]Because these sectors have historically accounted for very little or no employment in this region, arbitrary, very large values were utilized in developing projections of baseline employment.
[c]The average of the last three years.

APPENDIX TABLE 69. REGRESSION EQUATIONS[a] FOR PROJECTION OF GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR 20-SECTOR MONTANA I-O MODEL, REGION 3 (1980 = BASE DOLLARS), THOUSAND DOLLARS

Sector	Equation
(1) & (2) Agriculture	Y = -4,379.914 + 2.25611(X)
(3) Metal Mining	Y = 10,000[b]
(4) Coal Mining	Y = 10,000[b]
(5) Pet/NG Exp/Ext	Y = -2,634.241 + 1.45388(X)
(6) Nonmetallic Mining	Y = 719.937[c]
(7) Construction	Y = -3,213.012 + 1.64806(X)
(8) Lumber	Y = 10,000[b]
(9) Ag Proc & Misc Manufacturing	Y = 85.192[c]
(10) Pet Refining	Y = 10,000[b]
(11) Metal Processing	Y = 10,000[b]
(12) Transportation	Y = -665.4995 + 0.340879(X)
(13) Comm & Public Utilities	Y = -8,797.734 + 4.51027(X)
(14) Electric Generation	Y = 10,000[b]
(15) Retail	Y = -3,869.785 + 1.99547(X)
(16) Fin, Ins, Real Estate	Y = 852.0449 - 0.386187(X)
(17) Business & Personal Service	Y = -2,163.456 + 1.12875(X)
(18) Prof & Social Service	Y = 6.923[c]
(19) Government	Y = -331.1323 + 0.1722(X)
(20) Households	Y = 10,000[b]

[a]Robust regression with intercept adjustment technique.
[b]Because these sectors have historically accounted for very little or no employment in this region, arbitrary, very large values were utilized in developing projections of baseline employment.
[c]The average of the last three years.

APPENDIX TABLE 70. REGRESSION EQUATIONS[a] FOR PROJECTION OF GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR 20-SECTOR MONTANA I-O MODEL, REGION 4 (1980 = BASE DOLLARS), THOUSAND DOLLARS

Sector	Equation
(1) & (2) Agriculture	Y = -3,767.698 + 1.94792(X)
(3) Metal Mining	Y = 10,000[b]
(4) Coal Mining	Y = 10,000[b]
(5) Pet/NG Exp/Ext	Y = 10,000[b]
(6) Nonmetallic Mining	Y = -19,619.96 + 10.0645(X)
(7) Construction	Y = -995.9968 + 0.523644(X)
(8) Lumber	Y = -313.8186 + 0.177109(X)
(9) Ag Proc & Misc Manufacturing	Y = -488.5925 + 0.297192(X)
(10) Pet Refining	Y = 10,000[b]
(11) Metal Processing	Y = 10,000[b]
(12) Transportation	Y = -888.6638 + 0.502805(X)
(13) Comm & Public Utilities	Y = -12,292.04 + 6.26959(X)
(14) Electric Generation	Y = 10,000[b]
(15) Retail	Y = -4,592.277 + 2.36534(X)
(16) Fin, Ins, Real Estate	Y = -431.7812 + 0.266169(X)
(17) Business & Personal Service	Y = -1,126.978 + 0.596771(X)
(18) Prof & Social Service	Y = -53.77429 + 0.0312224(X)
(19) Government	Y = -68.77341 + 0.0389589(X)
(20) Households	Y = 10,000[b]

[a]Robust regression with intercept adjustment technique.
[b]Because these sectors have historically accounted for very little or no employment in this region, arbitrary, very large values were utilized in developing projections of baseline employment.

APPENDIX TABLE 71. REGRESSION EQUATIONS[a] FOR PROJECTION OF GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR 20-SECTOR MONTANA I-O MODEL, REGION 5 (1980 = BASE DOLLARS), THOUSAND DOLLARS

Sector	Equation
(1) & (2) Agriculture	Y = -6,022.34 + 3.10421(X)
(3) Metal Mining	Y = 10,000[b]
(4) Coal Mining	Y = -17,930.11 + 9.13429(X)
(5) Pet/NG Exp/Ext	Y = -4,531.652 + 2.31838(X)
(6) Nonmetallic Mining	Y = 32.988[c]
(7) Construction	Y = -522.3728 + 0.274268(X)
(8) Lumber	Y = -316.8159 + 0.16161(X)
(9) Ag Proc & Misc Manufacturing	Y = 49.063[c]
(10) Pet Refining	Y = -36,176.48 + 18.5932(X)
(11) Metal Processing	Y = 10,000[b]
(12) Transportation	Y = -142.168 + 0.0728798(X)
(13) Comm & Public Utilities	Y = -2,515.152 + 1.30552(X)
(14) Electric Generation	Y = 10,000[b]
(15) Retail	Y = -787.1135 + 0.419734(X)
(16) Fin, Ins, Real Estate	Y = -1,226.81 + 0.643958(X)
(17) Business & Personal Service	Y = -894.0718 + 0.465218(X)
(18) Prof & Social Service	Y = 5.098[c]
(19) Government	Y = -16.21236 + 0.0110334(X)
(20) Households	Y = 10,000[b]

[a]Robust regression with intercept adjustment technique.
[b]Because these sectors have historically accounted for very little or no employment in this region, arbitrary, very large values were utilized in developing projections of baseline employment.
[c]The average of the last three years.

APPENDIX TABLE 72. REGRESSION EQUATIONS[a] FOR PROJECTION OF GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR 20-SECTOR MONTANA I-O MODEL, REGION 6 (1980 = BASE DOLLARS), THOUSAND DOLLARS

Sector	Equation
(1) & (2) Agriculture	Y = -4,618.305 + 2.38359(X)
(3) Metal Mining	Y = 10,000[b]
(4) Coal Mining	Y = 10,000[b]
(5) Pet/NG Exp/Ext	Y = -2,087.086 + 1.07959(X)
(6) Nonmetallic Mining	Y = 278.107[c]
(7) Construction	Y = -2,452.82 + 1.25179(X)
(8) Lumber	Y = 34.235[c]
(9) Ag Proc & Misc Manufacturing	Y = -768.3071 + 0.420667(X)
(10) Pet Refining	Y = -36,101.47 + 18.5544(X)
(11) Metal Processing	Y = 10,000[b]
(12) Transportation	Y = -180.7674 + 0.093188(X)
(13) Comm & Public Utilities	Y = -3,480.351 + 1.8041(X)
(14) Electric Generation	Y = 10,000[b]
(15) Retail	Y = -4,161.512 + 2.13385(X)
(16) Fin, Ins, Real Estate	Y = 215.1826 - 0.082635(X)
(17) Business & Personal Service	Y = -2,703.381 + 1.38664(X)
(18) Prof & Social Service	Y = 24.56857 - 0.00918535(X)
(19) Government	Y = -54.00719 + 0.0306523(X)
(20) Households	Y = 10,000[b]

[a]Robust regression with intercept adjustment technique.
[b]Because these sectors have historically accounted for very little or no employment in this region, arbitrary, very large values were utilized in developing projections of baseline employment.
[c]The average of the last three years.

APPENDIX TABLE 73. REGRESSION EQUATIONS[a] FOR PROJECTION OF GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR 20-SECTOR MONTANA I-O MODEL, REGION 7 (1980 = BASE DOLLARS), THOUSAND DOLLARS

Sector	Equation
(1) & (2) Agriculture	Y = -3,211.016 + 1.6625(X)
(3) Metal Mining	Y = 10,000[b]
(4) Coal Mining	Y = 10,000[b]
(5) Pet/NG Exp/Ext	Y = 10,000[b]
(6) Nonmetallic Mining	Y = 472.750[c]
(7) Construction	Y = 19,343[c]
(8) Lumber	Y = -81.17358 + 0.0516214(X)
(9) Ag Proc & Misc Manufacturing	Y = 55.116[c]
(10) Pet Refining	Y = 10,000[b]
(11) Metal Processing	Y = 10,000[b]
(12) Transportation	Y = -132.241 + 0.0690063(X)
(13) Comm & Public Utilities	Y = -1,827.003 + 0.961133(X)
(14) Electric Generation	Y = 10,000[b]
(15) Retail	Y = -525.9038 + 0.28748(X)
(16) Fin, Ins, Real Estate	Y = 46.345[c]
(17) Business & Personal Service	Y = -580.2756 + 0.315788(X)
(18) Prof & Social Service	Y = 5.371[c]
(19) Government	Y = 82.75478 - 0.0390421(X)
(20) Households	Y = 10,000[b]

[a]Robust regression with intercept adjustment technique.
[b]Because these sectors have historically accounted for very little or no employment in this region, arbitrary, very large values were utilized in developing projections of baseline employment.
[c]The average of the last three years.

APPENDIX TABLE 74. REGRESSION EQUATIONS[a] FOR PROJECTION OF GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR 20-SECTOR MONTANA I-O MODEL, REGION 8 (1980 = BASE DOLLARS), THOUSAND DOLLARS

Sector	Equation
(1) & (2) Agriculture	Y = -4,967.477 + 2.5669(X)
(3) Metal Mining	Y = 83.907[c]
(4) Coal Mining	Y = 10,000[b]
(5) Pet/NG Exp/Ext	Y = 10,000[b]
(6) Nonmetallic Mining	Y = 10,000[b]
(7) Construction	Y = -1,660.832 + 0.855758(X)
(8) Lumber	Y = 53.487[c]
(9) Ag Proc & Misc Manufacturing	Y = -489.4597 + 0.282097(X)
(10) Pet Refining	Y = 10,000[b]
(11) Metal Processing	Y = -40.24661 + 0.0207285(X)
(12) Transportation	Y = -820.9673 + 0.420759(X)
(13) Comm & Public Utilities	Y = -1,126.652 + 0.579725(X)
(14) Electric Generation	Y = 10,000[b]
(15) Retail	Y = -1,147.589 + 0.608997(X)
(16) Fin, Ins, Real Estate	Y = -148.34 + 0.0964649(X)
(17) Business & Personal Service	Y = -371.7344 + 0.207703(X)
(18) Prof & Social Service	Y = -16.73531 + 0.0114561(X)
(19) Government	Y = 11.30565 - 0.00244752(X)
(20) Households	Y = 10,000[b]

[a]Robust regression with intercept adjustment technique.
[b]Because these sectors have historically accounted for very little or no employment in this region, arbitrary, very large values were utilized in developing projections of baseline employment.
[c]The average of the last three years.

APPENDIX TABLE 75. REGRESSION EQUATIONS[a] FOR PROJECTION OF GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR 20-SECTOR MONTANA I-O MODEL, REGION 9 (1980 = BASE DOLLARS), THOUSAND DOLLARS

Sector	Equation
(1) & (2) Agriculture	Y = -3,992.496 + 2.09129(X)
(3) Metal Mining	Y = -630.7852 + 0.329598(X)
(4) Coal Mining	Y = 10,000[b]
(5) Pet/NG Exp/Ext	Y = 10,000[b]
(6) Nonmetallic Mining	Y = -1,557.64 + 0.867083(X)
(7) Construction	Y = -2,362.888 + 1.21388(X)
(8) Lumber	Y = -4,927.598 + 2.51071(X)
(9) Ag Proc & Misc Manufacturing	Y = -1,332.387 + 0.704514(X)
(10) Pet Refining	Y = 10,000[b]
(11) Metal Processing	Y = 160.511[c]
(12) Transportation	Y = -655.04 + 0.336996(X)
(13) Comm & Public Utilities	Y = -1,162.208 + 0.607729(X)
(14) Electric Generation	Y = 10,000[b]
(15) Retail	Y = -2,466.423 + 1.27589(X)
(16) Fin, Ins, Real Estate	Y = -5,072.008 + 2.59253(X)
(17) Business & Personal Service	Y = -2,147.648 + 1.11015(X)
(18) Prof & Social Service	Y = -66.3656 + 0.0372511(X)
(19) Government	Y = -69.97571 + 0.0388705(X)
(20) Households	Y = 10,000[b]

[a]Robust regression with intercept adjustment technique.
[b]Because these sectors have historically accounted for very little or no employment in this region, arbitrary, very large values were utilized in developing projections of baseline employment.
[c]The average of the last three years.

APPENDIX TABLE 76. REGRESSION EQUATIONS[a] FOR PROJECTION OF GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR 20-SECTOR MONTANA I-O MODEL, REGION 10 (1980 = BASE DOLLARS), THOUSAND DOLLARS

Sector	Equation
(1) & (2) Agriculture	Y = -3,310.319 + 1.71115(X)
(3) Metal Mining	Y = -574.291 + 0.319884(X)
(4) Coal Mining	Y = 10,000[b]
(5) Pet/NG Exp/Ext	Y = 10,000[b]
(6) Nonmetallic Mining	Y = 67.560[c]
(7) Construction	Y = 23.554[c]
(8) Lumber	Y = -1,037.779 + 0.549383(X)
(9) Ag Proc & Misc Manufacturing	Y = 74,888[c]
(10) Pet Refining	Y = 10,000[b]
(11) Metal Processing	Y = 10,000[b]
(12) Transportation	Y = -14.67993 + 0.0100974(X)
(13) Comm & Public Utilities	Y = -532.0833 + 0.301898(X)
(14) Electric Generation	Y = 10,000[b]
(15) Retail	Y = 357.5867 - 0.158053(X)
(16) Fin, Ins, Real Estate	Y = 3,428.594 - 1.70244(X)
(17) Business & Personal Service	Y = 384.6921 - 0.167306(X)
(18) Prof & Social Service	Y = 7.860[c]
(19) Government	Y = 191.4159 - 0.0937962(X)
(20) Households	Y = 10,000[b]

[a]Robust regression with intercept adjustment technique.
[b]Because these sectors have historically accounted for very little or no employment in this region, arbitrary, very large values were utilized in developing projections of baseline employment.
[c]The average of the last three years.

APPENDIX TABLE 77. REGRESSION EQUATIONS[a] FOR PROJECTION OF GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR 20-SECTOR MONTANA I-O MODEL, REGION 11 (1980 = BASE DOLLARS), THOUSAND DOLLARS

Sector	Equation
(1) & (2) Agriculture	Y = -7,034.441 + 3.61286(X)
(3) Metal Mining	Y = 10,000[b]
(4) Coal Mining	Y = 10,000[b]
(5) Pet/NG Exp/Ext	Y = 10,000[b]
(6) Nonmetallic Mining	Y = 22.067[c]
(7) Construction	Y = 80.1312 - 0.022935(X)
(8) Lumber	Y = -2,220.187 + 1.1423(X)
(9) Ag Proc & Misc Manufacturing	Y = 192,121[c]
(10) Pet Refining	Y = 10,000[b]
(11) Metal Processing	Y = 0.082[c]
(12) Transportation	Y = -3,461.355 + 1.75606(X)
(13) Comm & Public Utilities	Y = -3,234.072 + 1.67811(X)
(14) Electric Generation	Y = 10,000[b]
(15) Retail	Y = 54.81822 + 0.00116479(X)
(16) Fin, Ins, Real Estate	Y = 81.431[c]
(17) Business & Personal Service	Y = 659.1489 - 0.29733(X)
(18) Prof & Social Service	Y = 9.679[c]
(19) Government	Y = -11.98202 + 0.00929007(X)
(20) Households	Y = 10,000[b]

[a]Robust regression with intercept adjustment technique.
[b]Because these sectors have historically accounted for very little or no employment in this region, arbitrary, very large values were utilized in developing projections of baseline employment.
[c]The average of the last three years.

APPENDIX TABLE 78. REGRESSION EQUATIONS[a] FOR PROJECTION OF GROSS BUSINESS VOLUME TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR 20-SECTOR MONTANA I-O MODEL, MONTANA (1980 = BASE DOLLARS), THOUSAND DOLLARS

Sector	Equation
(1) & (2) Agriculture	Y = -4,376.359 + 2.25895(X)
(3) Metal Mining	Y = -134.7776 + 0.0804279(X)
(4) Coal Mining	Y = -18,970.34 + 9.65965(X)
(5) Pet/NG Exp/Ext	Y = -5,374.852 + 2.76372(X)
(6) Nonmetallic Mining	Y = 6,511.684 - 3.22171(X)
(7) Construction	Y = -1,101.799 + 0.571168(X)
(8) Lumber	Y = -1,168.581 + 0.611757(X)
(9) Ag Proc & Misc Manufacturing	Y = 409.6948 - 0.171905(X)
(10) Pet Refining	Y = -36,031.59 + 18.5207(X)
(11) Metal Processing	Y = -757.7888 + 0.408752(X)
(12) Transportation	Y = -339.0112 + 0.173829(X)
(13) Comm & Public Utilities	Y = -2,632.05 + 1.36125(X)
(14) Electric Generation	Y = -17,070.73 + 8.71139(X)
(15) Retail	Y = -2,558.097 + 1.32159(X)
(16) Fin, Ins, Real Estate	Y = 135.6907 - 0.038276(X)
(17) Business & Personal Service	Y = -1,482.933 + 0.772512(X)
(18) Prof & Social Service	Y = 147.3673 - 0.0710285(X)
(19) Government	Y = -12.62849 + 0.00981543(X)
(20) Households	Y = 10,000[b]

[a]Robust regression with intercept adjustment technique.
[b]Because these sectors have historically accounted for very little or no employment in this region, arbitrary, very large values were utilized in developing projections of baseline employment.

APPENDIX TABLE 79. PROJECTED GROSS BUSINESS VOLUMES TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR MONTANA REGION 2, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS)

Sector	1981	1985	1990	1995	2000	2005
(1) & (2) Agriculture	95,881	103,730	113,541	123,352	133,163	142,974
(3) Metal Mining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(4) Coal Mining	164,437	203,611	252,580	301,548	350,516	399,485
(5) Pet/NG Exp/Ext	441,218	508,366	592,302	676,237	760,173	844,108
(6) Nonmetallic Mining	1,066,486	1,105,805	1,154,953	1,204,102	1,253,250	1,302,399
(7) Construction	68,434	75,247	83,763	92,280	100,796	109,312
(8) Lumber & Assoc Prod[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(9) Ag Proc & Misc Mfg	136,928	133,281	128,722	124,162	119,603	115,044
(10) Pet Refining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(11) Metal Processing[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(12) Transportation	7,629	8,354	9,261	10,168	11,074	11,981
(13) Comm & Public Util	256,516	285,223	321,107	356,990	392,873	428,757
(14) Electric Generation	177,822	212,668	256,225	299,782	343,339	386,896
(15) Retail	113,026	123,521	136,640	149,759	162,878	175,997
(16) Fin, Ins, R.E.	173,564	182,698	194,116	205,533	216,951	228,368
(17) Bus & Pers Service	70,251	75,009	80,957	86,905	92,852	98,800
(18) Prof & Soc Service	10,227	10,227	10,227	10,227	10,227	10,227
(19) Government	12,455	13,021	13,729	14,437	15,145	15,853
(20) Households[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

[a]Because these sectors have historically accounted for very little or no employment in this region, arbitrary very large values were utilized in developing projections of baseline employment.

APPENDIX TABLE 80. PROJECTED GROSS BUSINESS VOLUMES TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR MONTANA REGION 3, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS)

Sector	1981	1985	1990	1995	2000	2005
(1) & (2) Agriculture	87,184	96,208	107,489	118,769	130,050	141,330
(3) Metal Mining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(4) Coal Mining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(5) Pet/NG Exp/Ext	244,441	250,257	257,526	264,796	272,065	279,335
(6) Nonmetallic Mining	719,937	719,937	719,937	719,937	719,937	719,937
(7) Construction	50,147	56,739	64,979	73,220	81,460	89,700
(8) Lumber & Assoc Prod[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(9) Ag Proc & Misc Mfg	85,192	85,192	85,192	85,192	85,192	85,192
(10) Pet Refining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(11) Metal Processing[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(12) Transportation	9,441	10,804	12,509	14,213	15,918	17,622
(13) Comm & Public Util	132,601	150,642	173,193	195,744	218,296	240,847
(14) Electric Generation[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail	81,246	89,227	99,205	109,182	119,160	129,137
(16) Fin, Ins, R.E.	87,395	85,850	83,919	81,988	80,057	78,126
(17) Bus & Pers Service	71,469	75,984	81,628	87,272	92,915	98,559
(18) Prof & Soc Service	6,923	6,923	6,923	6,923	6,923	6,923
(19) Government	9,824	10,513	11,374	12,235	13,096	13,957
(20) Households[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

[a]Because these sectors have historically accounted for very little or no employment in this region, arbitrary very large values were utilized in developing projections of baseline employment.

APPENDIX TABLE 81. PROJECTED GROSS BUSINESS VOLUMES TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR MONTANA REGION 4, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS)

Sector	1981	1985	1990	1995	2000	2005
(1) & (2) Agriculture	89,184	96,975	106,715	116,454	126,194	135,934
(3) Metal Mining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(4) Coal Mining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(5) Pet/NG Exp/Ext[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(6) Nonmetallic Mining	307,750	348,008	398,331	448,653	498,976	549,298
(7) Construction	40,818	42,913	45,531	48,149	50,768	53,386
(8) Lumber & Assoc Prod	36,857	37,566	38,451	39,337	40,222	41,108
(9) Ag Proc & Misc Mfg	99,848	101,036	102,522	104,008	105,494	106,980
(10) Pet Refining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(11) Metal Processing[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(12) Transportation	106,890	108,901	111,415	113,929	116,443	118,957
(13) Comm & Public Util	121,748	146,827	178,175	209,522	240,870	272,218
(14) Electric Generation[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail	91,096	100,558	112,384	124,211	136,038	147,864
(16) Fin, Ins, R.E.	95,233	96,298	97,629	98,960	100,291	101,621
(17) Bus & Pers Service	54,629	57,016	60,000	62,983	65,967	68,951
(18) Prof & Soc Service	8,046	8,171	8,327	8,483	8,639	8,795
(19) Government	8,365	8,521	8,716	8,911	9,105	9,300
(20) Households[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

[a]Because these sectors have historically accounted for very little or no employment in this region, arbitrary very large values were utilized in developing projections of baseline employment.

APPENDIX TABLE 82. PROJECTED GROSS BUSINESS VOLUMES TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR MONTANA REGION 5, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS)

Sector	1981	1985	1990	1995	2000	2005
(1) & (2) Agriculture	123,996	136,413	151,934	167,455	182,976	198,497
(3) Metal Mining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(4) Coal Mining	155,784	192,321	237,993	283,664	329,336	375,007
(5) Pet/NG Exp/Ext	58,740	68,014	79,606	91,198	102,790	114,382
(6) Nonmetallic Mining	32,988	32,988	32,988	32,988	32,988	32,988
(7) Construction	20,678	21,775	23,146	24,518	25,889	27,260
(8) Lumber & Assoc Prod	3,172	3,818	4,626	5,434	6,242	7,051
(9) Ag Proc & Misc Mfg	49,063	49,063	49,063	49,063	49,063	49,063
(10) Pet Refining	638,056	712,429	805,395	898,361	991,327	1,084,293
(11) Metal Processing[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(12) Transportation	2,134	2,426	2,790	3,154	3,519	3,883
(13) Comm & Public Util	69,778	75,000	81,527	88,055	94,582	101,110
(14) Electric Generation[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail	43,960	45,639	47,737	49,836	51,935	54,033
(16) Fin, Ins, R.E.	48,227	50,803	54,022	57,242	60,462	63,682
(17) Bus & Pers Service	27,060	28,921	31,247	33,573	35,899	38,225
(18) Prof & Soc Service	5,098	5,098	5,098	5,098	5,098	5,098
(19) Government	5,634	5,678	5,733	5,788	5,843	5,899
(20) Households[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

[a]Because these sectors have historically accounted for very little or no employment in this region, arbitrary very large values were utilized in developing projections of baseline employment.

APPENDIX TABLE 83. PROJECTED GROSS BUSINESS VOLUMES TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR MONTANA REGION 6, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS)

Sector	1981	1985	1990	1995	2000	2005
(1) & (2) Agriculture	101,203	110,738	122,656	134,573	146,491	158,409
(3) Metal Mining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(4) Coal Mining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(5) Pet/NG Exp/Ext[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(6) Nonmetallic Mining	278,107	278,107	278,107	278,107	278,107	278,107
(7) Construction	25,724	30,731	36,990	43,249	49,508	55,767
(8) Lumber & Assoc Prod	34,235	34,235	34,235	34,235	34,235	34,235
(9) Ag Proc & Misc Mfg	64,614	66,296	68,400	70,503	72,606	74,710
(10) Pet Refining	636,242	710,460	803,232	896,004	988,776	1,081,548
(11) Metal Processing[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(12) Transportation	3,745	4,118	4,584	5,049	5,515	5,981
(13) Comm & Public Util	91,767	98,983	108,004	117,024	126,045	135,065
(14) Electric Generation[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail	63,511	72,046	82,716	93,385	104,054	114,723
(16) Fin, Ins, R.E.	51,565	51,235	50,822	50,408	49,995	49,582
(17) Bus & Pers Service	42,166	47,713	54,646	61,579	68,512	75,446
(18) Prof & Soc Service	6,382	6,345	6,299	6,253	6,207	6,161
(19) Government	6,684	6,807	6,960	7,113	7,267	7,420
(20) Households[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

[a]Because these sectors have historically accounted for very little or no employment in this region, arbitrary very large values were utilized in developing projections of baseline employment.

APPENDIX TABLE 84. PROJECTED GROSS BUSINESS VOLUMES TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR MONTANA REGION 7, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS)

Sector	1981	1985	1990	1995	2000	2005
(1) & (2) Agriculture	80,734	87,384	95,697	104,009	112,322	120,634
(3) Metal Mining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(4) Coal Mining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(5) Pet/NG Exp/Ext[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(6) Nonmetallic Mining	472,750	472,750	472,750	472,750	472,750	472,750
(7) Construction	19,343	19,343	19,343	19,343	19,343	19,343
(8) Lumber & Assoc Prod	21,037	21,243	21,501	21,759	22,018	22,276
(9) Ag Proc & Misc Mfg	55,116	55,116	55,116	55,116	55,116	55,116
(10) Pet Refining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(11) Metal Processing[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(12) Transportation	4,391	4,667	5,013	5,358	5,703	6,048
(13) Comm & Public Util	76,040	79,885	84,691	89,496	94,302	99,108
(14) Electric Generation[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail	43,307	44,457	45,894	47,331	48,769	50,206
(16) Fin, Ins, R.E.	46,345	46,345	46,345	46,345	46,345	46,345
(17) Bus & Pers Service	44,985	46,248	47,827	49,406	50,985	52,564
(18) Prof & Soc Service	5,371	5,371	5,371	5,371	5,371	5,371
(19) Government	5,451	5,295	5,100	4,905	4,710	4,514
(20) Households[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

[a]Because these sectors have historically accounted for very little or no employment in this region, arbitrary very large values were utilized in developing projections of baseline employment.

APPENDIX TABLE 85. PROJECTED GROSS BUSINESS VOLUMES TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR MONTANA REGION 8, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS)

Sector	1981	1985	1990	1995	2000	2005
(1) & (2) Agriculture	114,985	125,253	138,087	150,922	163,756	176,591
(3) Metal Mining	83,907	83,907	83,907	83,907	83,907	83,907
(4) Coal Mining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(5) Pet/NG Exp/Ext[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(6) Nonmetallic Mining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(7) Construction	33,569	36,992	41,271	45,549	49,828	54,107
(8) Lumber & Assoc Prod	53,487	53,487	53,487	53,487	53,487	53,487
(9) Ag Proc & Misc Mfg	69,092	70,221	71,631	73,042	74,452	75,863
(10) Pet Refining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(11) Metal Processing	796	879	982	1,086	1,190	1,293
(12) Transportation	12,136	13,819	15,922	18,026	20,130	22,234
(13) Comm & Public Util	21,204	23,522	26,421	29,320	32,218	35,117
(14) Electric Generation[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail	58,225	60,661	63,706	66,751	69,796	72,841
(16) Fin, Ins, R.E.	42,661	43,046	43,529	44,011	44,493	44,976
(17) Bus & Pers Service	39,518	40,348	41,387	42,425	43,464	44,502
(18) Prof & Soc Service	5,948	5,994	6,051	6,108	6,165	6,223
(19) Government	6,460	6,450	6,438	6,425	6,413	6,401
(20) Households[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

[a]Because these sectors have historically accounted for very little or no employment in this region, arbitrary very large values were utilized in developing projections of baseline employment.

APPENDIX TABLE 86. PROJECTED GROSS BUSINESS VOLUMES TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR MONTANA REGION 9, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS)

Sector	1981	1985	1990	1995	2000	2005
(1) & (2) Agriculture	148,258	156,623	167,080	177,536	187,993	198,449
(3) Metal Mining	21,819	23,137	24,785	26,433	28,081	29,729
(4) Coal Mining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(5) Pet/NG Exp/Ext[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(6) Nonmetallic Mining	159,184	162,653	166,988	171,324	175,659	179,994
(7) Construction	40,594	45,450	51,519	57,589	63,658	69,728
(8) Lumber & Assoc Prod	43,608	53,651	66,204	78,758	91,311	103,865
(9) Ag Proc & Misc Mfg	62,551	65,369	68,891	72,414	75,936	79,459
(10) Pet Refining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(11) Metal Processing	160,511	160,511	160,511	160,511	160,511	160,511
(12) Transportation	12,212	13,560	15,245	16,930	18,615	20,300
(13) Comm & Public Util	41,095	43,526	46,565	49,604	52,642	55,681
(14) Electric Generation[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail	59,839	64,943	71,322	77,702	84,081	90,461
(16) Fin, Ins, R.E.	61,201	71,572	84,534	97,497	110,459	123,422
(17) Bus & Pers Service	50,449	54,890	60,440	65,991	71,542	77,093
(18) Prof & Soc Service	7,392	7,541	7,727	7,913	8,099	8,286
(19) Government	6,988	7,143	7,338	7,532	7,726	7,921
(20) Households[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

[a]Because these sectors have historically accounted for very little or no employment in this region, arbitrary very large values were utilized in developing projections of baseline employment.

APPENDIX TABLE 87. PROJECTED GROSS BUSINESS VOLUMES TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR MONTANA REGION 10, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS)

Sector	1981	1985	1990	1995	2000	2005
(1) & (2) Agriculture	77,758	84,603	93,158	101,714	110,270	118,826
(3) Metal Mining	59,079	60,359	61,958	63,558	65,157	66,757
(4) Coal Mining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(5) Pet/NG Exp/Ext[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(6) Nonmetallic Mining	67,560	67,560	67,560	67,560	67,560	67,560
(7) Construction	23,554	23,554	23,554	23,554	23,554	23,554
(8) Lumber & Assoc Prod	49,999	52,197	54,944	57,691	60,438	63,185
(9) Ag Proc & Misc Mfg	74,888	74,888	74,888	74,888	74,888	74,888
(10) Pet Refining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(11) Metal Processing[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(12) Transportation	5,313	5,353	5,404	5,454	5,505	5,555
(13) Comm & Public Util	65,675	66,882	68,392	69,901	71,411	72,920
(14) Electric Generation[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail	44,642	44,010	43,219	42,429	41,639	40,848
(16) Fin, Ins, R.E.	61,168	61,168	61,168	61,168	61,168	61,168
(17) Bus & Pers Service	53,426	52,757	51,920	51,084	50,247	49,411
(18) Prof & Soc Service	7,860	7,860	7,860	7,860	7,860	7,860
(19) Government	5,699	5,324	4,855	4,386	3,917	3,448
(20) Households[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

[a]Because these sectors have historically accounted for very little or no employment in this region, arbitrary very large values were utilized in developing projections of baseline employment.

APPENDIX TABLE 88. PROJECTED GROSS BUSINESS VOLUMES TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR MONTANA REGION 11, 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS)

Sector	1981	1985	1990	1995	2000	2005
(1) & (2) Agriculture	119,022	133,473	151,538	169,602	187,666	205,730
(3) Metal Mining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(4) Coal Mining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(5) Pet/NG Exp/Ext[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(6) Nonmetallic Mining	22,067	22,067	22,067	22,067	22,067	22,067
(7) Construction	34,720	34,628	34,513	34,399	34,284	34,169
(8) Lumber & Assoc Prod	41,567	46,136	51,848	57,559	63,271	68,982
(9) Ag Proc & Misc Mfg	192,121	192,121	192,121	192,121	192,121	192,121
(10) Pet Refining[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(11) Metal Processing	82	82	82	82	82	82
(12) Transportation	15,644	22,668	31,448	40,229	49,009	57,789
(13) Comm & Public Util	88,586	95,298	103,689	112,079	120,470	128,860
(14) Electric Generation[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
(15) Retail	57,125	57,129	57,135	57,141	57,147	57,152
(16) Fin, Ins, R.E.	81,431	81,431	81,431	81,431	81,431	81,431
(17) Bus & Pers Service	70,436	69,246	67,760	66,273	64,786	63,300
(18) Prof & Soc Service	9,679	9,679	9,679	9,679	9,679	9,679
(19) Government	6,412	6,449	6,496	6,542	6,589	6,635
(20) Households[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

[a]Because these sectors have historically accounted for very little or no employment in this region, arbitrary very large values were utilized in developing projections of baseline employment.

APPENDIX TABLE 89. PROJECTED GROSS BUSINESS VOLUMES TO EMPLOYMENT RATIOS (PRODUCTIVITY RATIOS) FOR MONTANA 1981, 1985, 1990, 1995, 2000, AND 2005 (1980 = BASE DOLLARS)

Sector	1981	1985	1990	1995	2000	2005
(1) & (2) Agriculture	96,362	105,398	116,693	127,987	139,282	150,577
(3) Metal Mining	24,470	24,791	25,193	25,596	25,998	26,400
(4) Coal Mining	155,767	194,406	242,704	291,002	339,300	387,599
(5) Pet/NG Exp/Ext	97,314	108,368	122,187	136,006	149,824	163,643
(6) Nonmetallic Mining	132,698	119,811	103,703	87,594	71,486	55,377
(7) Construction	29,114	31,398	34,254	37,110	39,966	42,822
(8) Lumber & Assoc Prod	42,698	45,145	48,204	51,262	54,321	57,380
(9) Ag Proc & Misc Mfg	69,323	68,635	67,776	66,916	66,057	65,197
(10) Pet Refining	639,396	713,479	806,082	898,686	991,289	1,083,893
(11) Metal Processing	51,540	53,175	55,219	57,263	59,306	61,350
(12) Transportation	5,170	5,866	6,735	7,604	8,473	9,342
(13) Comm & Public Util	63,225	68,670	75,476	82,283	89,089	95,895
(14) Electric Generation	177,822	212,668	256,225	299,782	343,339	386,896
(15) Retail	58,651	63,938	70,546	77,153	83,761	90,369
(16) Fin, Ins, R.E.	59,904	59,751	59,560	59,368	59,177	58,986
(17) Bus & Pers Service	46,641	49,731	53,593	57,456	61,318	65,181
(18) Prof & Soc Service	6,731	6,447	6,092	5,736	5,381	5,026
(19) Government	6,806	6,845	6,894	6,943	6,993	7,042
(20) Households[a]	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000

[a]Because these sectors have historically accounted for very little or no employment in this region, arbitrary very large values were utilized in developing projections of baseline employment.

APPENDIX TABLE 90. PROJECTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MONTANA REGION 2, 1980, 1985, 1990, 1995, AND 2000

County	City	1980	ADJ 1980	1985	ADJ 1985	1990	ADJ 1990	1995	ADJ 1995	2000	ADJ 2000
Carter	Alzada	0.0023945		0.0023312		0.0022695		0.0022094		0.0021510	
	Ekalaka	0.0296920		0.0276743		0.0257937		0.0240409		0.0224072	
Custer	Ismay	0.0014846		0.0012305		0.0010199		0.0008454		0.0007007	
	Miles City	0.4598439		0.4469444		0.4344067		0.4222207		0.4103765	
Fallon	Baker	0.1127340		0.1096230		0.1065978		0.1036562		0.1007957	
	Plevna	0.0091471		0.0082206		0.0073880		0.0066397		0.0059672	
Garfield	Jordan	0.0232268		0.0218431		0.0205418		0.0193181		0.0181672	
Powder River	Belle Creek	0.0071836		0.0069935		0.0068084		0.0066282		0.0064529	
	Broadus	0.0340976		0.0342535		0.0344102		0.0345675		0.0347256	
			0.0340979		0.0305801		0.0261321		0.0212916		0.0165
Prairie	Fallon	0.0143671		0.0139869		0.0136168		0.0132565		0.0129057	
	Terry	0.0444902		0.0411524		0.0380650		0.0352092		0.0325677	
Rosebud	Ashland	0.0113978		0.0124536		0.0136071		0.0148676		0.0162448	
			0.0113979		0.0111180		0.0103337		0.0091576		0.0077
	Birney	0.0014367		0.0015479		0.0016677		0.0017968		0.0019358	
			0.0014367		0.0013819		0.0012665		0.0011067		0.0009
	Colstrip	0.0706856		0.1134220		0.1819966		0.2920313		0.4685926	
			0.0706863		0.1012583		0.1382136		0.1798746		0.2238
	Forsyth	0.1222634		0.1260173		0.1298867		0.1338747		0.1379852	
			0.1222647		0.1125029		0.0986398		0.0824592		0.0659
	Lame Deer	0.0479856		0.0631537		0.0831165		0.1093895		0.1439673	
			0.0479861		0.0563810		0.0631211		0.0673777		0.0687
	Rosebud	0.0075665		0.0075924		0.0076184		0.0076444		0.0076706	
			0.0075666		0.0067782		0.0057856		0.0047085		0.0035
SUM OF DECLINING COUNTIES		0.7045637		0.6799997		0.6565075		0.6340241		0.6124915	
ONE MINUS DECLINING COUNTIES		0.2954363		0.3200003		0.3434925		0.3659759		0.3875085	
SUM OF INCREASING COUNTIES		0.2954331		0.3584404		0.4523032		0.5941718		0.8111218	
ADJUSTED TOTAL			0.9999999		0.9999998		0.9999998		0.9999999		1.0000

APPENDIX TABLE 91. PROJECTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MONTANA REGION 3, 1980, 1985, 1990, 1995, AND 2000

County	City	1980	ADJ 1980	1985	ADJ 1985	1990	ADJ 1990	1995	ADJ 1995	2000	ADJ 2000
Blaine	Chinook	0.0716938		0.0688542		0.0661271		0.0635080		0.0609928	
	Harlem	0.0441824		0.0437622		0.0433460		0.0429337		0.0425253	
	Hays	0.0159799		0.0147966		0.0137009		0.0126864		0.0117469	
	Turner	0.0111427		0.0128295		0.0147717		0.0170078		0.0195825	
			0.0111428		0.0126432		0.0142876		0.0160898		0.0180
Hill	Havre	0.4703680		0.4932045		0.5171502		0.5422585		0.5685855	
			0.4703733		0.4860429		0.5002044		0.5129899		0.5245
Phillips	Rudyard	0.0194351		0.0188984		0.0183766		0.0178692		0.0173758	
	Dodson	0.0068239		0.0060101		0.0052934		0.0046622		0.0041062	
	Loring	0.0017276		0.0017072		0.0016871		0.0016672		0.0016475	
	Malta	0.1022269		0.1083115		0.1147581		0.1215885		0.1288253	
			0.1022280		0.1067387		0.1109978		0.1150257		0.1188
Valley	Saco	0.0108836		0.0096305		0.0085217		0.0075405		0.0066723	
	Whitewater	0.0032392		0.0031497		0.0030628		0.0029782		0.0028960	
	Fort Peck	0.0107973		0.0088847		0.0073110		0.0060160		0.0049504	
	Glasgow	0.1924071		0.1836523		0.1752959		0.1673198		0.1597065	
	Hinsdale	0.0086378		0.0075896		0.0066686		0.0058594		0.0051484	
	Nashua	0.0213786		0.0198370		0.0184066		0.0170793		0.0158478	
	Opheim	0.0090697		0.0078027		0.0067126		0.0057749		0.0049681	
SUM OF DECLINING COUNTIES		0.4162556		0.3945751		0.3745101		0.3558944		0.3385836	
ONE MINUS DECLINING COUNTIES		0.5837444		0.6054249		0.6254899		0.6441056		0.6614164	
SUM OF INCREASING COUNTIES		0.5837376		0.6143454		0.6466799		0.6808549		0.7169933	
ADJUSTED TOTAL			0.9999998		0.9999999		0.9999999		0.9999999		1.0000

APPENDIX TABLE 92. PROJECTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MONTANA REGION 4, 1980, 1985, 1990, 1995, AND 2000

County	City	1980	ADJ 1980	1985	ADJ 1985	1990	ADJ 1990	1995	ADJ 1995	2000	ADJ 2000
Fergus	Denton	0.0434676		0.0427637		0.0420712		0.0413899		0.0407196	
	Grass Range	0.0169719		0.0153865		0.0139491		0.0126461		0.0114647	
	Lewiston	0.8673952		0.8748022		0.8822724		0.8898058		0.8974047	
			0.8673993		0.8728952		0.8778203		0.8822290		0.8861
	Moore	0.0279605		0.0289155		0.0299032		0.0309206		0.0319809	
			0.0279606		0.0288525		0.0297523		0.0306612		0.0315
	Winifred	0.0189255		0.0176713		0.0165001		0.0154066		0.0143856	
Petroleum	Winnett	0.0252747		0.0224309		0.0199070		0.0176671		0.0156793	
SUM OF DECLINING COUNTIES		0.1046397		0.0982522		0.0924274		0.0871097		0.0822492	
ONE MINUS DECLINING COUNTIES		0.8953603		0.9017478		0.9075725		0.9128903		0.9177508	
SUM OF INCREASING COUNTIES		0.8953556		0.9037177		0.9121756		0.9207304		0.9293855	
ADJUSTED TOTAL			0.9999996		0.9999999		0.9999999		0.9999999		1.0000

APPENDIX TABLE 93. PROJECTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MONTANA REGION 5, 1980, 1985, 1990, 1995, AND 2000

County	City	1980	ADJ 1980	1985	ADJ 1985	1990	ADJ 1990	1995	ADJ 1995	2000	ADJ 2000
Bighorn	Busby	0.0018701		0.0015385		0.0012656		0.0010412		0.0008565	
	Crow Agency	0.0046581		0.0038951		0.0032570		0.0027235		0.0022774	
	Hardin	0.0378618		0.0378369		0.0378120		0.0377872		0.0377623	
	Lodge Grass	0.0088459		0.0087240		0.0086037		0.0084851		0.0083682	
	Spring Creek	0.0001147		0.0001099		0.0001053		0.0001009		0.0000967	
Carbon	Bridger	0.0083066		0.0077059		0.0071487		0.0066317		0.0061522	
	Fromberg	0.0053809		0.0054818		0.0055847		0.0056895		0.0057962	
			0.0053810		0.0054589		0.0055311		0.0055983		0.0056
	Joliet	0.0066544		0.0067862		0.0069207		0.0070578		0.0071976	
			0.0066545		0.0067579		0.0068543		0.0069447		0.0070
	Red Lodge	0.0217533		0.0199088		0.0182207		0.0166757		0.0152617	
Golden Valley	Ryegate	0.0031322		0.0028980		0.0026814		0.0024809		0.0022955	
Musselshell	Roundup	0.0243119		0.0216468		0.0192738		0.0171610		0.0152798	
Stillwater	Absarokee	0.0087999		0.0089657		0.0091347		0.0093068		0.0094821	
			0.0088000		0.0089282		0.0090471		0.0091577		0.0092
	Columbus	0.0165101		0.0162864		0.0160657		0.0158481		0.0156333	
Treasure	Hysham	0.0051515		0.0048196		0.0045091		0.0042186		0.0039468	
Wheatland	Harlowton	0.0135499		0.0117947		0.0102668		0.0089358		0.0077791	
	Judith Gap	0.0024438		0.0024256		0.0024075		0.0023896		0.0023717	
Yellowstone	Billings	0.7663809		0.7786075		0.7910283		0.8036487		0.8164700	
			0.7663918		0.7753512		0.7834450		0.7907739		0.7974
	Broadview	0.0013768		0.0012277		0.0010947		0.0009761		0.0008704	
	Laurel	0.0628844		0.0629495		0.0630147		0.0630798		0.0631450	
			0.0628853		0.0626862		0.0624106		0.0620692		0.0616
SUM OF DECLINING COUNTIES		0.1498866		0.1408175		0.1327118		0.1254562		0.1189513	
ONE MINUS DECLINING COUNTIES		0.8501134		0.8591825		0.8672882		0.8745438		0.8810487	
SUM OF INCREASING COUNTIES		0.8501005		0.8627907		0.8756830		0.8887824		0.9020909	
ADJUSTED TOTAL			0.9999992		0.9999999		0.9999998		0.9999999		1.0000

APPENDIX TABLE 94. PROJECTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MONTANA REGION 6, 1980, 1985, 1990, 1995, AND 2000

County	City	1980	ADJ 1980	1985	ADJ 1985	1990	ADJ 1990	1995	ADJ 1995	2000	ADJ 2000
Cascade	Belt	0.0103344		0.0106262		0.0109263		0.0112348		0.0115521	
			0.0103344		0.0105931		0.0108471		0.0110969		0.0113
	Cascade	0.0096830		0.0103646		0.0110941		0.0118750		0.0127109	
			0.0096831		0.0103323		0.0110138		0.0117293		0.0124
	Great Falls	0.7105711		0.7194710		0.7284825		0.7376069		0.7468460	
			0.7105731		0.7172275		0.7232051		0.7285529		0.7333
	Stockett	0.0062632		0.0066647		0.0070918		0.0075464		0.0080301	
			0.0062632		0.0066439		0.0070405		0.0074538		0.0078
Choteau	Big Sandy	0.0104597		0.0101815		0.0099106		0.0096470		0.0093903	
	Fort Benton	0.0212076		0.0207715		0.0203444		0.0199260		0.0195163	
	Geraldine	0.0038206		0.0036787		0.0035420		0.0034104		0.0032836	
Glacier	Browning	0.0153576		0.0136568		0.0121443		0.0107994		0.0096034	
	Cut Bank	0.0461981		0.0441405		0.0421746		0.0402962		0.0385014	
Judith Basin	Hobson	0.0032694		0.0034865		0.0037181		0.0039650		0.0042283	
			0.0032694		0.0034757		0.0036911		0.0039163		0.0041
	Stanford	0.0074533		0.0074390		0.0074248		0.0074105		0.0073963	
Liberty	Chester	0.0120631		0.0115930		0.0111411		0.0107069		0.0102896	
Meagher	White Sulpher Springs	0.0163096		0.0157930		0.0152926		0.0148082		0.0143390	
Pondera	Conrad	0.0385061		0.0401592		0.0418833		0.0436814		0.0455566	
			0.0385063		0.0400340		0.0415799		0.0431452		0.0447
	Valier	0.0080170		0.0078231		0.0076339		0.0074492		0.0072690	
Teton	Choteau	0.0225228		0.0221656		0.0218141		0.0214681		0.0211277	
	Dutton	0.0044971		0.0041577		0.0038439		0.0035538		0.0032856	
	Fairfield	0.0081423		0.0079009		0.0076667		0.0074394		0.0072188	
Toole	Shelby	0.0393586		0.0372496		0.0352535		0.0333645		0.0315766	
	Sunburst	0.0059627		0.0051432		0.0044363		0.0038266		0.0033007	
SUM OF DECLINING COUNTIES		0.2213700		0.2116936		0.2026225		0.1941057		0.1860982	
ONE MINUS DECLINING COUNTIES		0.7786300		0.7883064		0.7973775		0.8058943		0.8139018	
SUM OF INCREASING COUNTIES		0.7786271		0.7907721		0.8031961		0.8159093		0.8289238	
ADJUSTED TOTAL			0.9999993		0.9999999		0.9999997		0.9999999		1.0000

APPENDIX TABLE 95. PROJECTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MONTANA REGION 7, 1980, 1985, 1990, 1995, AND 2000

County	City	1980	ADJ 1980	1985	ADJ 1985	1990	ADJ 1990	1995	ADJ 1995	2000	ADJ 2000
Gallatin	Belgrade	0.0642907		0.0727165		0.0822466		0.0930256		0.1052173	
			0.0642911		0.0709856		0.0777429		0.0844594		0.0909
	Bozeman	0.5957026		0.6234389		0.6524657		0.6828445		0.7146369	
			0.5957060		0.6085988		0.6167377		0.6199653		0.6180
	Manhattan	0.0271914		0.0258988		0.0246677		0.0234951		0.0223783	
	Three Forks	0.0343195		0.0324104		0.0306075		0.0289049		0.0272970	
	West Yellowstone	0.0202282		0.0279183		0.0385321		0.0531808		0.0733986	
			0.0202283		0.0272538		0.0364221		0.0482837		0.0634
Park	Gardiner	0.0192650		0.0205548		0.0219309		0.0233991		0.0249657	
			0.0192651		0.0200655		0.0207300		0.0212444		0.0215
	Livingston	0.1924865		0.1714470		0.1527072		0.1360157		0.1211487	
Sweet Grass	Big Timber	0.0465116		0.0433402		0.0403851		0.0376314		0.0350655	
SUM OF DECLINING COUNTIES		0.3005089		0.2730964		0.2483674		0.2260470		0.2058894	
ONE MINUS DECLINING COUNTIES		0.6994911		0.7269036		0.7516326		0.7739530		0.7941106	
SUM OF INCREASING COUNTIES		0.6994864		0.7446285		0.7951752		0.8524500		0.9182184	
ADJUSTED TOTAL			0.9999992		0.9999999		0.9999999		0.9999999		1.0000

APPENDIX TABLE 96. PROJECTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MONTANA REGION 8, 1980, 1985, 1990, 1995, AND 2000

County	City	1980	ADJ 1980	1985	ADJ 1985	1990	ADJ 1990	1995	ADJ 1995	2000	ADJ 2000
Broadwater	Townsend	0.0511226		0.0495310		0.0479889		0.0464948		0.0450473	
Jefferson	Boulder	0.0464195		0.0449212		0.0434712		0.0420681		0.0407102	
	Whitehall	0.0331798		0.0329545		0.0327307		0.0325084		0.0322877	
Lewis & Clark	Augusta	0.0161065		0.0163447		0.0165855		0.0168318		0.0170808	
			0.0161067		0.0163063		0.0164887		0.0166509		0.0167
	East Helena	0.0530554		0.0522104		0.0513788		0.0505605		0.0497553	
	Helena	0.7711154		0.7718947		0.7726747		0.7734547		0.7742355	
			0.7711234		0.7700792		0.7681218		0.7651406		0.7610
	Lincoln	0.0289919		0.0340778		0.0400560		0.0470829		0.0553424	
			0.0289922		0.0339977		0.0398199		0.0465767		0.0543
SUM OF DECLINING COUNTIES		0.1837772		0.1796169		0.1755695		0.1716318		0.1678004	
ONE MINUS DECLINING COUNTIES		0.8162228		0.8203831		0.8244305		0.8283682		0.8321996	
SUM OF INCREASING COUNTIES		0.8162136		0.8223171		0.8293171		0.8373693		0.8466587	
ADJUSTED TOTAL			0.9999993		0.9999999		0.9999999		1.0000000		1.0000

APPENDIX TABLE 97. PROJECTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MONTANA REGION 9, 1980, 1985, 1990, 1995, AND 2000

County	City	1980	ADJ 1980	1985	ADJ 1985	1990	ADJ 1990	1995	ADJ 1995	2000	ADJ 2000
Beaverhead	Dillon	0.0696383		0.0678025		0.0660152		0.0642751		0.0625808	
	Lima	0.0047640		0.0041420		0.0036012		0.0031310		0.0027222	
	Wisdom	0.0035029		0.0034369		0.0033721		0.0033085		0.0032461	
Deer Lodge	Anaconda	0.2192485		0.2115099		0.2040445		0.1968426		0.1898949	
Madison	Ennis	0.0115596		0.0116972		0.0118364		0.0119773		0.0121198	
			0.0115597		0.0116280		0.0116765		0.0117077		0.0117
	Sheridan	0.0113145		0.0113133		0.0113121		0.0113109		0.0113097	
	Twin Bridges	0.0076539		0.0070407		0.0064767		0.0059578		0.0054805	
	Virginia City	0.0033628		0.0032053		0.0030552		0.0029121		0.0027757	
Silver Bow	Butte	0.6516274		0.6693141		0.6874821		0.7061419		0.7253092	
			0.6516336		0.6653557		0.6781965		0.6902497		0.7015
	Melrose	0.0017865		0.0014427		0.0011651		0.0009409		0.0007599	
	Walkerville	0.0155355		0.0131230		0.0110851		0.0093637		0.0079096	
SUM OF DECLINING COUNTIES		0.3368067		0.3230162		0.3101270		0.2980425		0.2866791	
ONE MINUS DECLINING COUNTIES		0.6631933		0.6769838		0.6898730		0.7019575		0.7133209	
SUM OF INCREASING COUNTIES		0.6631870		0.6810113		0.6993184		0.7181191		0.7374290	
ADJUSTED TOTAL			0.9999999		0.9999999		0.9999999		0.9999999		1.0000

APPENDIX TABLE 98. PROJECTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MONTANA REGION 10, 1980, 1985, 1990, 1995, AND 2000

County	City	1980	ADJ 1980	1985	ADJ 1985	1990	ADJ 1990	1995	ADJ 1995	2000	ADJ 2000
Granite	Drummond	0.0075501		0.0066798		0.0059099		0.0052287		0.0046261	
	Phillipburg	0.0207535		0.0200886		0.0194450		0.0188220		0.0182190	
Lake	Polson	0.0510262		0.0514366		0.0518502		0.0522673		0.0526877	
			0.0510266		0.0511363		0.0511296		0.0510053		0.0507
	Ronan	0.0279024		0.0277577		0.0276139		0.0274707		0.0273284	
	St. Ignatius	0.0159937		0.0151104		0.0142759		0.0134875		0.0127426	
Mineral	Albertson	0.0067112		0.0065051		0.0063054		0.0061119		0.0059242	
	Superior	0.0192216		0.0177349		0.0163632		0.0150976		0.0139298	
Missoula	Missoula	0.6088877		0.6167238		0.6246615		0.6327007		0.6408436	
			0.6088929		0.6131241		0.6159803		0.6174235		0.6174
	Suley Lake	0.0218841		0.0261843		0.0313294		0.0374856		0.0448514	
			0.0218843		0.0260315		0.0308940		0.0365804		0.0432
Powell	Avon	0.0036474		0.0035062		0.0033705		0.0032401		0.0031147	
	Deer Lodge	0.0733668		0.0679065		0.0628526		0.0581749		0.0538453	
	Elliston	0.0036474		0.0035062		0.0033705		0.0032401		0.0031147	
Ravalli	Darby	0.0105956		0.0111958		0.0118301		0.0125003		0.0132084	
			0.0105956		0.0111305		0.0116657		0.0121985		0.0127
	Hamilton	0.0485283		0.0475031		0.0464995		0.0455171		0.0445555	
	Stevensville	0.0220117		0.0235700		0.0252386		0.0270254		0.0289386	
			0.0220119		0.0234324		0.0248879		0.0263728		0.0278
Sanders	Hot Springs	0.0109603		0.0106075		0.0102660		0.0099355		0.0096157	
	Plains	0.0203522		0.0214736		0.0226567		0.0239051		0.0252222	
			0.0203523		0.0213482		0.0223418		0.0233278		0.0243
	Thompson Falls	0.0269541		0.0268912		0.0268284		0.0267658		0.0267034	
SUM OF DECLINING COUNTIES		0.2652364		0.2537972		0.2431008		0.2330917		0.2237192	
ONE MINUS DECLINING COUNTIES		0.7347636		0.7462028		0.7568992		0.7669083		0.7762808	
SUM OF INCREASING COUNTIES		0.7347572		0.7505839		0.7675664		0.7858842		0.8057517	
ADJUSTED TOTAL			1.0000000		0.9999999		0.9999999		0.9999999		1.0000

APPENDIX TABLE 99. PROJECTED CITY SHARE OF REGIONAL EMPLOYMENT BY CITY AND COUNTY, MONTANA REGION 11, 1980, 1985, 1990, 1995, AND 2000

County	City	1980	ADJ 1980	1985	ADJ 1985	1990	ADJ 1990	1995	ADJ 1995	2000	ADJ 2000
Flathead	Columbia Falls	0.1380172		0.1483335		0.1594209		0.1713371		0.1841441	
			0.1380182		0.1461831		0.1543017		0.1624129		0.1705
	Kalispell	0.4722366		0.4672958		0.4624068		0.4575688		0.4527814	
	Whitefish	0.1642252		0.1697511		0.1754632		0.1813673		0.1874703	
			0.1642264		0.1672903		0.1696288		0.1719207		0.1736
Lincoln	Eureka	0.0496274		0.0474006		0.0452737		0.0432422		0.0413019	
	Libby	0.1218733		0.1183138		0.1148582		0.1115036		0.1082470	
	Rexford	0.0057655		0.0041330		0.0029627		0.0021238		0.0015224	
	Troy	0.0482521		0.0501099		0.0520391		0.0540428		0.0561235	
			0.0482525		0.0493834		0.0503681		0.0512279		0.0519
SUM OF DECLINING COUNTIES		0.6495028		0.6371431		0.6255013		0.6144384		0.6038527	
ONE MINUS DECLINING COUNTIES		0.3504972		0.3628569		0.3744987		0.3855616		0.3961473	
SUM OF INCREASING COUNTIES		0.3504944		0.3681944		0.3869233		0.4067472		0.4277378	
ADJUSTED TOTAL			0.9999998		0.9999999		0.9999999		0.9999999		1.0000

APPENDIX TABLE 100. ESTIMATES OF PERSONAL INCOME AND DIFFERENCES IN ESTIMATES, MONTANA REGION 2, 1960-1980 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	I-O Analysis Estimate	Percent Difference
1960	--	73,772	--
1961	--	75,290	--
1962	64,121	66,956	4.4
1963	--	79,187	--
1964	--	78,012	--
1965	69,104	86,514	25.2
1966	73,858	95,935	29.9
1967	76,306	99,249	30.1
1968	84,129	119,155	41.6
1969	103,214	129,835	25.8
1970	99,134	132,319	33.5
1971	97,223	143,762	47.9
1972	119,691	169,599	41.7
1973	165,025	212,314	28.7
1974	157,074	226,620	44.3
1975	176,045	246,976	40.3
1976	171,941	259,171	50.7
1977	183,276	277,353	51.3
1978	227,649	334,276	46.8
1979	242,235	372,171	53.6
1980	--	443,364	--
Average Difference			37.2375

Mean = 37.2375 (S.D. = 12.8988)
U_1 = .1835536675

APPENDIX TABLE 101. ESTIMATES OF PERSONAL INCOME AND DIFFERENCES IN ESTIMATES, MONTANA REGION 3, 1960-1980 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	I-O Analysis Estimate	Percent Difference
1960	--	86,022	--
1961	--	91,993	--
1962	117,711	93,847	-20.3
1963	--	104,805	--
1964	--	98,446	--
1965	118,876	110,797	- 6.8
1966	130,968	123,980	- 5.3
1967	130,543	132,604	1.6
1968	120,113	147,369	22.7
1969	127,897	139,871	9.4
1970	144,799	169,526	17.1
1971	143,058	189,254	32.3
1972	175,931	236,462	34.4
1973	229,848	275,273	19.8
1974	228,216	305,235	33.7
1975	250,110	308,151	23.2
1976	228,752	298,982	30.7
1977	218,108	266,738	22.3
1978	290,523	328,873	13.2
1979	265,888	325,498	22.4
1980	--	350,590	--
Average Difference			19.7

Mean = 15.65 (S.D. = 16.072)
U_1 = .1052384067

APPENDIX TABLE 102. ESTIMATES OF PERSONAL INCOME AND DIFFERENCES IN ESTIMATES, MONTANA REGION 4, 1960-1980 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	I-O Analysis Estimate	Percent Difference
1960	--	27,337	--
1961	--	29,550	--
1962	33,369	28,381	-14.9
1963	--	30,936	--
1964	--	29,179	--
1965	32,622	32,111	- 1.6
1966	36,008	36,535	1.5
1967	36,271	37,054	2.2
1968	38,593	40,450	4.8
1969	43,669	42,998	- 1.5
1970	47,010	46,242	- 1.6
1971	49,400	50,888	3.0
1972	53,968	58,731	8.8
1973	72,181	71,485	- 1.0
1974	67,770	76,111	12.3
1975	68,673	75,192	9.5
1976	68,452	74,646	9.0
1977	77,477	80,592	4.0
1978	100,189	102,690	2.5
1979	104,048	107,840	3.6
1980	--	114,525	--
Average Difference			5.1125

Mean = 2.5375 (S.D. = 6.33339)
U_1 = .030314558

APPENDIX TABLE 103. ESTIMATES OF PERSONAL INCOME AND DIFFERENCES IN ESTIMATES, MONTANA REGION 5, 1960-1980 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	I-O Analysis Estimate	Percent Difference
1960	--	162,280	--
1961	--	175,511	--
1962	271,073	173,309	-36.1
1963	--	190,140	--
1964	--	185,683	--
1965	296,452	209,214	-29.4
1966	315,994	217,899	-31.0
1967	333,196	242,357	-27.3
1968	358,994	258,690	-27.9
1969	384,116	282,325	-26.5
1970	419,618	318,204	-24.2
1971	451,068	341,829	-24.2
1972	518,816	374,289	-27.9
1973	575,635	439,786	-23.6
1974	669,111	537,381	-19.7
1975	721,653	547,869	-24.1
1976	773,978	568,589	-26.5
1977	883,128	641,157	-27.4
1978	1,029,525	764,789	-25.7
1979	1,161,811	837,049	-28.0
1980	--	876,605	--
Average Difference			26.84375

Mean = -26.84375 (S.D. = 3.634825764)
U_1 = .1510962587

APPENDIX TABLE 104. ESTIMATES OF PERSONAL INCOME AND DIFFERENCES IN ESTIMATES, MONTANA REGION 6, 1960-1980 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	I-O Analysis Estimate	Percent Difference
1960	--	220,151	--
1961	--	244,276	--
1962	329,627	238,566	-27.6
1963	--	255,833	--
1964	--	249,155	--
1965	335,997	295,749	-12.0
1966	370,141	316,499	-14.5
1967	370,565	345,800	- 6.7
1968	387,637	363,370	- 6.3
1969	427,632	379,973	-11.1
1970	473,390	429,950	- 9.2
1971	494,774	461,537	- 6.7
1972	563,705	636,239	12.9
1973	650,492	609,674	- 6.3
1974	695,639	669,040	- 3.8
1975	793,988	713,216	-10.2
1976	806,526	724,271	-10.2
1977	815,973	981,597	20.3
1978	1,000,747	837,752	-16.3
1979	1,020,090	890,667	-12.7
1980	--	941,950	--
Average Difference			11.675

Mean = -7.525 (S.D. = 11.0000303)
U_1 = .0672764944

APPENDIX TABLE 105. ESTIMATES OF PERSONAL INCOME AND DIFFERENCES IN ESTIMATES, MONTANA REGION 7, 1960-1980 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	I-O Analysis Estimate	Percent Difference
1960	--	59,227	--
1961	--	65,496	--
1962	88,016	66,438	-24.5
1963	--	70,776	--
1964	--	68,408	--
1965	98,908	78,648	-20.5
1966	106,238	83,096	-21.8
1967	112,866	90,570	-19.8
1968	121,360	104,597	-13.8
1969	127,923	114,967	-10.1
1970	144,622	119,284	-17.5
1971	154,616	126,531	-18.2
1972	178,895	145,279	-18.8
1973	214,171	170,370	-20.5
1974	232,360	177,163	-23.8
1975	249,418	189,739	-23.9
1976	270,664	220,181	-18.7
1977	310,461	232,696	-25.0
1978	362,741	257,999	-28.9
1979	404,824	285,388	-29.5
1980	--	298,795	--
Average Difference			20.95625

Mean = -20.95625 (S.D. = 5.050276395)
U_1 = .1402067927

APPENDIX TABLE 106. ESTIMATES OF PERSONAL INCOME AND DIFFERENCES IN ESTIMATES, MONTANA REGION 8, 1960-1980 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	I-O Analysis Estimate	Percent Difference
1960	--	67,344	--
1961	--	84,322	--
1962	88,067	78,071	-11.4
1963	--	92,912	--
1964	--	86,884	--
1965	105,521	102,753	- 2.6
1966	112,472	101,077	-10.1
1967	121,968	116,525	- 4.5
1968	130,365	108,519	-16.8
1969	142,388	120,459	-15.4
1970	156,323	125,495	-19.7
1971	171,026	135,043	-21.0
1972	187,838	168,230	-10.4
1973	212,839	199,869	- 6.1
1974	233,086	209,216	-10.2
1975	303,800	258,887	-14.8
1976	296,790	290,759	- 2.0
1977	354,071	360,620	- 1.8
1978	404,049	369,903	- 8.5
1979	444,556	411,663	- 7.4
1980	--	429,781	--
Average Difference			10.16875

Mean = -10.16875 (S.D. = 6.086676022)
U_1 = .050723369

APPENDIX TABLE 107. ESTIMATES OF PERSONAL INCOME AND DIFFERENCES IN ESTIMATES, MONTANA REGION 9, 1960-1980 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	I-O Analysis Estimate	Percent Difference
1960	--	79,603	--
1961	--	111,286	--
1962	160,877	113,938	-29.2
1963	--	118,468	--
1964	--	121,385	--
1965	181,197	141,908	-21.7
1966	188,987	146,040	-22.7
1967	183,345	131,489	-28.3
1968	186,220	151,481	-18.7
1969	206,084	182,643	-11.4
1970	229,964	200,077	-13.0
1971	232,444	189,524	-18.5
1972	271,540	222,987	-17.9
1973	310,929	257,225	-17.3
1974	337,576	287,120	-14.9
1975	365,612	273,481	-25.2
1976	385,802	314,886	-18.4
1977	405,548	339,098	-16.4
1978	455,050	369,920	-18.7
1979	501,193	420,491	-16.1
1980	--	445,137	--
Average Difference			19.275

Mean = -19.275 (S.D. = 5.029048949)
U_1 = .102602161

APPENDIX TABLE 108. ESTIMATES OF PERSONAL INCOME AND DIFFERENCES IN ESTIMATES, MONTANA REGION 10, 1960-1980 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	I-O Analysis Estimate	Percent Difference
1960	--	160,126	--
1961	--	184,497	--
1962	200,807	183,093	- 8.8
1963	--	200,380	--
1964	--	191,608	--
1965	230,208	217,282	- 5.6
1966	245,751	222,998	- 9.3
1967	262,901	246,698	- 6.2
1968	286,493	270,950	- 5.4
1969	299,124	276,189	- 7.7
1970	321,702	282,306	-12.2
1971	357,777	326,353	- 8.8
1972	411,437	348,279	-15.4
1973	469,059	423,399	- 9.7
1974	529,640	431,162	-18.6
1975	567,910	467,351	-17.7
1976	632,879	507,156	-19.9
1977	737,550	618,133	-16.2
1978	859,036	691,625	-19.5
1979	968,415	758,976	-21.6
1980	--	742,675	--
Average Difference			12.6625

Mean = -12.6625 (S.D. = 5.649764007)
U_1 = .0965393818

APPENDIX TABLE 109. ESTIMATES OF PERSONAL INCOME AND DIFFERENCES IN ESTIMATES, MONTANA REGION 11, 1960-1980 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	I-O Analysis Estimate	Percent Difference
1960	--	83,236	--
1961	--	100,262	--
1962	118,427	98,307	-17.0
1963	--	112,180	--
1964	--	106,679	--
1965	131,171	123,198	- 6.1
1966	142,285	128,173	- 9.9
1967	153,694	143,266	- 6.8
1968	170,861	218,521	27.9
1969	175,404	210,086	19.8
1970	183,666	198,429	8.0
1971	199,756	203,066	1.7
1972	221,667	203,378	- 8.3
1973	250,097	234,116	- 6.4
1974	225,576	253,157	12.2
1975	299,512	269,341	-10.1
1976	334,643	342,861	2.5
1977	388,526	368,796	- 5.1
1978	457,176	404,451	-11.5
1979	516,275	440,258	-14.7
1980	--	402,272	--
Average Difference			10.5

Mean = -1.4875 (S.D. = 12.68515537)
U_1 = .0588337017

APPENDIX TABLE 110. ESTIMATES OF PERSONAL INCOME AND DIFFERENCES IN ESTIMATES, MONTANA TOTALS, 1960-1980 (THOUSAND DOLLARS)

Year	Department of Commerce Estimate	I-O Analysis Estimate	Percent Difference
1960	--	1,105,560	--
1961	--	1,250,132	--
1962	1,567,862	1,245,404	-20.6
1963	--	1,374,212	--
1964	--	1,320,913	--
1965	1,704,173	1,512,666	-11.2
1966	1,839,676	1,602,621	-12.9
1967	1,899,008	1,726,632	- 9.1
1968	2,002,306	1,933,434	- 3.4
1969	2,174,501	2,040,462	- 6.2
1970	2,366,997	2,199,947	- 7.1
1971	2,486,083	2,341,031	- 5.8
1972	2,884,631	2,787,458	- 3.4
1973	3,421,542	3,176,345	- 7.2
1974	3,670,241	3,496,059	- 4.7
1975	4,018,445	3,650,235	- 9.2
1976	4,216,169	3,897,503	- 7.6
1977	4,609,202	4,476,625	- 2.9
1978	5,515,377	4,802,692	-12.9
1979	5,917,476	5,264,684	-11.0
1980	--	5,497,904	--
Average Difference			8.45

Mean = -8.45 (S.D. = 4.577772384)
U_1 = .0480713346

APPENDIX TABLE 111. HISTORIC AND MODEL-PROJECTED* EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 2, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment			Model-Projected Employment			
	1960	1970	1980	1981	1990	2000	2005
(1) & (2) Agriculture	3,241	3,360	2,970	3,049	3,034	3,022	3,017
(3) Metal Mining	---	---	---	---	---	---	---
(4) Coal Mining	---	225	704	638	600	580	573
(5) Pet/NG Exp/Ext	307	251	256	243	241	240	240
(6) Nonmetallic Mining	---	---	6	6	7	7	8
(7) Construction	523	428	658	660	666	670	671
(8) Lumber	---	---	---	---	---	---	---
(9) Ag Proc & Misc Mfg	414	663	852	805	1,024	1,303	1,459
(10) Pet Refining	15	1	---	---	---	---	---
(11) Metal Proc	---	---	---	---	---	---	---
(12) Transportation	669	541	793	842	873	898	907
(13) Comm & Pub Util	207	217	178	157	157	157	157
(14) Elec Gen	---	---	156	130	90	67	60
(15) Retail	1,730	2,070	2,517	2,518	2,584	2,636	2,656
(16) F.I.R.E.	208	287	328	339	371	400	412
(17) Bus & Pers Service	182	438	341	372	406	435	447
(18) Prof & Soc Service	651	1,379	3,057	2,885	3,581	4,354	4,741
(19) Government	1,575	2,203	2,890	2,995	3,346	3,666	3,805
(20) Households	---	---	---	---	---	---	---
TOTAL	9,722	12,063	15,706	15,641	16,981	18,435	19,152

*Projected from equations estimated by robust regression with intercept adjustment techniques.

APPENDIX TABLE 112. HISTORIC AND MODEL-PROJECTED* EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 3, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment			Model-Projected Employment			
	1960	1970	1980	1981	1990	2000	2005
(1) & (2) Agriculture	4,341	3,784	3,267	3,329	3,166	3,045	2,999
(3) Metal Mining	---	---	---	---	---	---	---
(4) Coal Mining	---	---	---	---	---	---	---
(5) Pet/NG Exp/Ext	28	21	247	61	74	87	93
(6) Nonmetallic Mining	2	---	6	7	8	9	9
(7) Construction	889	583	668	678	621	581	567
(8) Lumber	---	---	---	---	---	---	---
(9) Ag Proc & Misc Mfg	683	729	1,119	1,135	1,329	1,545	1,653
(10) Pet Refining	8	4	---	---	---	---	---
(11) Metal Proc	---	---	---	---	---	---	---
(12) Transportation	934	653	494	478	431	401	390
(13) Comm & Pub Util	286	264	271	242	224	212	208
(14) Elec Gen	---	---	---	---	---	---	---
(15) Retail	2,664	2,570	3,464	3,337	3,336	3,336	3,336
(16) F.I.R.E.	319	312	592	615	773	965	1,068
(17) Bus & Pers Service	342	344	363	386	424	457	470
(18) Prof & Soc Service	1,572	2,167	3,817	3,638	4,401	5,249	5,673
(19) Government	2,890	3,218	3,172	3,393	3,535	3,653	3,701
(20) Households	---	---	---	---	---	---	---
TOTAL	14,958	14,649	17,480	17,297	18,323	19,541	20,168

*Projected from equations estimated by robust regression with intercept adjustment techniques.

APPENDIX TABLE 113. HISTORIC AND MODEL-PROJECTED* EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 4, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment			Model-Projected Employment			
	1960	1970	1980	1981	1990	2000	2005
(1) & (2) Agriculture	1,509	1,436	1,201	1,220	1,166	1,124	1,107
(3) Metal Mining	---	---	---	---	---	---	---
(4) Coal Mining	---	---	---	---	---	---	---
(5) Pet/NG Exp/Ext	83	---	---	---	---	---	---
(6) Nonmetallic Mining	---	2	5	5	5	4	4
(7) Construction	196	138	261	280	292	302	306
(8) Lumber	---	---	61	74	88	102	109
(9) Ag Proc & Misc Mfg	301	203	414	409	460	513	539
(10) Pet Refining	---	---	---	---	---	---	---
(11) Metal Proc	---	---	---	---	---	---	---
(12) Transportation	271	70	9	14	16	18	19
(13) Comm & Pub Util	84	96	150	86	70	60	57
(14) Elec Gen	---	---	---	---	---	---	---
(15) Retail	1,202	1,007	986	968	933	907	897
(16) F.I.R.E.	125	127	177	182	207	234	247
(17) Bus & Pers Service	100	43	212	176	198	218	226
(18) Prof & Soc Service	470	851	1,043	1,021	1,163	1,309	1,379
(19) Government	819	1,045	1,241	1,295	1,458	1,625	1,703
(20) Households	---	---	---	---	---	---	---
TOTAL	5,160	5,018	5,760	5,732	6,055	6,416	6,593

*Projected from equations estimated by robust regression with intercept adjustment techniques.

APPENDIX TABLE 114. HISTORIC AND MODEL-PROJECTED* EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 5, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment			Model-Projected Employment			
	1960	1970	1980	1981	1990	2000	2005
(1) & (2) Agriculture	5,316	4,924	4,098	4,179	4,031	3,919	3,877
(3) Metal Mining	---	---	---	---	---	---	---
(4) Coal Mining	346	113	829	777	742	724	718
(5) Pet/NG Exp/Ext	1,110	713	957	966	955	949	946
(6) Nonmetallic Mining	13	24	259	230	290	358	391
(7) Construction	2,532	3,117	3,958	4,335	4,705	5,033	5,172
(8) Lumber	---	---	522	603	603	602	602
(9) Ag Proc & Misc Mfg	4,087	5,407	8,084	8,324	9,984	11,828	12,750
(10) Pet Refining	749	963	888	932	990	1,031	1,046
(11) Metal Proc	---	---	---	---	---	---	---
(12) Transportation	6,200	4,016	6,473	6,223	6,025	5,892	5,844
(13) Comm & Pub Util	823	951	1,369	1,199	1,286	1,357	1,385
(14) Elec Gen	2	102	102	---	---	---	---
(15) Retail	8,322	9,223	14,912	15,205	17,578	19,811	20,797
(16) F.I.R.E.	1,608	1,646	2,509	2,594	2,855	3,087	3,186
(17) Bus & Pers Service	1,640	1,999	2,894	2,855	3,202	3,493	3,612
(18) Prof & Soc Service	4,432	6,690	12,790	12,354	15,360	18,701	20,371
(19) Government	6,656	9,325	13,861	14,378	17,506	20,857	22,486
(20) Households	---	---	---	---	---	---	---
TOTAL	43,836	49,213	74,505	75,155	86,113	97,640	103,182

*Projected from equations estimated by robust regression with intercept adjustment techniques.

APPENDIX TABLE 115. HISTORIC AND MODEL-PROJECTED* EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 6, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment			Model-Projected Employment			
	1960	1970	1980	1981	1990	2000	2005
(1) & (2) Agriculture	7,369	6,889	5,712	5,860	5,656	5,499	5,438
(3) Metal Mining	4	---	---	---	---	---	---
(4) Coal Mining	---	---	---	---	---	---	---
(5) Pet/NG Exp/Ext	467	336	1,238	1,095	1,120	1,140	1,148
(6) Nonmetallic Mining	11	17	17	23	28	33	35
(7) Construction	5,391	2,927	3,633	3,443	2,775	2,389	2,261
(8) Lumber	277	149	121	236	286	342	369
(9) Ag Proc & Misc Mfg	3,690	3,808	4,190	4,259	4,534	4,806	4,930
(10) Pet Refining	128	111	83	83	85	87	88
(11) Metal Proc	1,695	1,510	---	---	---	---	---
(12) Transportation	2,780	3,650	3,088	3,039	2,991	2,954	2,940
(13) Comm & Pub Util	833	907	1,054	913	938	958	966
(14) Elec Gen	48	48	33	---	---	---	---
(15) Retail	9,043	8,596	11,177	11,179	10,502	10,042	9,876
(16) F.I.R.E.	1,527	1,680	2,503	2,645	3,226	3,892	4,234
(17) Bus & Pers Service	1,686	1,445	2,126	1,895	1,853	1,825	1,815
(18) Prof & Soc Service	4,809	5,778	10,356	10,419	12,727	15,364	16,712
(19) Government	8,094	10,520	11,956	12,730	14,715	16,744	17,696
(20) Households	---	---	---	---	---	---	---
TOTAL	47,852	48,371	57,287	57,820	61,436	66,074	68,508

*Projected from equations estimated by robust regression with intercept adjustment techniques.

APPENDIX TABLE 116. HISTORIC AND MODEL-PROJECTED* EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 7, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment			Model-Projected Employment			
	1960	1970	1980	1981	1990	2000	2005
(1) & (2) Agriculture	2,294	2,225	1,986	2,008	1,980	1,958	1,950
(3) Metal Mining	---	---	---	---	---	---	---
(4) Coal Mining	---	---	---	---	---	---	---
(5) Pet/NG Exp/Ext	---	---	---	---	---	---	---
(6) Nonmetallic Mining	6	47	44	45	55	66	72
(7) Construction	637	685	1,399	1,546	1,864	2,219	2,396
(8) Lumber	371	341	667	884	1,143	1,418	1,550
(9) Ag Proc & Misc Mfg	648	1,019	1,777	1,798	2,196	2,637	2,858
(10) Pet Refining	---	---	---	---	---	---	---
(11) Metal Proc	---	---	---	---	---	---	---
(12) Transportation	784	548	975	1,050	1,162	1,257	1,296
(13) Comm & Pub Util	248	364	448	407	459	506	527
(14) Elec Gen	---	---	---	---	---	---	---
(15) Retail	2,992	3,299	6,175	6,558	7,964	9,351	9,984
(16) F.I.R.E.	391	421	885	932	1,157	1,407	1,532
(17) Bus & Pers Service	465	576	960	1,066	1,342	1,613	1,736
(18) Prof & Soc Service	1,505	2,027	4,449	4,072	5,076	6,191	6,748
(19) Government	2,161	3,214	4,830	5,124	6,817	8,994	10,225
(20) Households	---	---	---	---	---	---	---
TOTAL.	12,502	14,766	24,595	25,490	31,215	37,617	40,874

*Projected from equations estimated by robust regression with intercept adjustment techniques.

APPENDIX TABLE 117. HISTORIC AND MODEL-PROJECTED* EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 8, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment			Model-Projected Employment			
	1960	1970	1980	1981	1990	2000	2005
(1) & (2) Agriculture	1,111	1,049	1,064	1,047	1,038	1,030	1,027
(3) Metal Mining	39	143	19	18	18	18	18
(4) Coal Mining	---	---	---	---	---	---	---
(5) Pet/NG Exp/Ext	---	---	---	---	---	---	---
(6) Nonmetallic Mining	---	---	---	---	---	---	---
(7) Construction	1,265	902	1,197	1,295	1,313	1,327	1,332
(8) Lumber	78	---	238	302	367	438	474
(9) Ag Proc & Misc Mfg	689	998	1,268	1,344	1,591	1,845	1,965
(10) Pet Refining	---	---	---	---	---	---	---
(11) Metal Proc	336	224	459	429	424	421	420
(12) Transportation	975	453	402	398	385	377	374
(13) Comm & Pub Util	968	957	2,068	1,794	1,836	1,867	1,879
(14) Elec Gen	27	27	18	---	---	---	---
(15) Retail	2,393	2,920	4,814	5,013	5,868	6,661	7,007
(16) F.I.R.E.	630	840	1,228	1,320	1,635	1,970	2,132
(17) Bus & Pers Service	366	461	944	906	1,133	1,361	1,467
(18) Prof & Soc Service	2,310	3,735	5,137	5,141	6,393	7,736	8,388
(19) Government	2,163	3,474	5,304	5,605	7,119	8,813	9,665
(20) Households	---	---	---	---	---	---	---
TOTAL	13,350	16,183	24,160	24,611	29,119	33,863	36,148

*Projected from equations estimated by robust regression with intercept adjustment techniques.

APPENDIX TABLE 118. HISTORIC AND MODEL-PROJECTED* EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 9, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment			Model-Projected Employment			
	1960	1970	1980	1981	1990	2000	2005
(1) & (2) Agriculture	1,335	1,335	1,363	1,368	1,376	1,384	1,387
(3) Metal Mining	4,136	3,677	1,432	1,710	1,682	1,658	1,647
(4) Coal Mining	---	---	---	---	---	---	---
(5) Pet/NG Exp/Ext	---	---	---	---	---	---	---
(6) Nonmetallic Mining	87	61	77	83	85	86	87
(7) Construction	1,333	922	911	966	901	854	837
(8) Lumber	---	---	151	166	128	107	101
(9) Ag Proc & Misc Mfg	1,855	1,604	2,254	2,269	2,222	2,179	2,161
(10) Pet Refining	---	---	---	---	---	---	---
(11) Metal Proc	961	1,286	918	899	985	1,080	1,127
(12) Transportation	1,505	1,325	949	881	806	751	731
(13) Comm & Pub Util	886	820	1,256	1,075	1,125	1,168	1,186
(14) Elec Gen	2	2	1	---	---	---	---
(15) Retail	4,896	4,840	5,316	5,371	5,500	5,602	5,642
(16) F.I.R.E.	726	668	1,561	1,009	867	780	750
(17) Bus & Pers Service	704	635	837	794	844	884	899
(18) Prof & Soc Service	2,822	3,899	4,372	4,361	4,979	5,605	5,897
(19) Government	3,950	5,110	5,980	6,115	6,887	7,662	8,021
(20) Households	---	---	---	---	---	---	---
TOTAL	25,198	26,184	27,378	27,069	28,385	29,799	30,472

*Projected from equations estimated by robust regression with intercept adjustment techniques.

APPENDIX TABLE 119. HISTORIC AND MODEL-PROJECTED* EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 10, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment			Model-Projected Employment			
	1960	1970	1980	1981	1990	2000	2005
(1) & (2) Agriculture	5,097	4,138	3,803	3,813	3,583	3,404	3,333
(3) Metal Mining	321	180	49	68	70	71	72
(4) Coal Mining	---	---	---	---	---	---	---
(5) Pet/NG Exp/Ext	---	---	---	---	---	---	---
(6) Nonmetallic Mining	87	82	162	172	187	203	211
(7) Construction	1,439	1,931	3,832	4,122	4,893	5,749	6,177
(8) Lumber	4,620	5,089	4,903	5,993	6,451	6,873	7,056
(9) Ag Proc & Misc Mfg	1,872	2,234	3,924	4,052	4,682	5,381	5,731
(10) Pet Refining	---	---	---	---	---	---	---
(11) Metal Proc	---	---	---	---	---	---	---
(12) Transportation	1,811	1,823	2,527	2,774	3,237	3,734	3,976
(13) Comm & Pub Util	631	593	958	1,169	1,351	1,537	1,624
(14) Elec Gen	188	186	128	---	---	---	---
(15) Retail	5,481	6,866	11,666	11,983	15,101	18,815	20,781
(16) F.I.R.E.	740	913	1,744	1,826	2,191	2,598	2,801
(17) Bus & Pers Service	872	1,185	1,804	1,789	2,268	2,832	3,129
(18) Prof & Soc Service	3,235	4,721	7,787	8,217	9,891	11,751	12,681
(19) Government	4,931	7,149	11,554	12,316	17,373	25,547	31,302
(20) Households	---	---	---	---	---	---	---
TOTAL	31,325	37,090	54,841	58,293	71,277	88,496	98,874

*Projected from equations estimated by robust regression with intercept adjustment techniques.

APPENDIX TABLE 120. HISTORIC AND MODEL-PROJECTED* EMPLOYMENT BY ECONOMIC SECTOR, MONTANA REGION 11, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment			Model-Projected Employment			
	1960	1970	1980	1981	1990	2000	2005
(1) & (2) Agriculture	1,720	1,354	1,300	1,289	1,214	1,161	1,142
(3) Metal Mining	---	---	---	---	---	---	---
(4) Coal Mining	---	---	---	---	---	---	---
(5) Pet/NG Exp/Ext	---	---	---	---	---	---	---
(6) Nonmetallic Mining	44	116	119	135	165	199	215
(7) Construction	504	1,737	1,434	1,481	1,796	2,151	2,329
(8) Lumber	3,654	4,420	4,337	4,706	4,920	5,076	5,135
(9) Ag Proc & Misc Mfg	513	369	1,036	1,125	1,368	1,638	1,773
(10) Pet Refining	---	---	---	---	---	---	---
(11) Metal Proc	809	1,680	1,224	1,179	1,537	1,936	2,135
(12) Transportation	427	126	672	575	365	290	270
(13) Comm & Pub Util	274	51	630	518	557	588	601
(14) Elec Gen	73	72	120	---	---	---	---
(15) Retail	2,423	3,391	5,796	5,991	7,603	9,393	10,288
(16) F.I.R.E.	282	201	780	805	1,003	1,223	1,333
(17) Bus & Pers Service	393	275	990	974	1,326	1,752	1,981
(18) Prof & Soc Service	1,199	454	3,970	3,920	4,916	6,022	6,575
(19) Government	2,908	4,081	6,160	6,401	7,879	9,477	10,259
(20) Households	---	---	---	---	---	---	---
TOTAL	15,223	18,327	28,568	29,098	34,649	40,907	44,037

*Projected from equations estimated by robust regression with intercept adjustment techniques.

APPENDIX TABLE 121. HISTORIC AND MODEL-PROJECTED* EMPLOYMENT BY ECONOMIC SECTOR, MONTANA, SELECTED YEARS 1960 TO 2005

Sector	Historic Employment			Model-Projected Employment			
	1960	1970	1980	1981	1990	2000	2005
(1) & (2) Agriculture	39,000	36,100	31,400	31,897	30,806	29,974	29,653
(3) Metal Mining	4,500	4,000	1,500	1,796	1,770	1,747	1,737
(4) Coal Mining	450	450	1,600	1,473	1,393	1,351	1,337
(5) Pet/NG Exp/Ext	2,200	1,800	3,800	3,289	3,348	3,409	3,436
(6) Nonmetallic Mining	250	350	700	712	835	970	1,036
(7) Construction	15,210	13,768	18,936	19,789	20,959	22,577	23,434
(8) Lumber	9,000	10,000	11,000	12,964	13,986	14,958	15,396
(9) Ag Proc & Misc Mfg	15,400	17,900	26,500	27,100	31,321	35,996	38,336
(10) Pet Refining	900	1,100	1,000	1,041	1,098	1,139	1,155
(11) Metal Proc	3,800	4,700	2,600	2,507	2,946	3,437	3,682
(12) Transportation	17,976	14,018	17,262	17,016	16,919	17,130	17,282
(13) Comm & Pub Util	5,600	5,700	9,000	8,090	8,565	9,001	9,193
(14) Elec Gen	400	500	600	130	90	67	60
(15) Retail	43,972	47,936	70,464	71,754	80,685	90,339	95,076
(16) F.I.R.E.	6,900	8,100	12,900	12,880	15,042	17,488	18,721
(17) Bus & Pers Service	7,052	8,010	11,980	11,698	13,533	15,451	16,382
(18) Prof & Soc Service	24,890	34,168	60,158	59,302	72,387	86,879	94,110
(19) Government	38,500	52,600	70,600	73,943	91,068	111,947	123,990
(20) Households	---	---	---	---	---	---	---
TOTAL	236,000	261,200	352,000	357,381	406,751	463,860	494,016

*Projected from equations estimated by robust regression with intercept adjustment techniques.

APPENDIX TABLE 122. HISTORIC POPULATION AND MODEL-PROJECTED POPULATION, BY CITY, COUNTY, AND REGION, MONTANA REGION 2, SELECTED YEARS

County/City	Census Population			Model-Projected Population*				
	1960	1970	1980	1985	1990	1995	2000	2005
Carter County	2,493	1,956	1,799	1,871	1,910	1,996	2,057	2,090
Alzada	50	50	50	49	49	51	53	55
Ekalaka	738	663	620	587	568	590	598	600
Custer County	13,227	12,174	13,109	14,741	15,456	16,250	16,612	16,827
Ismay	59	40	31	29	26	21	19	16
Miles City	9,665	9,023	9,602	9,877	10,153	10,678	11,005	11,270
Fallon County	3,997	4,050	3,763	4,393	4,535	4,692	4,721	4,818
Baker	2,365	2,584	2,354	2,402	2,432	2,523	2,587	2,688
Plevna	263	189	191	186	170	165	156	150
Garfield County	1,981	1,796	1,656	1,515	1,617	1,702	1,702	1,707
Jordan	557	529	485	473	490	517	519	520
Powder River County	2,485	2,862	2,520	2,024	2,043	2,076	2,041	1,982
Belle Creek	150	300	150	149	154	164	174	183
Broadus	628	799	721	670	614	557	474	385
Prairie County	2,318	1,752	1,836	2,312	2,424	2,498	2,498	2,518
Fallon	300	200	300	317	339	361	375	392
Terry	1,140	870	929	973	976	970	957	950
Rosebud County	6,187	6,032	9,899	9,269	10,380	11,573	12,909	14,274
Ashland	150	531	238	245	241	233	212	186
Birney	20	13	30	31	30	28	25	21
Colstrip	200	200	1,476	1,670	2,112	2,447	3,426	4,782
Forsyth	2,032	1,873	2,553	2,532	2,327	2,124	1,829	1,519
Lame Deer	300	650	1,002	1,086	1,215	1,340	1,532	1,725
Rosebud	140	225	158	154	138	122	101	84
Region 2	32,738	30,622	34,582	36,126	38,365	40,787	42,541	44,216

*Based on a birthrate of 2.1 births per female, unallocated labor pool maximum = 0.07 and minimum = 0.01, family size for construction, energy operating, nonenergy operating, indirect, and baseline is 2.291, 3.535, 3.535, 3.507, and 2.8, respectively. The maximum fraction of city workers who can work on farms is 0.2, and the maximum fraction of rural workers who can work in cities is 0.2.

APPENDIX TABLE 123. HISTORIC POPULATION AND MODEL-PROJECTED POPULATION, BY CITY, COUNTY, AND REGION, MONTANA REGION 3, SELECTED YEARS

County/City	Census Population			Model-Projected Population*				
	1960	1970	1980	1985	1990	1995	2000	2005
Blaine County	8,091	6,727	6,999	6,748	6,957	7,222	7,397	7,538
Chinook	2,326	1,813	1,660	1,781	1,840	1,908	1,948	1,973
Harlem	1,267	1,094	1,023	1,105	1,199	1,282	1,350	1,407
Hays	600	500	370	324	352	382	379	368
Turner	175	150	258	279	303	329	356	387
Hill County	18,653	17,358	17,985	18,783	19,976	21,175	22,372	23,267
Havre	10,740	10,558	10,891	11,229	12,066	12,829	13,563	14,358
Rudyard	600	600	450	446	474	500	515	523
Phillips County	6,027	5,386	5,367	5,779	6,146	6,541	6,842	7,080
Dodson	313	196	158	153	147	141	132	123
Loring	50	25	40	41	45	48	51	54
Malta	2,239	2,195	2,367	2,519	2,709	2,901	3,100	3,328
Saco	490	356	252	246	237	229	217	200
Whitewater	100	100	75	78	82	88	92	92
Valley County	17,080	11,471	10,250	10,545	10,758	10,914	10,954	10,950
Fort Peck	650	450	250	229	204	180	159	140
Glasgow	6,398	4,700	4,455	4,566	4,723	4,877	4,966	5,026
Hinsdale	400	390	200	193	182	173	164	152
Nashua	796	513	495	497	499	501	495	487
Opheim	457	306	210	198	184	173	159	145
Region 3	49,851	40,942	40,601	41,854	43,837	45,853	47,566	48,835

*Based on a birthrate of 2.1 births per female, unallocated labor pool maximum = 0.07 and minimum = 0.01, family size for construction, energy operating, nonenergy operating, indirect, and baseline is 2.291, 3.535, 3.535, 3.507, and 3.0, respectively. The maximum fraction of city workers who can work on farms is 0.2, and the maximum fraction of rural workers who can work in cities is 0.2.

APPENDIX TABLE 124. HISTORIC POPULATION AND MODEL-PROJECTED POPULATION, BY CITY, COUNTY, AND REGION, MONTANA REGION 4, SELECTED YEARS

County/City	Census Population			Model-Projected Population*				
	1960	1970	1980	1985	1990	1995	2000	2005
Fergus County	14,018	12,611	13,076	13,714	14,412	15,102	15,751	16,141
Denton	410	389	356	371	389	409	427	440
Grass Range	222	181	139	145	133	130	122	116
Lewiston	7,408	6,437	7,104	7,398	7,772	8,152	8,516	8,901
Moore	216	219	229	238	251	263	275	287
Winifred	220	190	155	161	156	156	154	150
Petroleum County	894	675	655	656	687	696	691	686
Winnett	360	271	207	210	190	185	179	168
Region 4	14,912	13,286	13,731	14,370	15,099	15,797	16,442	16,827

*Based on a birthrate of 2.1 births per female, unallocated labor pool maximum = 0.07 and minimum = 0.01, family size for construction, energy operating, nonenergy operating, indirect, and baseline is 2.291, 3.535, 3.535, 3.507, and 3.3, respectively. The maximum fraction of city workers who can work on farms is 0.2, and the maximum fraction of rural workers who can work in cities is 0.2.

APPENDIX TABLE 125. HISTORIC POPULATION AND MODEL-PROJECTED POPULATION, BY CITY, COUNTY, AND REGION, MONTANA REGION 5, SELECTED YEARS

County/City	Census Population			Model-Projected Population*				
	1960	1970	1980	1985	1990	1995	2000	2005
Big Horn County	10,007	10,057	11,096	9,777	10,516	11,165	11,641	12,051
Busby	300	300	163	180	179	165	148	129
Crow Agency	700	1,000	406	448	461	430	391	349
Hardin	2,789	2,733	3,300	3,640	4,314	4,974	5,538	6,101
Lodge Grass	687	806	771	850	999	1,140	1,259	1,378
Spring Creek	---	---	10	11	13	14	16	15
Carbon County	8,317	7,080	8,099	7,765	8,283	8,684	8,942	9,243
Bridger	824	717	724	752	840	917	973	1,027
Fromberg	367	364	469	487	577	677	758	837
Joliet	452	412	580	602	714	839	940	1,038
Red Lodge	2,278	1,844	1,896	1,969	2,180	2,357	2,484	2,569
Golden Valley County	1,203	931	1,026	806	804	817	849	880
Ryegate	314	261	273	279	303	327	348	366
Musselshell County	4,888	3,734	4,428	4,131	4,250	4,359	4,376	4,255
Roundup	2,842	2,116	2,119	2,222	2,438	2,600	2,635	2,521
Stillwater County	5,526	4,632	5,598	4,979	5,458	5,869	6,155	6,403
Absarokee	600	600	767	797	939	1,095	1,218	1,336
Columbus	1,281	1,173	1,439	1,496	1,728	1,970	2,156	2,327
Treasure County	1,345	1,096	981	1,047	1,131	1,172	1,232	1,288
Hysham	494	373	449	482	542	594	640	687
Wheatland County	3,026	2,529	2,359	2,729	2,858	2,995	2,965	2,910
Harlowton	1,734	1,375	1,181	1,258	1,381	1,467	1,400	1,316
Judith Gap	185	160	213	227	270	315	354	393
Yellowstone County	79,016	87,367	108,035	117,941	131,319	145,156	154,828	163,195
Billings	52,851	61,581	66,798	71,084	80,853	91,507	100,344	108,559
Broadview	160	123	120	128	136	137	132	125
Laurel	4,601	4,454	5,481	5,833	6,567	7,339	7,969	8,541
Region 5	113,328	117,426	141,622	149,175	164,618	180,218	190,988	200,225

*Based on a birthrate of 2.1 births per female, unallocated labor pool maximum = 0.07 and minimum = 0.01, family size for construction, energy operating, nonenergy operating, indirect, and baseline is 2.291, 3.535, 3.535, 3.507, and 2.2, respectively. The maximum fraction of city workers who can work on farms is 0.2, and the maximum fraction of rural workers who can work in cities is 0.2.

APPENDIX TABLE 126. HISTORIC POPULATION AND MODEL-PROJECTED POPULATION, BY CITY, COUNTY, AND REGION, MONTANA REGION 6, SELECTED YEARS

County/City	Census Population			Model-Projected Population*				
	1960	1970	1980	1985	1990	1995	2000	2005
Cascade County	73,418	81,804	80,696	86,878	92,367	97,362	101,838	105,583
Belt	757	656	825	877	932	983	1,031	1,082
Cascade	604	714	773	822	874	921	966	1,014
Great Falls	55,357	60,091	56,725	60,284	63,520	66,955	70,212	73,702
Stockett	400	500	500	532	565	596	625	656
Chouteau County	7,348	6,473	6,092	6,541	6,889	7,252	7,405	7,568
Big Sandy	954	827	835	873	921	969	1,015	1,052
Fort Benton	1,887	1,863	1,693	1,771	1,867	1,966	2,069	2,181
Geraldine	364	370	305	319	331	348	355	365
Glacier County	11,565	10,783	10,628	8,948	9,308	9,530	9,547	9,490
Browning	2,011	1,700	1,226	1,331	1,256	1,217	1,151	1,079
Cut Bank	4,539	4,004	3,688	4,092	4,293	4,466	4,539	4,569
Judith Basin County	3,085	2,667	2,646	2,110	2,128	2,184	2,255	2,321
Hobson	207	192	261	267	275	284	293	302
Stanford	615	505	595	608	626	647	668	688
Liberty County	2,624	2,359	2,329	2,285	2,433	2,581	2,647	2,686
Chester	1,158	936	963	1,021	1,069	1,152	1,198	1,230
Meagher County	2,616	2,122	2,154	2,222	2,325	2,455	2,575	2,642
White Sulfur Springs	1,519	1,200	1,302	1,337	1,365	1,441	1,514	1,573
Pondera County	7,653	6,611	6,731	7,451	8,001	8,560	9,051	9,540
Conrad	2,665	2,770	3,074	3,276	3,518	3,774	4,045	4,350
Valier	724	651	640	682	732	777	811	837
Teton County	7,295	6,116	6,491	6,204	6,512	6,848	7,060	7,284
Choteau	1,966	1,586	1,798	1,895	2,021	2,166	2,315	2,480
Dutton	504	415	359	378	382	391	388	383
Fairfield	752	638	650	685	731	783	837	875
Toole County	7,904	5,839	5,559	6,599	6,767	6,860	6,761	6,708
Shelby	4,017	3,111	3,142	3,349	3,382	3,431	3,405	3,399
Sunburst	882	604	476	482	434	401	364	330
Region 6	123,508	124,774	123,326	129,239	136,730	143,630	149,138	153,823

*Based on a birthrate of 2.1 births per female, unallocated labor pool maximum = 0.07 and minimum = 0.01, family size for construction, energy operating, nonenergy operating, indirect, and baseline is 2.291, 3.535, 3.535, 3.507, and 2.8, respectively. The maximum fraction of city workers who can work on farms is 0.2, and the maximum fraction of rural workers who can work in cities is 0.2.

APPENDIX TABLE 127. HISTORIC POPULATION AND MODEL-PROJECTED POPULATION, BY CITY, COUNTY, AND REGION, MONTANA REGION 7, SELECTED YEARS

County/City	Census Population			Model-Projected Population*				
	1960	1970	1980	1985	1990	1995	2000	2005
Gallatin County	26,045	32,505	42,865	43,872	51,428	60,049	67,126	72,452
Belgrade	1,057	1,307	2,336	2,529	3,121	4,144	5,046	5,913
Bozeman	13,361	18,670	21,645	23,196	26,776	32,395	36,803	40,377
Manhattan	889	816	988	1,050	1,147	1,289	1,397	1,476
Three Forks	1,161	1,188	1,247	1,325	1,438	1,599	1,719	1,802
W. Yellowstone	150	756	735	820	1,219	2,054	2,989	4,162
Park County	13,168	11,197	12,660	14,056	14,955	15,337	15,802	16,158
Gardiner	400	600	700	753	934	1,185	1,376	1,553
Livingston	8,229	6,883	6,994	7,386	8,124	8,695	9,050	9,219
Sweet Grass County	3,290	2,980	3,216	4,126	4,398	4,570	4,669	4,858
Big Timber	1,660	1,592	1,690	1,830	2,138	2,449	2,646	2,832
Region 7	42,503	46,682	58,741	62,054	70,781	79,956	87,597	93,468

*Based on a birthrate of 2.1 births per female, unallocated labor pool maximum = 0.07 and minimum = 0.01, family size for construction, energy operating, nonenergy operating, indirect, and baseline is 2.291, 3.535, 3.535, 3.507, and 3.6, respectively. The maximum fraction of city workers who can work on farms is 0.2, and the maximum fraction of rural workers who can work in cities is 0.2.

APPENDIX TABLE 128. HISTORIC POPULATION AND MODEL-PROJECTED POPULATION, BY CITY, COUNTY, AND REGION, MONTANA REGION 8, SELECTED YEARS

County/City	Census Population			Model-Projected Population*				
	1960	1970	1980	1985	1990	1995	2000	2005
Broadwater County	2,804	2,526	3,267	3,642	4,037	4,293	4,433	4,575
Townsend	1,528	1,371	1,587	1,810	2,098	2,378	2,600	2,803
Jefferson County	4,297	5,238	7,029	5,397	5,813	6,212	6,604	6,970
Boulder	1,394	1,342	1,441	1,624	1,841	2,048	2,226	2,394
Whitehall	898	1,035	1,030	1,164	1,345	1,528	1,692	1,854
Lewis and Clark County	28,006	33,281	43,039	48,343	54,121	59,897	63,928	67,821
Augusta	400	500	500	562	654	750	834	914
East Helena	1,490	1,651	1,647	1,846	2,103	2,359	2,572	2,770
Helena	20,227	22,730	23,938	26,869	30,932	35,091	38,606	41,912
Lincoln	400	1,005	900	1,031	1,345	1,755	2,178	2,673
Region 8	35,107	41,045	53,335	57,381	63,970	70,402	74,965	79,367

*Based on a birthrate of 2.1 births per female, unallocated labor pool maximum = 0.07 and minimum = 0.01, family size for construction, energy operating, nonenergy operating, indirect, and baseline is 2.291, 3.535, 3.535, 3.507, and 3.1, respectively. The maximum fraction of city workers who can work on farms is 0.2, and the maximum fraction of rural workers who can work in cities is 0.2.

APPENDIX TABLE 129. HISTORIC POPULATION AND MODEL-PROJECTED POPULATION, BY CITY, COUNTY, AND REGION, MONTANA REGION 9, SELECTED YEARS

County/City	Census Population			Model-Projected Population*				
	1960	1970	1980	1985	1990	1995	2000	2005
Beaverhead County	7,194	8,187	8,186	6,642	6,728	6,806	6,783	6,770
Dillon	3,690	4,548	3,976	3,796	3,760	3,732	3,614	3,483
Lima	397	351	272	243	220	195	167	142
Wisdom	180	154	200	191	191	192	187	182
Deer Lodge County	18,640	15,652	12,518[a]	12,867	12,811	12,751	12,649	12,530
Anaconda	12,054	9,771	12,518[a]	11,853	11,399	10,989	10,506	10,047
Madison County	5,211	5,014	5,448	4,487	4,588	4,703	4,796	4,885
Ennis	525	501	660	643	656	675	686	692
Sheridan	539	636	646	626	637	653	662	666
Twin Bridges	509	613	437	409	386	362	334	307
Virginia City	194	149	192	183	178	173	166	159
Silver Bow County	46,454	41,981	38,092[b]	41,554	43,228	44,859	46,295	47,720
Butte	27,877	23,368	37,205[b]	37,262	38,018	38,965	39,535	39,999
Melrose	200	218	102	89	74	60	48	38
Walkerville	1,453	1,097	887	802	699	593	489	404
Region 9	77,499	70,834	64,244	65,550	67,354	69,120	70,523	71,905

*Based on a birthrate of 2.1 births per female, unallocated labor pool maximum = 0.07 and minimum = 0.01, family size for construction, energy operating, nonenergy operating, indirect, and baseline is 2.291, 3.535, 3.535, 3.507, and 3.1, respectively. The maximum fraction of city workers who can work on farms is 0.2, and the maximum fraction of rural workers who can work in cities is 0.2.

[a]Between 1970 and 1980, Anaconda city and the balance of Deer Lodge County were consolidated and now are designated as Anaconda-Deer Lodge County.

[b]Between 1970 and 1980, Butte city was consolidated with the balance of Silver Bow County except Walkerville city and is now designated as Butte-Silver Bow. For more detailed information, see Bureau of the Census, 1980 Census of Population, Number of Inhabitants, Montana, PC80-1-A28, U.S. Department of Commerce, U.S. Government Printing Office, Washington, D.C., 1981.

APPENDIX TABLE 130. HISTORIC POPULATION AND MODEL-PROJECTED POPULATION, BY CITY, COUNTY, AND REGION, MONTANA REGION 10, SELECTED YEARS

County/City	Census Population			Model-Projected Population*				
	1960	1970	1980	1985	1990	1995	2000	2005
Granite County	3,014	2,737	2,700	4,322	4,635	4,921	5,161	5,531
Drummond	577	494	414	700	779	833	849	867
Philipburg	1,107	1,128	1,138	1,970	2,356	2,702	2,999	3,333
Lake County	13,104	14,445	19,056	22,384	26,589	30,914	36,079	40,490
Polson	2,314	2,464	2,798	5,547	7,404	9,476	12,164	15,117
Ronan	1,334	1,347	1,530	3,028	4,022	5,125	6,562	8,151
St. Ignatius	940	925	877	1,711	2,191	2,668	3,270	3,917
Mineral County	3,037	2,958	3,675	3,469	3,764	4,074	4,368	4,729
Alberton	356	363	368	631	763	892	1,014	1,146
Superior	1,242	993	1,054	1,783	2,072	2,309	2,514	2,735
Missoula County	44,663	58,263	76,016	82,925	96,071	110,490	124,623	139,897
Missoula	27,090	29,497	33,388	53,831	64,828	77,483	89,977	103,491
Seeley Lake	500	800	1,200	2,043	2,855	4,041	5,514	7,531
Powell County	7,002	6,660	6,958	10,395	10,993	11,597	12,186	13,035
Avon	200	200	200	327	383	436	485	542
Deer Lodge	4,681	4,306	4,023	6,503	7,385	8,085	8,674	9,328
Elliston	200	190	200	327	383	436	485	542
Ravalli County	12,341	14,409	22,493	18,150	19,841	21,799	23,982	26,540
Darby	398	538	581	1,020	1,297	1,623	1,971	2,397
Hamilton	2,475	2,499	2,661	4,576	5,493	6,423	7,326	8,351
Stevensville	784	829	1,207	2,127	2,737	3,469	4,267	5,260
Sanders County	6,880	7,093	8,675	10,262	11,510	12,892	14,339	16,133
Hot Springs	585	664	601	1,043	1,252	1,456	1,646	1,853
Plains	769	1,046	1,116	1,983	2,540	3,187	3,874	4,700
Thompson Falls	1,274	1,356	1,478	2,587	3,183	3,813	4,439	5,154
Region 10	90,041	106,565	139,573	151,907	173,403	196,686	220,738	246,356

*Based on a birthrate of 2.1 births per female, unallocated labor pool maximum = 0.07 and minimum = 0.01, family size for construction, energy operating, nonenergy operating, indirect, and baseline is 2.291, 3.535, 3.535, 3.507, and 3.5, respectively. The maximum fraction of city workers who can work on farms is 0.2, and the maximum fraction of rural workers who can work in cities is 0.2.

APPENDIX TABLE 131. HISTORIC POPULATION AND MODEL-PROJECTED POPULATION, BY CITY, COUNTY, AND REGION, MONTANA REGION 11, SELECTED YEARS

County/City	Census Population			Model-Projected Population*				
	1960	1970	1980	1985	1990	1995	2000	2005
Flathead County	32,965	39,460	51,966	57,232	63,895	70,496	76,460	82,546
Columbia Falls	2,132	2,652	3,112	6,534	7,943	9,542	11,141	12,843
Kalispell	10,151	10,526	10,648	21,899	25,394	28,855	31,987	35,040
Whitefish	2,965	3,349	3,703	7,683	9,083	10,548	11,919	13,291
Lincoln County	12,537	18,063	17,752	17,266	18,775	20,354	21,811	23,212
Eureka	1,229	1,195	1,119	2,323	2,655	2,951	3,206	3,444
Libby	2,828	3,286	2,748	5,731	6,624	7,463	8,213	8,942
Rexford	450	243	130	251	206	169	138	110
Troy	855	1,046	1,088	2,305	2,760	3,242	3,707	4,188
Region 11	45,502	57,523	69,718	74,498	82,670	90,850	98,271	105,758

*Based on a birthrate of 2.1 births per female, unallocated labor pool maximum = 0.07 and minimum = 0.01, family size for construction, energy operating, nonenergy operating, indirect, and baseline is 2.291, 3.535, 3.535, 3.507, and 3.4, respectively. The maximum fraction of city workers who can work on farms is 0.2, and the maximum fraction of rural workers who can work in cities is 0.2.

APPENDIX C

PROJECT SPECIFIC REPORT

MONTANA
ECONOMIC + DEMOGRAPHIC
SIMULATION MODEL

EMODEL RUN NUMBER: 444

11/15/1982 8:48

EMODEL IS RUN FROM 1981 UNTILL 2005

COUNTIES INCLUDED IN THIS EMODEL RUN ARE: 2 3 4
PROJECTS INCLUDED IN THIS EMODEL RUN ARE: 1 3

PROJECT NUMBER	PROJECT NAME	DESCRIPTION	STARTING DATE	PROJECT TOWN	SECONDRY TOWNS		DISTANCES TO SITE		
1	CIRCLEM2	M1 LIGNITE STRIP MINE (6 MMTPY)	1988	6	3	15	5	[illegible]	[illegible]
3	CNTELOM2	M3 COAL-FIRED POWER PLANT (1000 MW)	1988	2	5	3	2	18	27

GRAVITY POWERS :	CONSTRUCTION	OPERATING(E)	OPERATING(NE)	INDIRECT
	1.5000	2.9000	2.9000	1.6000

COMMUNITY ATTRACTION INDICES :

2 BLOOMFIELD	0.3
3 GLENDIVE	2
4 LINDSAY	0.3
5 WICHEY	0.5

==========

DMODEL RUN NUMBER: 444-1 RUN DATE IS 11/15/1982 8:50
DMODEL WAS RUN UNTILL: 2005
COUNTIES INCLUDED IN THIS DMODEL RUN: 2 3 4

BIRTHRATE = 2.10 UNALLOCATED LABOR POOL: MAX = .07 MIN = .01

FAMILY SIZE:	CONSTRUCTION	OPERATING(E)	OPERATING(NE)	INDIRECT	BASELINE
	2.29100	3.53500	3.53500	2.60000	2.60000

WORK FORCE PARTICIPATION RATE WEIGHTS:

NUMBER	COUNTY	MALE	FEMALE
2	DAWSON	.87000	.84000
3	MCCONE	1.02000	1.00000
4	RICHLAND	.98000	.97000

PERCENT OF CITY WORKERS WHO CAN WORK ON FARMS: 0.2

PERCENT OF RURAL WORKERS WHO CAN WORK IN THE CITIES: 0.2

MONTANA
FISCAL MODEL

FMODEL RUN NUMBER: 1

FMODEL WAS RUN UNTILL: 2005

FMODEL RUN DATE IS: 11/15/1982 9:14

COUNTIES INCLUDED IN THIS FMODEL RUN ARE: 2 3 4

ANNUAL INFLATION RATE : 1.00000
COAL ELECTRICITY CONVERSION TAX : .00020

REGIONAL ECONOMIC ACTIVITY REPORT

YEAR	PROJECT RELATED		BASE LINE		TOTAL								
					TOTAL BUSINESS ACTIVITY			PERSONAL INCOME			PER CAPITA		
	BUSINESS ACTIVITY ($000)	PERSONAL INCOME ($000)	BUSINESS ACTIVITY ($000)	PERSONAL INCOME ($000)	AMT ($000)	CHNG ($000)	PCT CHNG	AMT ($000)	CHNG ($000)	PCT CHNG	AMT ($)	CHNG ($)	PCT CHNG
1981	0	0	823546	464730	823546	0	0	464730	0	0	17286	0	0
1985	0	0	915332	510718	915332	91786	11	510718	45988	10	18176	890	5
1990	215669	215297	1030060	568203	1245729	330397	36	783500	272782	53	24983	6807	37
1995	22650	17812	1144791	625688	1167441	-78288	-6	643500	-140000	-18	19031	-5952	-24
2000	22650	17812	1259518	683172	1282168	114727	10	700984	57484	9	20058	1027	5
2005	22650	17812	1374248	740657	1396898	114730	9	758469	57485	8	20783	725	4

NOTE: 1980 POPULATIONS ARE THE CENSUS DATA
2 2

AREA
AGGREGATE SUMMARY
(FOR SELECTED COUNTIES OF REGIONS)

YEAR	POPULATION			EMPLOYMENT								
	TOTAL POPULATION			PROJECT				BASELINE			SUMMARY	
	POPULATION	CHANGE	PERCENT CHANGE	CONSTR	ENERG OPER	NON-ENERG OPER	INDIRECT	NON-AG EMPLOYMNT	AG EMPLOYMNT	TOTAL	CHANGE	PERCENT
1980	26750											
1981	26885	135	1	0	0	0	0	9578	2204	11782	0	0
1985	28099	1214	5	0	0	0	0	10148	2170	12318	536	5
1990	31362	3263	12	992	263	0	362	10843	2133	14593	2275	18
1995	33814	2452	8	145	487	0	365	11521	2109	14627	34	0
2000	34948	1135	3	0	486	0	347	12182	2082	15097	470	3
2005	36495	1546	4	0	487	0	331	12828	2061	15707	610	4

NOTE: 1980 POPULATIONS ARE THE CENSUS DATA
2 2

COUNTY SUMMARY

COUNTY: DAWSON

YEAR	POPULATION: TOTAL POPULATION	POPULATION: CHANGE	POPULATION: PERCENT CHANGE	EMPLOYMENT: PROJECT: CONSTR	EMPLOYMENT: PROJECT: ENERG OPER	EMPLOYMENT: PROJECT: NON-ENERG OPER	EMPLOYMENT: PROJECT: INDIRECT	EMPLOYMENT: BASELINE: NON-AG EMPLOYMNT	EMPLOYMENT: BASELINE: AG EMPLOYMNT	EMPLOYMENT: SUMMARY: TOTAL	EMPLOYMENT: SUMMARY: CHANGE	EMPLOYMENT: SUMMARY: PERCENT
1980	11805											
1981	11810	5	0	0	0	0	0	4111	756	4867	0	0
1985	12070	260	2	0	0	0	0	4245	744	4989	122	3
1990	13444	1374	11	812	38	0	161	4388	732	6131	1142	23
1995	14285	841	6	128	202	0	180	4505	724	5739	-392	-6
2000	14164	-121	-1	0	201	0	163	4599	716	5679	-60	-1
2005	14332	168	1	0	201	0	154	4674	708	5737	58	1

NOTE: 1980 POPULATIONS ARE THE CENSUS DATA

MUNICIPALITY REPORT

3 GLENDIVE

YEAR	POPULATION: TOTAL POPULATION	POPULATION: CHANGE	POPULATION: PERCENT CHANGE	EMPLOYMENT: PROJECT: CONSTR	EMPLOYMENT: PROJECT: ENERG OPER	EMPLOYMENT: PROJECT: NON-ENERG OPER	EMPLOYMENT: PROJECT: INDIRECT	EMPLOYMENT: BASELINE: NON-AG EMPLOYMNT	EMPLOYMENT: BASELINE: AG EMPLOYMNT	EMPLOYMENT: SUMMARY: TOTAL	EMPLOYMENT: SUMMARY: CHANGE	EMPLOYMENT: SUMMARY: PERCENT
1980	5978											
1981	6058	80	1	0	0	0	0	2592	0	2592	0	0
1985	6374	316	5	0	0	0	0	2715	0	2715	123	5
1990	7377	1003	16	747	14	0	148	2846	0	3755	1040	38
1995	7246	-131	-2	67	9	0	99	2953	0	3128	-627	-17
2000	7553	307	4	0	11	0	101	3039	0	3151	23	1
2005	7813	260	3	0	11	0	97	3107	0	3215	64	2

FOR THE SELECTED COUNTIES

PROJECTED POPULATIONS FOR THE YEAR 1985

COUNTY	SEX	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+	TOTAL
DAWSON	M	541	519	510	450	556	614	571	420	294	293	261	255	235	196	349	6064
	F	543	505	447	450	523	569	490	379	283	282	275	273	219	266	502	6006
MCCONE	M	125	128	122	125	131	96	90	84	56	56	69	67	75	80	93	1402
	F	125	102	130	92	107	75	85	85	61	61	60	60	68	58	96	1265
RICHLAND	M	670	668	519	489	595	692	657	468	323	321	253	246	249	263	423	6934
	F	672	607	506	458	503	646	519	415	287	285	271	268	251	250	589	6528

PROJECTED POPULATIONS FOR THE YEAR 1990

COUNTY	SEX	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+	TOTAL
DAWSON	M	604	567	543	545	495	607	668	584	433	310	297	253	236	226	420	6788
	F	606	570	530	473	474	552	597	495	385	292	283	268	261	224	646	6656
MCCONE	M	190	150	150	144	142	157	127	102	92	61	58	66	63	81	156	1737
	F	191	151	125	149	107	130	101	95	91	66	63	59	58	64	123	1572
RICHLAND	M	697	675	674	527	497	603	703	657	466	321	314	242	230	263	573	7442
	F	699	679	615	513	464	511	653	518	415	288	282	265	260	275	729	7187

POPULATION SUMMARY---DAWSON

YEAR	BIRTH	DEATH	NET NATURAL INCREASE	EMPLOYMENT RELATED MIGRATION CONST.	OPER-E	OPER-N	INDIRECT	BASELINE	OTHER MIGRATION	TOTAL MIGRATION	TOTAL POPULATION CHANGE	POPULATION
1981	225	86	139	0	0	0	0	-60	18	-42	97	11810
1985	899	365	534	0	0	0	0	-349	75	-273	260	12070
1990	1127	470	657	659	92	0	38	-175	103	717	1374	13444
1995	1139	501	638	-441	555	0	11	-30	109	203	841	14285
2000	1165	504	662	-217	-181	0	-4	-495	114	-783	-121	14164
2005	1232	549	683	0	-108	0	-11	-509	114	-515	168	14332

EMPLOYMENT BY SECTOR, REGION1

SECTOR	YEAR					
	1981	1985	1990	1995	2000	2005
AG.	5072	4994	4913	4848	4793	4747
METAL MINING	0	0	0	0	0	0
COAL MINING	38	35	33	31	29	28
PET. EXP./ EXT.	803	931	1089	1246	1402	1557
OTHER MINING	8	8	8	8	8	8
CONTRACT CONST.	703	760	829	894	956	1016
LUMBER/ PROD.	0	0	0	0	0	0
WHSL. TRADE /AG. PROC.	1690	1759	1838	1910	1976	2037
PET. REF.	23	24	24	25	25	25
METAL PROC.	0	0	0	0	0	0
TRANS.	675	642	613	591	575	562
COM. UTIL.	496	513	532	548	562	575
THERMAL POW. GEN.	0	0	0	0	0	0
RETAIL TRADE	3404	3458	3515	3563	3603	3638
F. I. R. E.	564	612	671	729	786	842
BUS./PERS. SERVICES	514	546	581	613	642	668
PROF./SOC. SERVICES	3357	3546	3763	3961	4142	4309
GOV.	4092	4372	4703	5014	5306	5582
PROJECT	0	0	1514	658	490	490
TOTAL	21439	22200	24627	24639	25298	26084

DAWSON

CRIMINAL JUSTICE REPORT

YEAR	TOTAL OFFENSES	JUVENILE OFFENSES	VIOLENT CRIMES	PROPERTY CRIMES	ALL OTHER OFFENSES	OFFICERS REQUIRED	VEHICLES REQUIRED
1981	336.21	94.35	3.96	13.96	76.42	23.62	7.87
1985	329.00	82.87	3.48	12.27	67.13	24.14	8.05
1990	358.13	93.59	3.93	13.85	75.81	26.89	8.96
1995	375.53	100.92	4.24	14.94	81.75	28.57	9.52
2000	367.87	99.04	4.16	14.66	80.22	28.33	9.44
2005	365.76	98.11	4.12	14.52	79.47	28.66	9.55

COUNTY SERVICES REPORT

YEAR	NO. PHYSICIAN VISITS	NO. PERSONS HOSPITALIZED	NO. PATIENT DAYS	NO. OF DOCTORS REQUIRED	NO. OF HOSPITAL BEDS REQUIRED
1981	581.32	1215.57	88.40	11.81	47.24
1985	597.93	1262.79	92.92	12.07	48.28
1990	665.36	1405.54	103.51	13.44	53.78
1995	709.88	1503.66	112.35	14.29	57.14
2000	710.13	1515.50	116.08	14.16	56.66
2005	722.86	1547.29	120.87	14.33	57.33

HOUSING REPORT - IMPACT

COUNTY : DAWSON

YEAR	SINGLE FAMILY HOUSING	APARTMENTS	MOBILE HOMES	OTHER HOUSING
1981	0	0	0	0
1985	2	1	0	0
1990	64	18	134	31
1995	104	37	218	18
2000	106	38	35	8
2005	106	38	34	7

HOUSING REPORT - IMPACT

MUNICIPALITY : 3 GLENDIVE

YEAR	SINGLE FAMILY HOUSING	APARTMENTS	MOBILE HOMES	OTHER HOUSING
1981	0	0	0	0
1985	2	1	0	0
1990	6	2	130	25
1995	6	2	71	4
2000	7	3	3	0
2005	7	3	3	0

COUNTY SCHOOL ENROLLMENT REPORT

COUNTY: DAWSON

	IMPACT STUDENTS			ALL STUDENTS		
YEAR	PRIMARY	SECONDRY	TOTAL	PRIMARY	SECONDRY	TOTAL
1981	0	0	0	1177	1201	2378
1985	0	0	0	1178	1173	2351
1990	0	0	0	1181	1139	2320
1995	0	0	0	1187	1112	2299
2000	0	0	0	1202	1114	2316
2005	0	0	0	1209	1127	2336

MUNICIPALITY SCHOOL ENROLLMENTS

MUNICIPALITY: 3 GLENDIVE

	IMPACT STUDENTS			ALL STUDENTS		
YEAR	PRIMARY	SECONDRY	TOTAL	PRIMARY	SECONDRY	TOTAL
1981	0	0	0	1089	1111	2200
1985	0	0	0	1090	1085	2175
1990	0	0	0	1092	1054	2146
1995	0	0	0	1098	1029	2126
2000	0	0	0	1112	1030	2142
2005	0	0	0	1118	1042	2161

(FOR SELECTED COUNTIES)

AGGREGATE FISCAL IMPACT REPORT

AGGREGATE REVENUES

YEAR	SEVERANCE SPECIAL FUND ($000)	PERSONAL INCOME TAX ($000)	CORPORATE INCOME TAX ($000)	FEDERAL COAL ROYALTY ($000)	HIGHWAY TAX ($000)	CIG.-TOB. LIQ.-BEER TAX ($000)	EQUAL-IZATION TAX ($000)	COAL CONV. FUND ($000)	SEVERANCE GENERAL FUND ($000)	SEVERANCE TRUST FUND ($000)	TOTAL INCOME ($000)	NET BALANCE ($000)
1981	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0
1990	0	1213	153	0	119	36	8	0	0	0	1529	-481
1995	3623	533	55	850	196	59	13	1300	2316	5939	14884	12347
2000	3623	411	46	850	107	32	13	1300	2316	5939	14637	12554
2005	3623	411	46	850	99	30	13	1300	2316	5939	14627	12826

AGGREGATE EXPENDITURES

YEAR	EDUCATION TRANSFERS ($000)	HIGHWAY FUND ($000)	HIGHWAY OPERAT-ING ($000)	GENERAL GOVT. FUNCTIONS ($000)	HIGHWAY CON-STRUCTION ($000)	TOTAL EXPEND-ITURES ($000)	NET BALANCE ($000)
1981	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0
1990	722	27	84	712	464	2009	-481
1995	755	42	198	683	859	2537	12347
2000	597	21	141	466	857	2082	12554
2005	471	16	109	345	859	1800	12826

COUNTY FISCAL IMPACT REPORT

MASTER RUN NUMBER : 444 1 1

DAWSON

YEAR	INCOME: SHARE OF LOCAL PROP.TAX ($000)	INCOME: FEDERAL REVENUE SHARING ($000)	INCOME: HIGHWAY FUND ($000)	EXPENDITURES: LAW ENFORCE-MENT ($000)	EXPENDITURES: SOCIAL SERVICES ($000)	EXPENDITURES: OTHER GOVT. ($000)	NET FISCAL BALANCE ($000)
1981	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0
1990	20	0	8	8	16	77	-73
1995	47	9	18	10	18	89	-43
2000	46	9	7	6	10	51	-4
2005	47	6	5	4	8	39	7

MUNICIPALITY FISCAL IMPACT REPORT

MASTER RUN NUMBER : 444 1 1

3 GLENDIVE

YEAR	INCOME: SHARE OF LOCAL PROP.TAX ($000)	INCOME: FEDERAL REVENUE SHARING ($000)	INCOME: USERS FEES ($000)	INCOME: SPECIAL ASSESS-MENTS ($000)	INCOME: HIGHWAY FUND ($000)	EXPENDITURES: STREETS ($000)	EXPENDITURES: POLICE AND FIRE ($000)	EXPENDITURES: CITY GOVT. ($000)	EXPENDITURES: DEBT SERVICE ($000)	NET FISCAL IMPACT ($000)
1981	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0
1990	3	0	41	193	5	6	43	130	212	-149
1995	2	4	24	212	3	1	10	29	212	-8
2000	1	4	4	212	1	1	4	12	212	-7
2005	1	0	3	212	0	0	3	9	212	-9

SCHOOL FISCAL IMPACT REPORT

MASTER RUN NUMBER : 444 1 1

3 GLENDIVE

YEAR	INCOME: SHARE OF PROPERTY TAX ($000)	INCOME: EDUCATION TRANSFERS ($000)	EXPENDITURES: DEBT SERVICE ($000)	EXPENDITURES: OPERATING EXPENDITURES ($000)	NET FISCAL BALANCE ($000)
1981	0	0	0	0	0
1985	0	0	0	0	0
1990	15	323	63	287	-12
1995	12	194	71	172	-38
2000	5	34	71	30	-62
2005	5	26	71	23	-62

PROJECT NUMBER3
DISPLAY OF PROJECT DATA

PROJECT NUMBER	START YEAR FOR CONSTRUCTION	SITE CITY	PROJECT DESCRIPTOR
3	1988	2	CNTBLOM2 M3 COAL-FIRED POWER PLANT (1000 MW)

YEARS OF CONSTRUCTION BEFORE OPERATION BEGIN	ACRES OF FARMLAND LOST	ACRES MINED PER YEAR	ACRES OF FARMLAND TAKEN FOR URBAN USE PER IN-MIGRANT	TONS MINED PER YEAR	KWH SOLD	SNG SOLD	MINE VALUE
3	500	0	0.563	0	6500000000	0	0

FINAL DEMAND VECTORS
($000,000)

PROJECT YEAR	ECONOMIC SECTOR: 7	15	20
1	5270000.00	390000.00	2940000.00
2	17290000.00	1200000.00	14860000.00
3	21930000.00	1540000.00	123130000.00
4	22950000.00	1590000.00	8530000.00
5	13680000.00	2570000.00	8780000.00
6	860000.00	1710000.00	9680000.00
7	.00	3300000.00	7480000.00
8	.00	3300000.00	4080000.00
9-25 (AVG)	.00	3300000.00	4080000.00

DIRECT LABOR (MAN-YEARS)

PROJECT YEARS:	1	2	3	4	5	6	7	8	9-25(AVG)
CONSTRUCTION	309	1,138	1,248	798	666	580	682	168	0
OPERATION	0	0	36	102	108	108	200	200	200

(FOR SELECTED COUNTIES)

STATE SEVERANCE TAX DISTRIBUTION REPORT

YEAR	EDUCATION FUND ($000)	TRUST FUND ($000)	ALTERN. ENERGY RESEARCH ($000)	LOCAL IMPACTS ($000)	SCHOOL EQUAL-IZATION ($000)	COUNTY LAND PLANNING ($000)	RENEWABLE RESOURCE DEVELOP. ($000)	PARKS ACQUISIT. AND MAINT ($000)	LIBRARY FUND ($000)	STATE GENERAL FUND ($000)	CONSER-VATION DISTRICT ($000)	TOTAL SEVER-ANCE TAX ($000)
1981	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0	0
1993	2426	12132	546	2123	1213	121	303	607	121	4610	61	[illegible]
1994	2426	12132	546	2123	1213	121	303	607	121	4610	61	[illegible]
1995	2426	12132	546	2123	1213	121	303	607	121	4610	61	[illegible]
1996	2426	12132	546	2123	1213	121	303	607	121	4610	61	[illegible]
1997	2426	12132	546	2123	1213	121	303	607	121	4610	61	[illegible]
1998	2426	12132	546	2123	1213	121	303	607	121	4610	61	[illegible]
1999	2426	12132	546	2123	1213	121	303	607	121	4610	61	24263
2000	2426	12132	546	2123	1213	121	303	607	121	4610	61	24263
2001	2426	12132	546	2123	1213	121	303	607	121	4610	61	24263
2002	2426	12132	546	2123	1213	121	303	607	121	4610	61	24263
2003	2426	12132	546	2123	1213	121	303	607	121	4610	61	24263
2004	2426	12132	546	2123	1213	121	303	607	121	4610	61	24263
2005	2426	12132	546	2123	1213	121	303	607	121	4610	61	24263