THE ECONOMY OF LINCOLN, SUBLETTE, SWEETWATER AND UINTA COUNTIES, WYOMING ROCK SPRINGS BLM DISTRICT

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CHAPTER 1

INTRODUCTION

The purpose of this report is to provide a description and analysis of a regional economy with the State of Wyoming. The intent of the researchers is to provide policy makers with specific information contributing to the decision-making and planning processes and to provide a planning tool having the capability of analyzing a number of alternative development scenarios in the study region.

THE REGION UNDER STUDY

The study area consists of four counties in southwest Wyoming: Lincoln, Sublette, Sweetwater and Uinta. These counties encompass an area of approximately 13.8 million acres and account for over 22 percent of the total land area of Wyoming. About 68 percent of the region's total land area is owned by the federal government.[1] The region's 1980 population is estimated at 71,469 inhabitants with a household income of over 745 million. Both the population and the personal income of the region make up about 15 percent of state totals.[2] Almost 24 percent of Wyoming's mining employment occurs

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[1]Private land ownership varies considerably among the four counties. Almost 60 percent of Uinta county is privately held, while about 27 percent of Sweetwater county, 22 percent of Lincoln county and less than 18 percent of Sublette county is private.

[2]Wyoming Department of Administration and Fiscal Control, Wyoming Data Handbook, 5th Edition, 1981.

in the study area. Well over 76 percent of the region's exports are in the sectors: COAL-MIN, TRONA-MIN, O/G-EXPLOR, O/G-SERV, O/G-PROD, N-G-L, PIPELINES and ELECT-UT. Thus energy extraction and its related industries drive the Rock Springs region's economy. The regional economy is characterized by a small base in light manufacturing which makes up only one percent of exports. However, the region imports nearly all finished consumer products, heavy industry products, and most ingredient materials.

STATEMENT OF THE PROBLEM

The natural resource base in the region, while relatively abundant in terms of the capability to satisfy local demands, is nonetheless the focal point for regional and extra-regional economic conflict. Ownership of the large deposits of exploitable resources is vested largely with the federal government and corporations headquartered out of state. Thus, from a regional perspective, policies affecting the disposition of the regional resource base are largely determined outside of the region. From this same perspective, there is a need to develop a detailed description of the economy as it presently exists and an analytical framework which is capable of assessing the direct and indirect consequences of alternative scenarios for resource exploitation proposed by the public and private sectors of the economy. This description and analysis constitutes the major thrust of the research reported here.

THE MODEL USED

A tool particularly adapted to these questions is the comprehensive interindustry production model developed by W. W. Leontief*. The strength of this model (often termed the input-output model) lies in its capability not only to describe the interdependence existing among sectors of an economy but also in the capacity to demonstrate, sector by sector, the total consequences of any number of development scenarios. The model is thus both descriptive and analytical. The descriptive components are accommodated through the collection of extensive primary data, from firms within the region, and subsequent tabulation of the data in a form required by the interindustry framework. The analytical phase consists of the impact analysis, development of the various multipliers, and consistent forecasting under alternative resource development scenarios.

OUTLINE OF THE REPORT

The remainder of the report consists of a description of the method of the study which is presented in Chapter 2; the analysis of the regional economy, which is the concern of Chapter 3; and an extension of the basic model to include an analysis of water use which is contained in Chapter 4.

In addition to the main text of the report, there are several appendices. These contain the sector definitions, the input-output tables, the survey form and a bibliography.

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*Recent Nobel Prize recipient in Economics.

CHAPTER 2

THE METHODOLOGY OF THE STUDY

INTRODUCTION

The national energy and minerals situation has focused an increasing attention on the natural resources in the Rock Springs region of Wyoming. The exploration, development, and extraction activities associated with these natural resources have generally been viewed as isolated from, or independent of, the remainder of the economic environment. While it is not proposed to perform an ex-post evaluation of the impacts of existing developments, a major product of this research is the provision of the analytical capability for assessing the regional impacts of continued resource developments.

The interindustry production model (I-O model) popularized by W. W. Leontief is particularly adapted to the study of resource use in a regional economy.[1] This model's strength is its capability to empirically illustrate the interdependence existing among sectors of an economy and to demonstrate, sector by sector, the total consequences of any number of development scenarios.

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[1]See Chapter 3 for a detailed description of the interindustry model.

The I-O model provides an account of transactions for each sector of the economy, a calculation of the input requirements of these sectors and a measurement of the effects of growth in demand for the outputs of each sector. Essentially, the model is a system of double entry bookkeeping in which annual sales and purchases by each sector to and from all other sectors are accounted for and measured.

The model consists of two major components: intermediate transactions are the purchase and sale of intermediate goods, which are subject to further local processing. Final transactions include all purchases and sales from or to sectors that are external to the model and not identified as intermediate or producing sectors.

The I-O model is driven by final demand sectors: any particular sector's sales to state or federal government, investment, or export. If these change, the model estimates the impacts of this change on the entire economy. These impacts, whether measured in terms of employment, income or value of production, provide consistent estimates that mutually and simultaneously satisfy all requirements for intermediate and final production.[2]

Once the model's essentials have been identified and the basic empirical description of economic transactions developed, forecasting with the analytical technique requires only the specification of appropriate changes in final demand.

The I-O technique provides two forecasting tools: multipliers and development scenarios. A multiplier indicates how much total business activity in sales dollars, units of energy input, employment,

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[2]The projections are consistent but the underlying assumption in the model of fixed production coefficients qualify the results unless some dynamic adjustment of technology is explicitly involved.

water use, etc., is generated by a given industry within the region for each dollar of sales to final demand. A multiplier will be large for an industry that purchases a large part of its inputs from within the local economy since the money which the industry earns from its sales will be spent again in the region. The important "basic" or driving exporting industries usually will be characterized by large multipliers.

Several types of multipliers may be calculated. The business multiplier shows the total business spending within the region per dollar of additional sales to final demand by a given industry. An employment multiplier shows the total added person year of labor required in the region per dollar of additional sales to final demand by a given industry. An income multiplier shows the increase of total personal income in the region per dollar of additional wages paid by a given industry.

The multipliers may all include direct, indirect and induced effects. This means that if a "basic" industry expands its sales to exports by $1,000, it may spend $600 directly on locally produced goods. The producers of these local goods then are indirectly required to purchase local goods and services to meet this additional demand. Induced impact assumes that labor hired directly will respend a fixed proportion of its added income, stimulating further expansion of the regional economy. Thus, both local producers and local labor are assumed to respend locally part of their increased incomes, which

resulted from the increased exports by the "basic" industry. The total effect is reflected in the multiplier.[3]

The second forecasting tool provides a projection of future business activity by sector (development scenario). In addition to the projection of dollar sales for each sector, variables that rise proportionately with production also may be estimated. Employment, water use, population and energy use are examples of such variables.

Projections of future economic activity are derived by focusing on the "basic" or driving industries. Examination of the size of the multipliers and the size and expected growth of the basic industries reveal key sectors. Estimates of expected export growth and related investment spending in these sectors must be obtained independently to drive the I-O model. Scenarios for growth in these sectors might be constructed from information obtained from personal interviews with representatives of major firms in each sector. Government growth estimates are often available directly from appropriate government agencies. The expected growth estimates for the basic industry and government sectors are introduced into the I-O model to generate new, consistent estimates of the value of sales for each industry.

PROCEDURES FOLLOWED

The discussion of procedures followed in conducting the research may be conveniently condensed into several categories including: the definition of the region, delineation of economic sectors, the data collection effort, selection of the base year, and data processing.

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[3]The "induced" household spending effect can be removed, if desired, by shifting the household sector out of processing into final demand so that household purchases are assumed to be exogenous.

Each is discussed as briefly as possible in the following pages.

DEFINITION OF THE REGION

The Rock Springs region, for purposes of this study, was defined as Lincoln, Sublette, Sweetwater and Uinta counties. This regional definition allows for an analysis of an area containing public lands under the jurisdiction of the Rock Springs BLM district office.

SECTOR DELINEATIONS

The interindustry model requires the separation of the economy into various economic entities or "sectors". Total output, by interindustry accounting procedures, is the aggregate value of all sales or purchases that take place, i.e., the total sales or purchases during a year. This total output must be divided up into sectors in order to assess the interindustry structural dependence that prevails. The model structures economic activity into two major components, suppliers (or sellers) and purchasers (or users). Each of these is further subdivided according to the following scheme: Suppliers include: 1) intermediate or processing suppliers who are producers who must purchase inputs to be processed into output which they sell to final users or as inputs to other processors; and 2) primary suppliers whose output is not directly dependent on purchased inputs. This latter category includes non-local suppliers (or imports). Purchasers include: 1) intermediate or processing purchasers who buy the outputs of suppliers for use as inputs for further processing; and 2) final purchasers who buy the outputs of suppliers in their final form and for

final use. This latter category includes purchases by non-local users (or sales to exports). The level of demand by final purchasers, and its composition, are determined outside the processing sector. Production to meet the exogenously determined final demands generates intermediate purchases and sales. Primary suppliers and final purchasers may or may not be one and the same. However, in the interindustry model, their activities are treated as if they were completely independent of one another.

In summary, the two major divisions of suppliers are the intermediate suppliers, which are called the processing sector, and the primary suppliers, which are referred to as the final payments sector. (The suppliers are conventionally shown along the left border of an interindustry table.) The two major divisions of the purchasers are the intermediate purchasers, which are labeled as the processing sector (just as with the intermediate suppliers) and the final purchasers which are labeled final demand. (The purchasers are conventionally shown along the top of an interindustry or input-output table.) It is within this general framework that a further sector disaggregation must be accomplished.

The ideal sector delineation would allow unique recognition of industries or producer groups which provide a homogenous good or service. This ideal is very difficult to achieve because of the large amounts of time and finances required for detailed disaggregation, disclosure problems, and lack of data. Any of these factors or a combination of them lead to a violation of the homogenous product ideal.[4]

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[4]Information obtained from the Wyoming Employment Security Commission cannot be published unless there are at least three firms in a given sector and no two firms account for more than 30 percent of the total employment. Ethical considerations also dictate that the operations of any single enterprise can never be divulged.

Sector selection, in addition to dependence upon financing, time, and data availability, is determined to a large extent by the objectives of the study. Research objectives can often be achieved without detailed disaggregation in all sectors. Since the purpose here is largely to determine the impacts of oil development and other sectors such as coal, uranium, trona, agriculture, and local government, economic sectors such as trade and services do not require detailed disaggregation. The final delineation of the sectoring plan adopted for this study is shown in Table 2-1.

Where enterprise accounting was employed, the profit sector includes after-tax profits, charges to reserves for bad debts, capital loss amortization, and outlays for rents and royalties.[5] Where government fund accounting was employed, the profit sector includes surplus of current revenues over current[6] expenditures[7], the value of capital expenditures appropriated out of current revenues, contributions to bond indenture sinking funds out of current revenues, net charges out of current revenues to any other reserve fund (e.g., contingency funds), and rent payments. The profit sector also includes both depreciation and net inventory depletions. Inventory depletions are,

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[5]Except in the case where rents (e.g., agricultural land leases) and royalties (e.g., oil and gas) were paid to the Wyoming and federal governments. In these instances the amounts are shown as being paid directly to the respective governments.

[6]Current in the sense that it occurred in 1980.

[7]An exception to this is in the Wyoming and federal government sectors; see the explanation of the transfer section.

TABLE 2-1

SECTOR IDENTIFICATION, ROCK SPRINGS REGION OF SOUTHERN WYOMING, 1980

Sector Number		Sector Description	1972 SIC Codes
1	CROP-LVSTK	Crops, Livestock, Ag. Services, Private Timber	01, 02, 07-09
2	COAL-MIN	Coal Mining and Services	11, 12
3	TRONA-MIN	Trona, Fertilizer, Other Mining and Services	10, 14 (less 144)
4	O/G-EXPLOR	Oil and Gas Exploration	1382
5	O/G-DRILL	Oil and Gas Drilling	1381
6	O/G-SERV	Oil and Gas Well and Field Services	1389
7	O/G-PROD	Oil and Gas Production	131
8	N-G-L	Natural Gas Liquids	132
9	REFINING	Petroleum Refining	29
10	PIPELINES	Petroleum and Gas Pipelines	46, 4922
11	CONSTRUCT	Construction (Repair and Maintenance)	15-17
12	LOG/MILLS	Logging and Sawmills	24
13	OTHER-MFG	Other Manufacturing	20-23, 25-28, 30-39, 144
14	TRANS/COMM	Transportation and Communication	40-45, 47, 48
15	ELECT-UT	Electric Utilities	491
16	GAS-UT	Gas Utilities	4924
17	WAT/SEW/TR	Water, Sewer, Trash Removal	494, 495, 497
18	WHOLESALE	Wholesale	50, 51
19	EAT/DRINK	Restaurants and Drinking Places	58
20	OTHER-RET	Other Retail	52-57, 59
21	F/I/R/E	Finance, Insurance and Real Estate	60-67
22	HEALTH-SER	Health Services	80
23	EDUCAT-SER	Educational Services	82
24	LODGING	Lodging	70
25	OTHER-SERV	Other Services	72-79, 81, 83-86, 89
26	LOC-GOVT	Local Government	91-96
27	LOC-TAXES	Local Taxes (see above)	--
28	HOUSEHOLDS	Households	--
29	STATE-GOVT	State Government	91-96
30	FED-GOVT	Federal Government	91-97

relatively speaking, insignificant and are placed with depreciation charges. Similarly, the net inventory accumulation values were incorporated in the investment sector.

With the exception of the intersection of the household row and the transfer column and the household on household cell, the household row represents wages and salaries paid subject to withholding.

QUESTIONNAIRE DESIGN AND USE

Previous experience has shown that a questionnaire, alone, should not be used to obtain primary data. No firm accounts for expenditure and revenue patterns on a Standard Industrial Classification (SIC) basis, the language ultimately employed in an interindustry model. Rather, a firm's books are designed around process or product activities. The use of a questionnaire, either by mail or by interview, presupposes adequate translation from a firm's accounting language into SIC codes.

Accordingly, all interviews were conducted in a basic accounting language tailored to the individual firms involved and were translated to SIC classification. The sample questionnaire shown in the appendix represents the format for the final translation by the researcher.

Not all interviews could be conducted as planned. For example, some firms wanted legal advice before participating while others did not want to reveal information in the form desired. A questionnaire, therefore, was designed for use as an interview focal point and as an item that could be left with the firm.

The questionnaire's cover sheet briefly explained the research and solicited information about the firm's product lines, number of employees and level of capacity utilization. Outlay patterns, both cash flow and non-cash flow, were requested on the second sheet. Information on sales distribution was solicited on the third sheet. Sales and outlay patterns were grouped by economic sector and were regionalized according to location within or outside the study region.

SELECTION OF THE BASE YEAR

There is no price index constructed specifically for Wyoming. This effectively removes one criterion (relatively stable prices) from consideration when selecting a base year for Wyoming economic studies. The 1980 base was selected for the initial survey for the following two reasons.

Interviewing for the Rock Springs interindustry study began in November, 1981. Calendar 1980 was the most recently completed accounting cycle for most firms; it was anticipated that the information from this cycle would be, qualitatively speaking, foremost in the command of the interviewees. Also, activities of relatively new firms were automatically incorporated in the primary data base by soliciting what was then the most current information.

CONDUCT OF THE SURVEY

Interview schedules were arranged by telephone between three days and a week in advance. Every effort was made to gain an interview with the person who would have immediate authority to release information. The length of time spent on an individual interview varied from

firm to firm. Several were conducted in less than an hour; some took place over several days. The survey process continued over a two-month period.

PROCESSING THE DATA

Information gathered on the outlay and sales patterns for any given enterprise was tabulated to conform to the sector delineations and regional descriptions as defined in Table 2-1. Care was exercised at this step to assure a balance between outlays and sales. Any anomalies were checked and corrected before proceeding further.

The next step was to aggregate questionnaire forms within a sector and to expand the information to represent gross flows. An iterative process was used to accomplish this so that the relative composition of a given sector delineated for the Rock Springs inter-industry model would be more truly reflected.[8] The final iteration produced gross flow patterns for the respective sectors delineated in the model.[9] The gross flows identified in this manner provide the border totals for the initial transactions statement.

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[8]For example: There were three two-digit SIC classifications incorporated in the sector delineation for construction. Accordingly the questionnaire forms were first aggregated on the basis of the two-digit categories. Regional payroll data from the Wyoming Employment Security Commission were then aggregated on the same basis. The payroll values on the aggregated questionnaire forms represented a given proportion of the regional payroll in each respective SIC classification; based on this ratio the information on the aggregated two-digit level questionnaire sheets was blown up to represent the total pattern for the two-digit delineation. Subsequently, the computed totals at the two-digit level were aggregated to represent the construction sector in the Rock Springs, Wyoming interindustry model.

[9]The gross flow patterns were arrived at in either one of two ways. First there was a method that used payroll data (described in the preceding footnote) when an adequate total gross output value had not been identified. The second method distributed gross flows within the bounds of a total gross output value based on the relative allocation of the flows identified on initially aggregated questionnaire forms.

Reconciling discrepancies in any given transaction cell is to be expected; only if the research yielded perfect knowledge about outlays and sales would this be avoided. A discrepancy can emanate from one of several sources or a combination thereof. The sales or purchases of one industry to or from another can be misrepresented, or the total gross output value for individual sectors can be in error. In the former case other rows and columns are affected by the error. In the latter, there is an aggregate distribution error in both outlays and sales for the sector. Each discrepancy is examined individually and reconciled on a case-by-case basis. Fortunately, the sources of relatively large discrepancies could be isolated and remedied through additional examination. Small discrepancies were reconciled by using imports from and exports to the world other than Wyoming as residual accounts.

CHAPTER 3

ANALYSIS OF THE ROCK SPRINGS REGION OF SOUTHERN WYOMING

INTRODUCTION

The results of the descriptive analysis of the four county region's economy are presented in this chapter. The discussion contained in the chapter includes: the description of the economy; an analysis of the nature and magnitude of economic interdependence among processing sectors; the various business activity and income multipliers; and an analysis of employment in the region.

The description and analysis of the economy hinges on three major components of the interindustry model. These are: the gross flows or transactions table; the table of direct production requirements; and the table of direct plus indirect production requirements. These tables are discussed and interpreted in turn. Because of the size of the tables, they are presented in the appendix.

THE TRANSACTIONS AMONG SECTORS TABLE

The first essential component of any interindustry study is the collection and tabulation of data which serve to describe the flows of commodities from each supplying sector to each purchasing sector. These flows are typically expressed in terms of the dollar value of transactions occurring in a specific period of time, normally one

year. The information is arrayed in tabular form with the suppliers (selling sectors) listed at the left of the table and the purchasing sectors listed at the top. The information in this table, termed the transactions table, does two things simultaneously: it identifies the estimated dollar value of sales by each sector to each of the other sectors, (thus, the distribution of each sector's output) and it identifies the purchases of ingredients of production by each sector from each of the other sectors (the distribution of purchases). In essence, the material contained in the transactions table represents a double-entry system of bookkeeping in which every sale is simultaneously described as a purchase. Thus, the system deliberately double counts. The transactions table for the Rock Springs economy is found in the appendix. A description of the sector identification labels used throughout the appendix and in the tables of this chapter is also shown in the appendix.

The rows and columns of Table B-1 which are numbered 1-27, identify the processing, or intermediate demand, sectors. (The household sector in row and column 29 is included in the processing sector also when the projection scenarios are developed.) Row and column 28 represent subtotals of activities within the processing sector. This portion of the table describes, in dollar terms, the flow of goods and services necessary to satisfy intermediate demands. Final demands, i.e., demands for goods and services that will not be further processed within the region, are identified in columns 29-36. Rows 29-31 and 33-35 identify the final payments sector. These payments include, then, federal and state taxes, wages, profits, rents, losses, net

inventory depletions, and payments for goods and services imported from outside the region. The rows numbered 27 and 32 and columns 27 and 37 (the local and county government tax account and the transfer account) are accounting devices. The last row and column of Table B-1 contain, respectively, total outlay (purchases) and total output (sales) for each sector of the regional economy.

The distribution of total output of each sector, according to the sectors in which the output is sold, may be readily discerned by reading across the rows of Table B-1. The bill of purchases by each sector is found by reading down any column of the table. These column entries show the allocation of purchases by cost component.

For example, consider sector 2, COAL-MIN. Reading across row 2 of Table B-1 shows that the total output of coal mines was distributed in the following way: over $52 million worth of output was sold to coal mines (the sector includes mining services); about $13.5 million of output was sold to Trona mines; $3.5 million to OTHER-MFG; $128 million to ELECT-UT; $40,665 to HOUSEHOLDS; and $127.5 million was exported from the Rock Springs region. Total sales by coal mines to the processing sector of the economy amounted to $197.6 million. The remaining $127.6 million in sales were to the final demand sectors. The total gross output of the coal mines sector is the sum of these individual sales or almost $325.2 million.

The distribution of purchases by COAL-MIN, by cost category, is shown in column 2 of Table B-1. Purchases by coal mines from COAL-MIN (services) were $52.5 million; from refining, $52,000; from TRANS/COMM, $237,000; and so on down the column.

Coal mining paid local property and sales taxes amounting to more than $11 million. The total purchases by coal mines from the processing sector are thus estimated at $78.5 million for 1980. Final payments made by coal mines were estimated at $246.7 million. These payments were distributed as follows: wages subject to withholding, $43.6 million; taxes and charges of the State of Wyoming, $58.2 million; taxes and charges of the Federal Government, $12.4 million ; profits, royalties, depreciation and rents, $65.6 million; imports from Wyoming, $18.2 million; imports from the rest of the world, $48.7 million. Total purchases thus amount to almost $325.2 million and, as required by the accounting format, equal the value of output.

Other information can be obtained directly from the transactions table. The household row, with the exception of the sale by households to the transfer account represents wages paid subject to withholding. This row shows household income. The leading contributors to household income are: TRONA-MIN, $115 million; CONSTRUCT, $94 million; TRANSFERS, $84 million; TRANS/CON, $68 million; O/G-SERV, $44 million; COAL-MIN, $43 million; and OTHER-RET, $35 million. Similarly, sector by sector contributions to taxes may be directly obtained from Table B-1. The processing sectors showing the greatest dollar outlay for local and county taxes are: TRANS/COMM, $37 million; O/G-PROD, $30 million; TRONA-MIN, $12.8 million; COAL-MIN, $11 million; and HOUSEHOLDS, $9.7 million. These five sectors account for about 86 percent of local taxes collected.

Estimates of gross regional income and gross regional product may be obtained from the final payments and final demands portion of the

table. Gross regional product is defined as the sum of deliveries to final demand, net of imports. Traditionally, local and county government activities are included as part of final demand. Because this model treats these accounts as part of the processing sector, an adjustment is required. Also, the transfer and tax accounts cannot be counted in final demand, for to do so would be double counting. Thus the sum of education; water, sewerage, and sanitation; local roads; local government; households; state government; federal government; investment and construction; and exports from the Rock Springs region, less regional imports, yields an estimated gross regional product. Gross regional income (which must equal gross regional product) is computed as the sum of final payments excluding imports. Again, the local and county tax account and the transfer account must also be excluded to avoid double counting.

While these items, obtained directly from the transactions table, are useful as initial indicators of the relative importance of each sector in the regional economy, the important question of interdependence is not addressed. In order to do so, it is first necessary to isolate the direct production relationships existing in the economy.

DIRECT PRODUCTION REQUIREMENTS

The direct production requirements, or coefficients, represent the second major component of the interindustry analysis. These direct requirements are presented in the appendix. Computation of the direct production requirements is quite simple, and requires only that each column entry of the transactions

table be divided by the respective column total. The resulting coefficients describe the direct purchases necessary from each supplier (at the left of the table) in order for the purchasing sector (at the head of the column) to produce one dollar's worth of output. The coefficients, then, are interpreted as the direct requirements per dollar of output produced by each sector.

As an example consider the COAL-MIN sector, sector 2 (column 2 of Table B-2 the direct requirements table). For every dollar's worth of output produced by coal mines in the region, $0.16 of input is required from COAL-MIN (services); $0.00016 from REFINING; $0.00073 from TRANS/COMM; and so on down the column. It is obvious from the table that far and away the largest direct input purchases made by the coal mining sector are those for labor services, with a direct outlay of over 13 cents per each dollar of output produced, while state taxes are almost 18 cents and imports are over 20 cents. This says that a dollar's worth of production coal requires imports valued at over 20 cents. Each column of the direct requirements table is interpreted in this manner.

These direct requirements identify only a portion of the total economic impacts that would accompany a change in final demands for the output of a given sector. There are additional, or indirect, impacts which can be quite important. Assessment of all direct and indirect impacts of these exogenous (final demand) changes is made possible through the third analytical component of interindustry analysis. This component is the table of direct plus indirect production requirements.

DIRECT PLUS INDIRECT IMPACTS

The concept of interdependence can be established with a brief example. Suppose that the export demand for coal production increases. There will be immediate, or direct, responses of the following type. Coal production will have to increase. In order for coal production to increase, inputs must be obtained from sectors such as transportation, utilities for power, and labor. These are direct impacts. As transportation and utilities increase their output to meet the increasing requirements in the coal sector, their own requirements for productive ingredients increase, e.g., services, labor, petroleum and natural gas, and coal. The chain of events goes on. The total impacts are readily estimated through the input-output framework and are presented in the appendix in Table B-3.

Before proceeding to a discussion of the table, a few comments regarding the treatment of households are in order. Households may be treated as either a part of the processing sector of the economy or as a part of the final demand component. In the first instance, households are treated in precisely the same manner as any other production sector. The estimate of the direct and indirect production impacts of a change in final demand include the induced production impacts which derive from increased household incomes and increased consumption. In the latter, with households a component in final demand, the induced impacts of successive rounds of consumer spending are omitted. For purposes of this report, the discussion of economic interdependencies and the subsequent business and income multiplier analysis includes both the model with households as a member of the processing sector of the economy and as a final demand sector.

The direct plus indirect coefficients are interpreted as the production required or generated in all sectors of the economy in order to sustain the delivery of one dollar's worth of output to final demand by any single sector. It should be carefully noted that these coefficients reflect production generated per dollar of final demand as opposed to requirements per dollar of output. This, of course, reflects the fact that the model is driven by change in final demand.

For purposes of interpretation, consider the COAL-MIN sector. Suppose that the export demand for coal increases by $1 million. What is the estimated impact that this increase will have on the entire Rock Springs region of the Wyoming economy? The answer to this question may be obtained directly by reading down column 2 of the table and summing the individual sector impacts. Thus, the increase of $1 million in the final demand for coal generates a total direct plus indirect production valued at $1.2 million in COAL-MIN; $1,300 in TRONA-MIN, $200 in O/G-EXPLOR; $800 in O/G-DRILL; $900 in O/G-SERV; and so on down the column. Any column of this table is interpreted in this same manner. The sum of the entries in column 2 shows the total production generated locally as a result of the increase in final demands for coal. Thus, the total business activity generated per dollar increase in final demand for coal is $1.71 or, in our example assuming a $1 million increase, $1.71 million worth of business activity results. These column sums are one of the various multipliers concepts which are derived from input-output analysis.

BUSINESS MULTIPLIERS

The column sums of the direct plus indirect requirements table are termed business activity (or production) multipliers. They identify the total value of production in the region which results from a dollar's worth of output delivered to final demand. Table 3-1 presents the business multipliers. These estimates indicate that the greatest business activity generated per dollar of delivery to final demand is in the GAS-UT account. The business multiplier for this sector is 2.5 which indicates that, as the "final demand" for GAS-UT increases by $1, a total production of $2.50 is generated in the Rock Springs economy. It should be noted, however, that GAS-UT is primarily a local supplier and is unlikely to have significant exports in this region. Other sectors of the economy which have relatively large business multipliers are: ELECT-UT, 2.47; LOG-MILLS, 2.45; REFINING, 2.39; LODGING, 2.39; and Natural Gas Liquids, 2.30. These sectors show the greatest degree of interdependence with other sectors of the regional economy. At the margin, these sectors generate the greatest business activity per dollar of output delivered to final demand. The phrase, "at the margin," is important as a qualification in the use of the multipliers. It implies a word of caution concerning the implications of the multipliers. The GAS-UT sector in 1980 had total final demand deliveries of $9,718. Thus a 10 percent increase in final demand, i.e., an increase of $972, would result in a total business activity of $2,430 in the regional economy. This same 10 percent increase in the final demand for the output of oil and natural gas production, an increase of some $78 million, yields a total business

TABLE 3-1

BUSINESS ACTIVITY MULTIPLIERS
ROCK SPRINGS REGION OF SOUTHERN WYOMING
BY SECTOR, 1980

(In dollars of business activity generated in the Rock Springs region of southern Wyoming per dollar delivered to final demand)

	Sector	Business Multiplier II	Business Multiplier I
1	CROP-LVSTK	2.0632	1.7575
2	COAL-MIN	1.7066	1.3482
3	TRONA-MIN	1.5838	1.2036
4	O/G-EXPLOR	1.7516	1.1588
5	O/G-DRILL	1.6261	1.1185
6	O/G-SERV	1.6780	1.1078
7	O/G-PROD	1.6918	1.4838
8	N-G-L	2.3030	1.9566
9	REFINING	2.3921	2.2002
10	PIPELINES	1.9835	1.4431
11	CONSTRUCT	1.8012	1.2734
12	LOG/MILLS	2.4533	1.7050
13	OTHER-MFG	1.9887	1.5117
14	TRANS/COMM	1.8568	1.3463
15	ELECT-UT	2.4695	2.0119
16	GAS-UT	2.4972	2.2328
17	WAT/SEW/TR	1.6681	1.2007
18	WHOLESALE	2.0441	1.4616
19	EAT/DRINK	2.0271	1.3056
20	OTHER-RET	2.2477	1.4002
21	F/I/R/E	1.2755	1.0638
22	HEALTH-SER	1.7845	1.0950
23	EDUCAT-SER	2.0602	1.2186
24	LODGING	2.3900	1.7894
25	OTHER-SERV	1.9864	1.2479
26	LOC-GOVT	1.5673	1.1711
27	LOC-TAXES	2.6432	2.0555
28	HOUSEHOLDS	1.8528	------

activity of 1.69 x 78 = $132 million in the regional economy. This is, of course, because of the much larger absolute magnitude of final demands for the oil and natural gas sector's output. In using the business multipliers, the argument thus should be stated in terms of the impacts of an equal dollar increase in final demands. Thus, for an equal increase (in dollar terms) in final demands, gas and electric utilities industries will generate more business activity in the local economy than will any other private sector. Natural gas utilities do not export while electric utilities do in the Rock Springs region. Thus the gas utilities multiplier is of no significance. The first column of Table 3-1 shows the business multipliers with households endogenous; the second column shows the business multipliers with households in final demand (exogenous).

INCOME MULTIPLIERS

Other multiplier effects can also be estimated from the inter-industry model. For example, there are income multipliers which relate to changes in income paid to the household sector. The following discussion presents what are termed the Type I and Type II income multipliers.

The Type I and Type II income multipliers are estimated ratios: Type I is the ratio of direct plus indirect income to the direct income paid households; Type II is the ratio of direct plus indirect plus induced income to direct income. Thus, while the business activity multipliers are related to changes in sales to final demand, the

income multipliers are related to changes in income paid to the household sector. The Type I multiplier describes the direct plus indirect income increases emanating from an additional dollar of direct income paid to households. The Type II multiplier takes into account not only the direct plus indirect changes in income, but also the induced income increases generated by additional consumer spending. Accordingly, the Type II income multiplier identifies the direct plus indirect plus induced income generated by an additional dollar of income paid directly to households.

Attention is drawn to the comparatively higher income multiplier value estimates for the agriculture sector. (See Table 3-2.) The reason for this relatively high value is straightforward. The Rock Springs interindustry study allocated proprietorship and partnership net incomes to the profit account. As a result, labor inputs (household account) for agriculture and livestock, are somewhat understated because this sector is characterized by a relatively high incidence of proprietorship and partnership enterprises with relatively little hired help. By understating the value (contribution) of labor inputs for this sector, the value (contribution) of other inputs, relative to labor, became larger. And with direct income being the denominator of the Type I and Type II income multiplier ratios, the multiplier estimate for this sector is of the relatively high magnitude observed. By contrast, the relatively high multiplier values for REFINING and O/G-PROD exist because these sectors exhibit greater interdependence in the Rock Springs economy.

TABLE 3-2

INCOME MULTIPLIERS
ROCK SPRINGS REGION OF SOUTHERN WYOMING
BY SECTOR, 1980

(In dollars of income generated per dollar of direct income paid to households)

	Sector	Income Multipliers Type II	Type I
1	CROP-LVSTK	3.8986	3.3818
2	COAL-MIN	1.6626	1.4422
3	TRONA-MIN	1.3680	1.1866
4	O/G-EXPLOR	1.3349	1.1579
5	O/G-DRILL	1.2692	1.1009
6	O/G-SERV	1.2448	1.0798
7	O/G-PROD	6.2673	5.4365
8	N-G-L	2.2975	1.9929
9	REFINING	11.6896	10.1400
10	PIPELINES	1.4702	1.2753
11	CONSTRUCT	1.4462	1.2545
12	LOG/MILLS	1.8611	1.6144
13	OTHER-MFG	1.6956	1.4708
14	TRANS/COMM	1.4657	1.2714
15	ELECT-UT	2.8314	2.4560
16	GAS-UT	3.5602	3.0882
17	WAT/SEW/TR	1.3000	1.1277
18	WHOLESALE	1.6068	1.3938
19	EAT/DRINK	1.3118	1.1379
20	OTHER-RET	1.3876	1.2037
21	F/I/R/E	1.3235	1.1481
22	HEALTH-SER	1.2227	1.0606
23	EDUCAT-SER	1.2433	1.0785
24	LODGING	1.7241	1.4956
25	OTHER-SERV	1.3058	1.1327
26	LOC-GOVT	1.3924	1.2078

EMPLOYMENT ANALYSIS

Direct employment requirements, as is the case with direct business activity and direct income payments, are, by themselves, of limited use for assessing the impacts of various changes in economic activity in the Rock Springs region. This limitation arises because direct requirements differ from total requirements, the difference being indirect requirements that emanate from sectoral interdependence. The interindustry model provides a framework within which both direct and indirect employment requirements can be addressed. Basic to the analysis are data on employment levels in the respective sectors and the table of direct plus indirect requirements per dollar of output delivered to final demand.

Before proceeding with the analysis some discussion on the table of direct and indirect requirements per dollar of delivery to final demand is warranted. When the household sector is included as a processing sector in the interindustry model it becomes simply another producer. To treat households in this manner is consistent with the interindustry framework, but it imposes a critical assumption on household purchase patterns. Specifically, household purchases are expressed as a linear function of income; the marginal and the average propensities to consume are assumed to be one and the same. To change this limiting assumption, the household sector has to be treated as a part of final demand.

Treating the household sector in this manner removes the assumption that household purchases are a linear function of income. Specifically, because the interindustry model is a final demand driven

model, treating the household sector as any other producing sector implies the level of employment was dependent on the level of state and federal government expenditures, investment expenditures, inventory accumulation, and exports. By treating households exogenously this assumption is expanded to include a dependency on the level of household expenditures. Direct and indirect requirements (household exogenous) and direct, indirect and inducted requirements (households endogenous) for the Rock Springs region of Wyoming are shown in the appendix. The estimated employment levels and corresponding employment coefficients (expressed as the number of employees per dollar of total gross output) used in the analysis are presented in Table 3-3.

To assess the total employment impacts of exogenous changes in final demand, the respective tables of direct and indirect requirements or direct, indirect and induced requirements per dollar of delivery to final demand, were pre-multiplied by a diagonal matrix of direct labor use requirements (where the elements of the diagonal are the employment coefficients shown in Table 3-3). Summing down the respective columns of the resulting matrix yielded the estimates of the direct and indirect, or direct, indirect and induced labor requirements per dollar delivered to final demand. Table 3-4 presents the estimates.

The interpretation of the entries in Table 3-4 is demonstrated by an example from the COAL-MIN sector. As the final demand for the output of coal expands by $1, there will be a direct expansion of employment in that sector as well as those sectors responsible for

TABLE 3-3

TOTAL EMPLOYMENT AND EMPLOYMENT COEFFICIENTS
ROCK SPRINGS REGION OF SOUTHERN WYOMING
BY SECTOR, 1980

(In number of workers in the Rock Springs region of southern Wyoming and workers per thousand dollars of output)

	Sector	Total Employment	Workers Per Thousand $ Total Output
1	CROP-LVSTK	727	.0106273
2	COAL-MIN	1,660	.0051048
3	TRONA-MIN	4,197	.0062854
4	O/G-EXPLOR	328	.0129598
5	O/G-DRILL	969	.0130622
6	O/G-SERV	2,021	.0130491
7	O/G-PROD	543	.0005994
8	N-G-L	174	.0037052
9	REFINING	15	.0005563
10	PIPELINES	378	.0090454
11	CONSTRUCT	4,266	.0102661
12	LOG/MILLS	232	.0195015
13	OTHER-MFG	733	.0114132
14	TRANS/COMM	3,267	.0103727
15	ELECT-UT	696	.0037531
16	GAS-UT	285	.0105747
17	WAT/SEW/TR	17	.0024554
18	WHOLESALE	1,117	.0122404
19	EAT/DRINK	1,887	.0726264
20	OTHER-RET	3,370	.0366486
21	F/I/R/E	727	.0077785
22	HEALTH-SER	1,131	.0282672
23	EDUCAT-SER	2,232	.0303980
24	LODGING	927	.0354180
25	OTHER-SERV	1,993	.0213876
26	LOC-GOVT	3,844	.05884
27	LOC-TAXES	---	.0
28	HOUSEHOLDS	403	.00054
29	STATE-GOVT		
30	FED-GOVT		

TABLE 3-4

DIRECT PLUS INDIRECT LABOR REQUIREMENTS PER THOUSAND DOLLARS
DELIVERED TO FINAL DEMAND AND PER ADDED WORKER HIRED
ROCK SPRINGS REGION OF SOUTHERN WYOMING
BY SECTOR, 1980

	Sector	Direct + Indirect Labor Requirement Per Thousand $ of Final Demand		Direct + Indirect Labor Requirement Per Added Worker Hired	
		Type II	Type I	Type II	Type I
1	CROP-LVSTK	.02277	.02079	2.14	1.95
2	COAL-MIN	.01118	.008862	2.19	1.74
3	TRONA-MIN	.01086	.008404	1.73	1.34
4	O/G-EXPLOR	.01972	.01590	1.52	1.23
5	O/G-DRILL	.01816	.01489	1.39	1.14
6	O/G-SERV	.01823	.01455	1.40	1.12
7	O/G-PROD	.007509	.006167	12.53	10.29
8	N-G-L	.01098	.008743	2.96	2.36
9	REFINING	.006945	.005707	12.48	10.26
10	PIPELINES	.01620	.01271	1.79	1.41
11	CONSTRUCT	.01733	.01392	1.69	1.36
12	LOG/MILLS	.03479	.02995	1.78	1.54
13	OTHER-MFG	.01872	.01564	1.64	1.37
14	TRANS/COMM	.01927	.01597	1.86	1.09
15	ELECT-UT	.01427	.01132	3.80	3.02
16	GAS-UT	.01778	.01607	1.68	1.52
17	WAT/SEW/TR	.007231	.004214	2.94	1.72
18	WHOLESALE	.02191	.01815	1.79	1.48
19	EAT/DRINK	.08049	.07583	1.11	1.04
20	OTHER-RET	.04704	.04157	1.28	1.13
21	F/I/R/E	.01011	.008742	1.30	1.16
22	HEALTH-SER	.03431	.02986	1.21	1.06
23	EDUCAT-SER	.03767	.03224	1.24	1.06
24	LODGING	.04560	.04173	1.29	1.18
25	OTHER-SERV	.02940	.02463	1.37	1.15
26	LOC-GOVT	.06347	.06092	1.08	1.04

supplying production ingredients to the coal mining sector. The sectors supplying ingredients to the mining of coal sector will in turn require production ingredients from others and this will further expand indirect employment impacts; and so forth. The magnitude of the direct and indirect employment impacts, 0.01118, shows the total employment generated in the entire Rock Springs economy as this sector, coal, increases by $1,000, its deliveries to final demand. That is to say that an increase of $1 million in the final demands, e.g., exports to the rest of Wyoming or out of state, for coal would result in an estimated additional employment of 11.2 persons in the Rock Springs region. All remaining entries in Table 3-4 have analogous interpretations for their respective sectors. Thus, the leading sectors in terms of direct and indirect employment generation in the Rock Springs economy are EAT/DRINK, LOC-GOVT, OTHER-RET, LODGING, EDUCAT-SER, LOG/MILLS, and HEALTH-SER. Table 3-4 also shows the total employment impact of exogenous changes in workers hired. This information is found simply by dividing the direct plus indirect labor requirements per thousand dollars of final demand (in Table 3-4) by the workers per thousand dollars of final demand shown in Table 3-3. The workers added per worker hired columns show that for each worker hired by COAL-MIN, 2.19 workers are hired throughout the region's economy. Thus the multiplier for exogenous changes in coal mine employment is 2.19.

CHAPTER 4

EXTENSIONS OF THE BASIC ANALYSIS: REGIONAL WATER REQUIREMENTS

INTRODUCTION

The previous chapter presented what may be appropriately called the results of traditional applications of the Leontief interindustry model. In addition to the descriptive analysis and the attendant development of various multipliers, application of the model can be extended to other questions. The I-O technique, because of the detailed analysis of interdependence among economic sectors, is readily adaptable to an examination of resource use associated with economic activity in the region. This chapter is concerned with an analysis of water withdrawal and consumptive use in the Rock Springs region economy. Other resource impacts, e.g., water and air quality impacts, land use, and growth of various types of energy consumption, could also be studied, providing adequate data are available.

WATER USE ANALYSIS

The water use analysis requires data pertaining to water withdrawals and consumptive use on a sector-by-sector basis. It is further required that these data be related to economic activity on a per dollar sales basis. These data, particularly for consumptive use, are difficult to obtain on a sector-by-sector basis and for a rather small regional economy.

Water use by commercial establishments is very small relative to agriculture, the extractive industries, electricity generation, and manufacturing. Little detailed information is available from secondary sources for the commercial sectors and, thus most coefficients are based upon results from our Wyoming survey and past surveys and Water Resources Council (WRC)[1] estimates. The Water Resources Council Report provides no detail among commercial establishments. WRC data was also at variance with other data in the agricultural and manufacturing sectors. The primary data source for the agricultural sector was the Census of Agriculture.[2] The withdrawal rate per dollar of output estimates from Census data was almost twice the size of the rate estimated from Water Resources Council data. Because of the indirect procedure required to convert the secondary data to a useful form for the input-output analysis, the exact source of the discrepancy is not easily traced. Water use estimates for the extractive sectors are based mainly upon the Census of Mineral Industries.[3] Unfortunately,

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[1] The Nation's Water Resources, 1975-2000, Vol. 3: Analytical Data Appendix II, Annual Water Supply and Use Analysis, Table II-4, Annual Water Requirements for Offstream Uses, Base Conditions, No/So Platte Region, Subregion 1007, Dec. 1978; and as above, Analytical Data Appendix I, Social, Economic and Environmental Data, and Table I-2, Earnings by Major Sectors, No/So Platte Region, Subregion 1007, December 1978, Second National Water Assessment by the U.S. Water Resources Council.

[2] 1974 Census of Agriculture, Vol. 1, part 50, Wyoming, State and County Data, U.S. Dept. of Commerce, Bureau of the Census, Table 3, page IV-8; Table 13, page IV-12; Table 3, page IV-26, Table 13, page IV-30, Table 3, page IV-116, Table 13, page IV-120.

[3] 1972 Census of Mineral Industries, Subject Series, Water Use in Mineral Industries, MIC72(1)-2, Sept. 1975, Table 2B, Gross Water Used and Water Intake, By Source and Kind, for Geographic Areas and Major Industry Groups; and as above, Table 2C, Gross Water Used and Water Intake, By source and Kind, for Water Use Regions and Major Industry Groups; and as above, Table 1C, Selected Water Use Statistics for Water Use Regions: 1972; Sept. 1975.

disclosure problems limit the available data to rather large regions in some cases. Withdrawal and consumptive use figures vary considerably among regions and their accuracy for a relatively small region is questionable. Water use in manufacturing is taken from the Census of Manufacturers.[4] In a few cases, disclosure prevents the use of regional water data. However, the magnitude of the error involved in the computation of the weighted average coefficients for manufacturing in the region is probably quite small.

Estimates of withdrawal and consumptive use by sector are shown in Table 4-1. Where more than one data source is available, multiple estimates are shown. In most cases, the larger numbers are derived from the source which is considered to be more authoritative for the region. In each sector we have used the largest figure shown in Table 4-1 for the water analysis which follows.

Table 4-2 presents the estimated withdrawals and consumptive use for each of the processing sectors of the regional economy in millions of gallons. Agriculture, trona mining and oil and gas production account for over 92 percent of withdrawals and over 99 percent of consumptive use in the region.

It should be noted that the estimates presented in Tables 4-1 and 4-2 do not include water use in the final demand/final payments sector. In order to assess total water use, it is necessary to have some

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[1] 1972 Census of Manufacturers, Water Use in Manufacturing, Special Report Series, Sept. 1975, Table 2C, Gross Water Used and Water Intake, by Source and Kind, For Water Use Regions and Major Industry Groups: 1973; and as above, Table 5C, Gross Water Used Including Recirculated, Total Water Intake, and Treated and Untreated Water Discharged, By Point of Discharge, For Water Use Regions and Major Industry Groups: 1973.

indication of requirements in the final demand sectors. e.g., households and governments. Aggregated data generally show depletions for irrigation as a separate category of water use and a second category consisting of municipal and industrial and domestic water use. Since industrial, commercial, mining, and agricultural water use has been estimated above, the final demand use of water could be computed as a residual if estimates of total withdrawal and total consumption were available.

Estimates of total withdrawal and total consumptive use of water are useful from a purely descriptive point of view. However, the model allows also the analysis of direct and indirect water use which parallels the previous discussion of direct and indirect production. The purpose of such analysis is to isolate the effect of economic interdependence on water requirements. The specific question to be addressed is that of determining the likely impact of expanding final demand in any or all processing sectors on the regional water requirements. The key element in the assessment is the derivation of the direct plus indirect water requirements per dollar of output delivered to final demand.

The calculation of water multipliers is not difficult once the direct water requirements and the table of direct plus indirect production requirements have been obtained. The matrix of direct and indirect production coefficients is premultiplied by a diagonal matrix consisting of the direct water requirements along the diagonal and zeros elsewhere. The columns of the resulting matrix are summed in order to obtain the direct plus indirect water requirements per dollar of output delivered to final demand by each sector. These requirements

for the Rock Springs economy are shown in Table 4-3. The importance of considering indirect as well as direct water requirements in the planning perspective can be readily seen by comparing Table 4-1 and Table 4-3. Consider, for example the direct withdrawal and consumptive use requirements for REFINING in Table 4-1. The direct requirements are 19.8 and 3 gallons for each dollar of output. However, as the final demand for the output of the REFINING sector expands by one dollar, there is a total direct plus indirect water requirement of 937.9 gallons (withdrawal) and 461 gallons (consumptive) generated throughout the economy. The indirect impacts, because of the significant interdependencies within and between REFINING and other sectors, are far more important than the direct requirements. Applying only the direct water requirements to assumed increases in deliveries to final demand can obviously result in an understatement of water use.

TABLE 4-1

ESTIMATED WITHDRAWAL AND CONSUMPTIVE USE REQUIREMENTS BY SECTOR, ROCK SPRINGS REGION OF SOUTHERN WYOMING

(In gallons per dollar of output)

	Sector	Withdrawal		Consumptive Use		
1	CROP-LVSTK	792.7[1]	1,550.0[5]	314.2[1]	609.0[6]	
2	COAL-MIN	15.5[3]		0	1.02[4]	
3	TRONA-MIN	306.1	53.5[1]	21.3[1]	30.6[4]	
4	O/G-EXPLOR	77.6[3]		.7[3]		
5	O/G-DRILL	77.6[3]		.7[3]		
6	O/G-SERV	77.6[3]		.7[3]		
7	O/G-PROD	1,031.0[3]		0[3]	529.2[1]	
8	N-G-L	52.0[3]		5.03[3]		
9	REFINING	19.8[3]		3.0[3]		
10	PIPELINES	0		0		
11	CONSTRUCT	4.0[6]		0.4[6]		
12	LOG/MILLS	86.9[2]		6.7[2]		
13	OTHER-MFG	27.6[2]	6.4[1]	8.9[2]	1.5[1]	3.7
14	TRANS/COMM	2.1[6]		0.1[6]		
15	ELECT-UT	303.0[6]		15.2[6]		
16	GAS-UT	32.0[6]		1.6[6]		
17	WAT/SEW/TR	0		0		
18	WHOLESALE	2.3[6]		0.6[4]		
19	EAT/DRINK	7.0[6]		2.1[6]		
20	OTHER-RET	3.9[6]		0.6[6]	1.0[4]	
21	F/I/R/E	4.9[6]		0.2[6]	1.2[4]	
22	HEALTH-SER	5.1[6]		0.5[6]	1.3[4]	
23	EDUCAT-SER	1.5[6]		0.2[6]	0.4[4]	
24	LODGING	22.4[6]		2.0[6]		
25	OTHER-SERV	3.5[6]		0.7[6]	0.9[4]	
26	LOC-GOVT	1.0[6]		0.1[6]		

[1]Water Resources Council, based on ratio of withdrawal to wages and profits.

[2]Census of Water Use in Manufacturing, ratio of withdrawal or consumptive use to value of shipments.

[3]Census of Mineral Industries, ratio of withdrawal to value of shipments.

[4]Water Resources Council, ratio of consumption to withdrawal.

[5]Census of Agriculture, ratio of consumptive use to value of shipments.

[6]Survey data or estimated on per capita basis.

TABLE 4-2

TOTAL WATER USE BY PROCESSING SECTORS,
ROCK SPRINGS REGION OF SOUTHERN WYOMING

(In millions of gallons)

	Sector	Withdrawal	Consumptive Use
1	CROP-LVSTK	106,000	41,660
2	COAL-MIN	5,040	332
3	TRONA-MIN	204,400	20,430
4	O/G-EXPLOR	1,964	18
5	O/G-DRILL	5,757	52
6	O/G-SERV	17,020	108
7	O/G-PROD	933,900	479,400
8	N-G-L	2,442	236
9	REFINING	534	81
10	PIPELINES	0	0
11	CONSTRUCT	1,662	166
12	LOG/MILLS	1,034	80
13	OTHER-MFG	1,773	572
14	TRANS/COMM	661	32
15	ELECT-UT	56,190	2,819
16	GAS-UT	862	43
17	WAT/SEW/TR	0	0
18	WHOLESALE	210	55
19	EAT/DRINK	182	55
20	OTHER-RET	359	92
21	F/I/R/E	458	112
22	HEALTH-SER	204	52
23	EDUCAT-SER	110	29
24	LODGING	586	52
25	OTHER-SERV	326	84
26	LOC-GOVT	0	0

TABLE 4-3

DIRECT PLUS INDIRECT WATER REQUIREMENTS,
ROCK SPRINGS REGION OF SOUTHERN WYOMING, 1980

(Type II multipliers in gallons per dollar
of output delivered to final demand)

	Sector	Withdrawal	Consumptive Use
1	CROP-LVSTK	1,848.0	724.3
2	COAL-MIN	33.7	7.1
3	TRONA-MIN	338.6	42.8
4	O/G-EXPLOR	107.5	13.5
5	O/G-DRILL	99.8	9.7
6	O/G-SERV	102.1	10.8
7	O/G-PROD	1,160.0	580.1
8	N-G-L	677.4	310.8
9	REFINING	937.9	461.0
10	PIPELINES	73.0	11.3
11	CONSTRUCT	39.2	14.6
12	LOG/MILLS	172.5	29.0
13	OTHER-MFG	146.5	43.5
14	TRANS/COMM	24.8	8.3
15	ELECT-UT	334.2	23.3
16	GAS-UT	978.3	474.5
17	WAT/SEW/TR	28.6	7.9
18	WHOLESALE	42.7	14.9
19	EAT/DRINK	87.9	36.1
20	OTHER-RET	59.8	21.3
21	F/I/R/E	14.8	5.3
22	HEALTH-SER	37.2	14.7
23	EDUCAT-SER	47.8	14.2
24	LODGING	156.2	40.0
25	OTHER-SERV	49.5	19.8
26	LOC-GOVT	19.1	6.9

APPENDICES

Appendix:

A - Detailed Sector Identification, Rock Springs Region, Wyoming, 1980

B - Interindustry Tables for the Rock Springs Region, Wyoming, 1980

Rock Springs Region, Wyoming, Transactions Among Sectors, 1980
Rock Springs Region, Wyoming, Direct Requirements Per Dollar of Output
Rock Springs Region, Wyoming, Direct and Indirect Requirements Per Dollar of Output Delivered to Final Demand, 1980 (Households in Processing Sector)
Rock Springs Region, Wyoming, Direct and Indirect Requirements Per Dollar of Output Delivered to Final Demand, 1980 (Households in Final Demand)
Rock Springs Region, Wyoming, Sales Distribution Coefficients, 1980

C - Survey Form Used for the Rock Springs Region Interindustry Study

D - Data Sources by Sector

APPENDIX A

DETAILED SECTOR IDENTIFICATION, ROCK SPRINGS REGION, WYOMING, 1980

Sector Number		Sector Description
1	CROP-LVSTK	Cash Grains, Field Crops, Horticultural Specialties, General Crop Farms, Livestock, Dairy, Poultry and Eggs, Animal Specialties, General Livestock Farms, Soil Preparation Services, Crop Services, Veterinary Services, Other Animal Services, Farm Labor and Management Services, Landscape and Horticultural Services, Timber Tracts, Forest Nurseries and Seed Gathering, Forestry Services, Fishing, Hunting and Trapping.
2	COAL-MIN	Underground and Surface Coal Mining and Mining Services.
3	TRONA-MIN	Metal Mining, Nonmetallic Minerals except Fuels and except Sand and Gravel.
4	O/G-EXPLOR	Oil and Gas Exploration Services.
5	O/G-DRILL	Drilling Oil and Gas Wells.
6	O/G-SERV	Oil and Gas Field Services.
7	O/G-PROD	Crude Petroleum and Natural Gas
8	N-G-L	Natural Gas Liquids
9	REFINING	Petroleum Refining, Paving and Roofing Materials, Miscellaneous Petroleum and Coal Products.
10	PIPELINES	All Pipelines, including Natural Gas.
11	CONSTRUCT	General Building Contractors, Heavy Construction Contractors, Special Trade Contractors. (To the extent possible the heavy construction which is not repair and replacement is shown as a final demand column.)

APPENDIX A
(continued)

Sector Number		Sector Description
12	LOG/MILLS	Logging Camps and Logging Contractors, Sawmills and Planing Mills, Millwork, Wood Containers, Prefabricated Wood Buildings, Miscellaneous Wood Products.
13	OTHER-MFG	Food and Kindred Products, Textile and Apparel Products, Furniture and Fixtures, Paper or Paper Products, Printing and Publishing, Chemicals and Allied Products, Rubber and Plastic Products, Leather and Leather Products, Stone, Clay and Glass Products, Primary and Fabricated Metal Products, Machinery, Electric and Electronic Equipment, Transportation Equipment, Instruments and Miscellaneous Manufacturing Industries.
14	TRANS/COMM	Railroads, Local Transport, Trucking and Warehousing, U.S. Postal Services, Air Transportation, Transportation Services, Communication and Communication Services.
15	ELECT-UT	Electric Services.
16	GAS-UT	Natural Gas Distribution.
17	WAT/SEW/TR	Water Supply, Sanitary Services, Irrigation Systems.
18	WHOLESALE	Wholesale Trade, Durable Goods and Nondurable Goods.
19	EAT/DRINK	Eating and Drinking Places.
20	OTHER-RET	Building Supplies and Garden Supplies, General Merchandise, Food Stores, Automotive Dealers and Service Stations, Apparel and Accessory Stores, Furniture and Home Furnishing Stores, Miscellaneous Retail Stores.

APPENDIX A
(continued)

Sector Number	Sector Description
21 F/I/R/E	Banking, Credit Agencies NEC, Security and Commodity Brokers, Insurance Carriers, Insurance Agents and Brokers, Real Estate, Holding and Other Investment Offices.
22 HEALTH-SER	Physicians, Dentists, Osteopaths, Nursing, Hospitals, Medical and Dental Laboratories, Outpatient Care Facilities, Other Health Practitioners.
23 EDUCAT-SER	Elementary and Secondary Schools, Universities, Libraries and Information Centers, Correspondence and Vocational Schools, Other Schools and Educational Services.
24 LODGING	Hotels, Motels, Tourist Courts, Rooming and Boarding Houses, Camps and Trailering Parks, Membership Basis Organization Hotels.
25 OTHER-SERV	Personal Services, Business Services, Auto Repair, Miscellaneous Repair, Motion Pictures, Amusement and Recreation, Legal Services, Social Services, Museums, etc., Membership Organizations, Miscellaneous Services.
26 LOC-GOVT	Executive, Legislative and General Government, Justice, Public Order and Safety, Finance, Taxation and Monetary, Administration of Human Resources, Environmental Quality and Housing, Administration of Economic Programs.
27 LOC-TAXES	Dummy Account to Transfer Government Receipts to Government Purchases.
28 HOUSEHOLDS	Personal Income or Spending.
29 STATE-GOVT	
30 FED-GOVT	

APPENDIX B

INTERINDUSTRY TABLES FOR THE ROCK SPRINGS REGION, WYOMING, 1980

APPENDIX B-1

ROCK SPRINGS REGION, WYOMING, TRANSACTIONS AMONG SECTORS, 1980

DOLLARS

		1 CROP-LVSTK	2 COAL-MIN	3 TRONA-MIN	4 O/G-EXPLOR	5 O/G-DRILL	6 O/G-SERV	7 O/G-PROD	8 N-G-L	9 REFINING	10 PIPELINES
1	CROP-LVSTK	9545847.	0.	0.	0.	0.	0.	11322862.	0.	0.	0.
2	COAL-MIN	0.	52465115.	13590000.	0.	0.	0.	0.	0.	0.	0.
3	TRONA-MIN	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	O/G-EXPLOR	0.	0.	0.	0.	0.	0.	17635379.	0.	0.	0.
5	O/G-DRILL	0.	0.	0.	0.	0.	0.	74183578.	0.	0.	0.
6	O/G-SERV	0.	0.	0.	0.	103251.	0.	89928750.	0.	0.	0.
7	O/G-PROD	0.	0.	0.	0.	0.	0.	56073620.	24339058.	21262500.	0.
8	N-G-L	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9	REFINING	1249907.	52130.	80834.	172455.	154292.	175063.	88133.	21020.	856.	4581.
10	PIPELINES	0.	0.	22756887.	0.	0.	0.	0.	0.	0.	0.
11	CONSTRUCT	49927.	0.	2515905.	362220.	22125.	2614349.	8282941.	2235267.	21595.	1099058.
12	LOG/MILLS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
13	OTHER-MFG	58249.	0.	2627041.	0.	280253.	20531.	3502990.	328716.	27263.	6268.
14	TRANS/COMM	503347.	237374.	6438536.	0.	626883.	1546709.	4304031.	140878.	95400.	54326.
15	ELECT-UT	1920778.	687937.	7239560.	0.	51626.	177940.	15005877.	1925335.	186254.	6849266.
16	GAS-UT	0.	0.	8437613.	0.	0.	232691.	3760719.	0.	0.	21313.
17	WAT/SEW/TR	0.	5000.	0.	0.	0.	6844.	7399.	4696.	8098.	2089.
18	WHOLESALE	3279430.	2258662.	5228176.	248969.	1269627.	1291074.	972500.	140732.	11842.	91569.
19	EAT/DRINK	0.	3319.	6432.	0.	28557.	37847.	5419.	0.	0.	11325.
20	OTHER-RET	4258429.	177761.	276001.	588679.	526420.	597108.	300907.	72794.	3184.	16914.
21	F/I/R/E	8311634.	0.	0.	0.	1202140.	2518536.	672804.	0.	80240.	0.
22	HEALTH-SER	0.	3000.	275375.	0.	81126.	0.	13526.	0.	0.	0.
23	EDUCAT-SER	0.	100596.	97389.	0.	0.	0.	0.	0.	0.	0.
24	LODGING	0.	55746.	228850.	0.	184377.	301129.	10197.	0.	0.	29253.
25	OTHER-SERV	2130935.	11383278.	117240.	1595162.	1312766.	2682788.	6202384.	803006.	41594.	468040.
26	LOC-GOVT	0.	0.	1622.	0.	0.	0.	0.	0.	0.	0.
27	LOC-TAXES	2600086.	11036912.	12834187.	0.	472006.	314817.	29843007.	18784.	35091.	1161742.
28	subtotal	33908569.	78466830.	82751648.	2967485.	6315449.	12517426.	322117032.	30030286.	21773917.	9815744.
29	HOUSEHOLDS	3337737.	43621946.	115447653.	6993634.	18459855.	44142810.	18702890.	4405800.	275310.	9557212.
30	STATE-GOVT	642809.	58206769.	15336106.	417946.	1015292.	862325.	22437792.	197229.	6195.	108652.
31	FED-GOVT	2841595.	12407773.	60503984.	2556438.	5932430.	8992814.	175025756.	1175985.	1017525.	7731020.
32	TRANSFERS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
33	PROFITS	3078854.	65553324.	150737036.	9081716.	22985305.	39845559.	283432264.	5019960.	1271387.	9975105.
34	IMP-WYOM	6287104.	18213148.	42337645.	727404.	2393914.	3659018.	3080307.	1884784.	1854041.	474709.
35	IMP-WORLD	18311841.	48716881.	200622216.	2564345.	17081333.	44856978.	81038951.	4246366.	766124.	4126854.
36	totals	68408509.	325186672.	667736288.	25308968.	74183578.	154876930.	905834992.	46960410.	26964499.	41789296.

1	EMPLOYMENT	0.7270E 03	0.1660E 04	0.4197E 04	0.3280E 03	0.9690E 03	0.2021E 04	0.5430E 03	0.1740E 03	0.1500E 02	0.3780E 03
2	WITHDRAWAL	0.1060E 12	0.5040E 10	0.2044E 12	0.1964E 10	0.5757E 10	0.1202E 11	0.9339E 12	0.2442E 10	0.5339E 09	0.
3	CONSUMP.	0.4166E 11	0.3317E 09	0.2043E 11	0.1772E 08	0.5193E 08	0.1084E 09	0.4794E 12	0.2362E 09	0.8089E 08	0.

APPENDIX B-1
(continued)

DOLLARS

		11 CONSTRUCT	12 LOG/MILLS	13 OTHER-MFG	14 TRANS/COMM	15 ELECT-UT	16 GAS-UT	17 WAT/SEW/TR	18 WHOLESALE	19 EAT/DRINK	20 OTHER-RET
1	CROP-LVSTK	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	COAL-MIN	0.	0.	3526200.	0.	128042600.	0.	0.	0.	0.	0.
3	TRONA-MIN	332057.	0.	10353862.	0.	0.	0.	0.	0.	0.	0.
4	O/G-EXPLOR	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	O/G-DRILL	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	O/G-SERV	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	O/G-PROD	0.	0.	1878788.	0.	0.	21890546.	0.	0.	0.	0.
8	N-G-L	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9	REFINING	3075276.	10592.	37154.	47438.	7291.	16382.	1034.	41330.	70069.	339018.
10	PIPELINES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	CONSTRUCT	31213371.	960648.	388232.	6136991.	20897.	22000.	31057.	405858.	142844.	2122704.
12	LOG/MILLS	0.	2741279.	0.	0.	0.	0.	0.	2974130.	0.	0.
13	OTHER-MFG	15108600.	73192.	0.	69113.	0.	0.	4164.	4231727.	663099.	1399914.
14	TRANS/COMM	2075357.	272920.	5480720.	10763853.	95780.	0.	23637.	12285880.	218522.	3826265.
15	ELECT-UT	415071.	398853.	1044227.	2102724.	0.	5600.	233374.	246880.	504285.	2482580.
16	GAS-UT	581100.	124072.	536638.	61155.	0.	0.	0.	513460.	1122440.	779694.
17	WAT/SEW/TR	249043.	4575.	11104.	28650.	6240.	1800.	0.	171894.	210741.	188855.
18	WHOLESALE	6857017.	53404.	218890.	1193314.	337023.	29786.	52742.	60791.	389419.	4838652.
19	EAT/DRINK	0.	7589.	8139.	10430.	0.	0.	0.	11223.	0.	186948.
20	OTHER-RET	10477034.	36430.	127433.	162598.	24863.	56773.	4643.	140963.	239518.	1156120.
21	F/I/R/E	4316743.	106682.	147840.	661498.	0.	22534.	606500.	4687723.	532091.	4542178.
22	HEALTH-SER	0.	0.	8140.	403444.	0.	0.	0.	0.	0.	21828.
23	EDUCAT-SER	0.	0.	0.	0.	0.	0.	0.	0.	0.	139699.
24	LODGING	0.	17383.	1256.	24240.	0.	0.	0.	33737.	0.	61118.
25	OTHER-SERV	5520450.	414878.	112524.	1817411.	116677.	74625.	89237.	2543175.	741402.	3776410.
26	LOC-GOVT	0.	0.	0.	0.	0.	0.	0.	13494.	0.	0.
27	LOC-TAXES	1203707.	49510.	375284.	37325717.	6891789.	207921.	0.	1516852.	67126.	164364.
28	subtotal	81424826.	5272007.	24256431.	60808576.	135543160.	22327967.	1046388.	29879117.	4901556.	26026347.
29	HOUSEHOLDS	94345734.	2976147.	11243428.	68259073.	18650517.	1245360.	1548850.	20583222.	8891778.	34945546.
30	STATE-GOVT	6101550.	212960.	365093.	3822120.	164239.	26334.	0.	296062.	262606.	1312646.
31	FED-GOVT	16519843.	480441.	2433842.	19048848.	1584723.	193381.	9394.	7990621.	2398603.	7846188.
32	TRANSFERS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
33	PROFITS	50488248.	1081664.	7671561.	69006521.	8111748.	1810525.	2516910.	22518007.	7126819.	12380857.
34	IMP-WYOM	60202922.	138220.	123507.	10987223.	1204787.	37269.	332223.	2009737.	383408.	752696.
35	IMP-WORLD	106460240.	1735080.	18129947.	83028946.	20186796.	1310300.	1469813.	7978455.	2017505.	8690144.
36	totals	415543364.	11896519.	64223809.	314961312.	185445974.	26951136.	6923578.	91255221.	25982275.	91954424.

1	EMPLOYMENT	0.4266E 04	0.2320E 03	0.7330E 03	0.3267E 04	0.6960E 03	0.2850E 03	0.1700E 02	0.1117E 04	0.1887E 04	0.3370E 04
2	WITHDRAWAL	0.1662E 10	0.1034E 10	0.1773E 10	0.6614E 09	0.5619E 11	0.8624E 09	0.	0.2099E 09	0.1819E 09	0.3586E 09
3	CONSUMP.	0.1662E 09	0.7971E 08	0.5716E 09	0.3150E 08	0.2819E 10	0.4312E 08	0.	0.5475E 08	0.5456E 08	0.9195E 08

APPENDIX B-1
(continued)

DOLLARS

		21 F/I/R/E	22 HEALTH-SER	23 EDUCAT-SER	24 LODGING	25 OTHER-SERV	26 LOC-GOVT	27 LOC-TAXES	28 subtotal	29 HOUSEHOLDS	30 STATE-GOVT
1	CROP-LVSTK	0.	0.	26024.	0.	0.	0.	0.	20894733.	2552590.	123702.
2	COAL-MIN	0.	0.	0.	0.	0.	0.	0.	197623916.	40665.	0.
3	TRONA-MIN	0.	0.	0.	0.	0.	0.	0.	10685919.	0.	845019.
4	O/G-EXPLOR	0.	0.	0.	0.	0.	0.	0.	17635379.	0.	0.
5	O/G-DRILL	0.	0.	0.	0.	0.	0.	0.	74183578.	0.	0.
6	O/G-SERV	0.	0.	0.	0.	0.	0.	0.	90032001.	0.	0.
7	O/G-PROD	0.	0.	0.	0.	0.	0.	0.	125444512.	0.	0.
8	N-G-L	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9	REFINING	10778.	28435.	1172.	97724.	212238.	20599.	0.	6015801.	20862867.	0.
10	PIPELINES	0.	0.	0.	0.	0.	0.	0.	22756887.	0.	0.
11	CONSTRUCT	265693.	8992.	1569482.	0.	682212.	4715973.	0.	65890341.	2710240.	0.
12	LOG/MILLS	0.	0.	0.	0.	0.	0.	0.	5715409.	54898.	0.
13	OTHER-MFG	128475.	81841.	5315.	72934.	1170823.	173852.	0.	30034360.	17901280.	160175.
14	TRANS/COMM	653163.	413761.	1274616.	474075.	2184922.	315900.	609103.	54915958.	17827617.	1154937.
15	ELECT-UT	79803.	115259.	3426363.	4781271.	700650.	460567.	0.	51042080.	8022428.	11903.
16	GAS-UT	111590.	214054.	0.	1288512.	1133939.	0.	0.	18918990.	8022428.	4456.
17	WAT/SEW/TR	15480.	27419.	103500.	987859.	230477.	0.	647987.	2919750.	3919130.	49698.
18	WHOLESALE	21668.	69549.	170507.	207938.	685608.	249093.	0.	30227982.	36350298.	212836.
19	EAT/DRINK	27683.	4758.	0.	0.	0.	0.	0.	349669.	9042683.	1899.
20	OTHER-RET	37965.	97333.	4473.	332963.	723395.	70586.	0.	20511287.	71050784.	98653.
21	F/I/R/E	911331.	319632.	4005780.	3574910.	3300431.	1196625.	0.	41717852.	51567486.	177000.
22	HEALTH-SER	0.	1012389.	0.	0.	0.	258813.	13051365.	15129006.	24835108.	46919.
23	EDUCAT-SER	25905.	12593.	2826.	0.	9219.	0.	53238410.	53626637.	3852828.	15109787.
24	LODGING	0.	12448.	0.	0.	0.	0.	0.	959734.	0.	3439.
25	OTHER-SERV	2128490.	312616.	592154.	916060.	3811820.	1150797.	0.	50855919.	30422624.	322241.
26	LOC-GOVT	326.	0.	0.	0.	0.	47654.	36911047.	36974143.	0.	24578930.
27	LOC-TAXES	153974.	88412.	0.	145869.	1235357.	0.	0.	107742514.	9731521.	0.
28	subtotal	4572324.	2819491.	11182212.	12880115.	16081091.	8660459.	104457912.	1152804384.	318767476.	42901594.
29	HOUSEHOLDS	9302568.	14039419.	30925406.	5672700.	32792273.	11566452.	0.	631933336.	2320537.	11201885.
30	STATE-GOVT	83178.	165576.	3944358.	532422.	193601.	137874.	0.	116851734.	40023737.	1048498.
31	FED-GOVT	3726576.	813535.	1308140.	1239889.	3328088.	295700.	0.	347403136.	126799294.	147221.
32	TRANSFERS	54892680.	0.	769698.	0.	0.	427153.	0.	56089531.	10285946.	2306541.
33	PROFITS	8530009.	12555960.	15260015.	3243484.	21434364.	17378095.	13016123.	865111432.	37798150.	1351451.
34	IMP-WYOM	770592.	400953.	67597.	398026.	2834329.	91978.	0.	161647550.	49687599.	346609.
35	IMP-WORLD	11584411.	9216099.	9968411.	2206508.	16521119.	26764385.	0.	749600056.	160294902.	1289326.
36	totals	93462338.	40011033.	73425837.	26173144.	93184865.	65322096.	117474035.	4081441184.	745977648.	60593125.

1	EMPLOYMENT	0.7270E 03	0.1131E 04	0.2232E 04	0.9270E 03	0.1993E 04	0.3844E 04	0.	0.	0.4028E 03	0.
2	WITHDRAWAL	0.4580E 09	0.2041E 09	0.1101E 09	0.5863E 09	0.3261E 09	0.	0.	0.	0.	0.
3	CONSUMP.	0.1122E 09	0.5201E 08	0.2937E 08	0.5235E 08	0.8387E 08	0.	0.	0.	0.	0.

APPENDIX B-1
(continued)

DOLLARS

		31 FED-GOVT	32 INVESTMENT	33 ROAD-CONST	34 COMM-CONST	35 HOUS-CONST	36 COAL-CONST	37 TRANSFERS	38 EXPORTS	39 totals
1	CROP-LVSTK	0.	0.	0.	0.	0.	0.	0.	44837484.	68408509.
2	COAL-MIN	0.	0.	0.	0.	0.	0.	0.	127522091.	325186672.
3	TRONA-MIN	0.	0.	1248726.	0.	0.	0.	0.	654956624.	667736288.
4	O/G-EXPLOR	0.	0.	0.	0.	0.	0.	0.	7673589.	25308968.
5	O/G-DRILL	0.	0.	0.	0.	0.	0.	0.	0.	74183578.
6	O/G-SERV	0.	0.	0.	0.	0.	0.	0.	64844929.	154876930.
7	O/G-PROD	0.	0.	0.	0.	0.	0.	0.	780390480.	905834992.
8	N-G-L	0.	0.	0.	0.	0.	0.	0.	46960410.	46960410.
9	REFINING	0.	0.	85831.	0.	0.	0.	0.	0.	26964499.
10	PIPELINES	0.	0.	0.	0.	0.	0.	0.	19032409.	41789296.
11	CONSTRUCT	1431031.	345511752.	0.	0.	0.	0.	0.	0.	415543364.
12	LOG/MILLS	0.	0.	0.	0.	0.	0.	0.	6126212.	11896519.
13	OTHER-MFG	107742.	0.	0.	0.	0.	0.	0.	16020252.	64223809.
14	TRANS/COMM	4453870.	0.	405411.	0.	0.	0.	0.	236203518.	314961312.
15	ELECT-UT	5346.	0.	0.	0.	0.	0.	0.	126364217.	185445974.
16	GAS-UT	5262.	0.	0.	0.	0.	0.	0.	0.	26951136.
17	WAT/SEW/TR	35000.	0.	0.	0.	0.	0.	0.	0.	6923578.
18	WHOLESALE	47975.	0.	347583.	0.	0.	0.	0.	24068547.	91255221.
19	EAT/DRINK	0.	0.	0.	0.	0.	0.	0.	16588024.	25982275.
20	OTHER-RET	0.	0.	293700.	0.	0.	0.	0.	0.	91954424.
21	F/I/R/E	0.	0.	0.	0.	0.	0.	0.	0.	93462338.
22	HEALTH-SER	0.	0.	0.	0.	0.	0.	0.	0.	40011033.
23	EDUCAT-SER	836585.	0.	0.	0.	0.	0.	0.	0.	73425837.
24	LODGING	0.	0.	0.	0.	0.	0.	0.	25209971.	26173144.
25	OTHER-SERV	449062.	0.	0.	0.	0.	0.	0.	11135019.	93184865.
26	LOC-GOVT	3769023.	0.	0.	0.	0.	0.	0.	0.	65322096.
27	LOC-TAXES	0.	0.	0.	0.	0.	0.	0.	0.	117474035.
28	subtotal	11140896.	345511752.	2381251.	0.	0.	0.	0.	2207933824.	4081441184.
29	HOUSEHOLDS	9091653.	0.	7369354.	0.	0.	0.	84060881.	0.	745977648.
30	STATE-GOVT	42536099.	0.	518061.	0.	0.	0.	0.	0.	200978132.
31	FED-GOVT	118967.	0.	1096560.	0.	0.	0.	0.	0.	475565180.
32	TRANSFERS	48066000.	0.	0.	0.	0.	0.	0.	0.	116748018.
33	PROFITS	0.	0.	1677646.	0.	0.	0.	-22436991.	0.	883501688.
34	IMP-WYOM	80828.	0.	107979.	0.	0.	0.	0.	11064230.	222934798.
35	IMP-WORLD	322142.	0.	5331489.	0.	0.	0.	0.	160357052.	1077194976.
36	totals	111356585.	345511752.	18482340.	0.	0.	0.	61623890.	2379355104.	7804341760.

1	EMPLOYMENT	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	WITHDRAWAL	0.	0.	0.	0.	0.	0.	0.	0.	0.
3	CONSUMP.	0.	0.	0.	0.	0.	0.	0.	0.	0.

APPENDIX B-2

ROCK SPRINGS REGION, WYOMING, DIRECT REQUIREMENTS PER DOLLAR OF OUTPUT

		1	2	3	4	5	6	7	8	9	10
		CROP-LVSTK	COAL-MIN	TRONA-MIN	O/G-EXPLOR	O/G-DRILL	O/G-SERV	O/G-PROD	N-G-L	REFINING	PIPELINES
1	CROP-LVSTK	0.139542	0.	0.	0.	0.	0.	0.012500	0.	0.	0.
2	COAL-MIN	0.	0.161338	0.020352	0.	0.	0.	0.	0.	0.	0.
3	TRONA-MIN	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	O/G-EXPLOR	0.	0.	0.	0.	0.	0.	0.019469	0.	0.	0.
5	O/G-DRILL	0.	0.	0.	0.	0.	0.	0.081895	0.	0.	0.
6	O/G-SERV	0.	0.	0.	0.	0.001392	0.	0.099277	0.	0.	0.
7	O/G-PROD	0.	0.	0.	0.	0.	0.	0.061903	0.518289	0.788537	0.
8	N-G-L	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9	REFINING	0.018271	0.000160	0.000121	0.006814	0.002080	0.001130	0.000097	0.000448	0.000032	0.000110
10	PIPELINES	0.	0.	0.034081	0.	0.	0.	0.	0.	0.	0.
11	CONSTRUCT	0.000730	0.	0.003768	0.014312	0.000298	0.016880	0.009144	0.047599	0.000801	0.026300
12	LOG/MILLS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
13	OTHER-MFG	0.000851	0.	0.003934	0.	0.003778	0.000133	0.003867	0.007000	0.001011	0.000150
14	TRANS/COMM	0.007358	0.000730	0.009642	0.	0.008450	0.009987	0.004751	0.003000	0.003538	0.001300
15	ELECT-UT	0.028078	0.002116	0.010842	0.	0.000696	0.001149	0.016566	0.040999	0.006907	0.163900
16	GAS-UT	0.	0.	0.012636	0.	0.	0.001502	0.004152	0.	0.	0.000510
17	WAT/SEW/TR	0.	0.000015	0.	0.	0.	0.000044	0.000008	0.000100	0.000300	0.000050
18	WHOLESALE	0.047939	0.006946	0.007830	0.009837	0.017115	0.008336	0.001074	0.002997	0.000439	0.002191
19	EAT/DRINK	0.	0.000010	0.000010	0.	0.000385	0.000244	0.000006	0.	0.	0.000271
20	OTHER-RET	0.062250	0.000547	0.000413	0.023260	0.007096	0.003855	0.000332	0.001550	0.000118	0.000405
21	F/I/R/E	0.121500	0.	0.	0.	0.016205	0.016262	0.000743	0.	0.002976	0.
22	HEALTH-SER	0.	0.000009	0.000412	0.	0.001094	0.	0.000015	0.	0.	0.
23	EDUCAT-SER	0.	0.000309	0.000146	0.	0.	0.	0.	0.	0.	0.
24	LODGING	0.	0.000171	0.000343	0.	0.002485	0.001944	0.000011	0.	0.	0.000700
25	OTHER-SERV	0.031150	0.035005	0.000176	0.063028	0.017696	0.017322	0.006847	0.017100	0.001543	0.011200
26	LOC-GOVT	0.	0.	0.000002	0.	0.	0.	0.	0.	0.	0.
27	LOC-TAXES	0.038008	0.033940	0.019220	0.	0.006363	0.002033	0.032945	0.000400	0.001301	0.027800
28	HOUSEHOLDS	0.048791	0.134144	0.172894	0.276330	0.248840	0.285019	0.020647	0.093819	0.010210	0.228700
29	STATE-GOVT	0.009397	0.178995	0.022967	0.016514	0.013686	0.005568	0.024770	0.004200	0.000230	0.002600
30	FED-GOVT	0.041539	0.038156	0.090611	0.101009	0.079970	0.058064	0.193220	0.025042	0.037736	0.185000
31	TRANSFERS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
32	PROFITS	0.045007	0.201587	0.225743	0.358834	0.309844	0.257272	0.312896	0.106898	0.047150	0.238700
33	IMP-WYOM	0.091905	0.056008	0.063405	0.028741	0.032270	0.023625	0.003401	0.040136	0.068759	0.011360
34	IMP-WORLD	0.267684	0.149812	0.300451	0.101322	0.230258	0.289630	0.089463	0.090424	0.028412	0.098754

APPENDIX B-2
(continued)

		11	12	13	14	15	16	17	18	19	20
		CONSTRUCT	LOG/MILLS	OTHER-MFG	TRANS/COMM	ELECT-UT	GAS-UT	WAT/SEW/TR	WHOLESALE	EAT/DRINK	OTHER-RET
1	CROP-LVSTK	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	COAL-MIN	0.	0.	0.054905	0.	0.690458	0.	0.	0.	0.	0.
3	TRONA-MIN	0.000799	0.	0.161215	0.	0.	0.	0.	0.	0.	0.
4	O/G-EXPLOR	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	O/G-DRILL	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	O/G-SERV	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	O/G-PROD	0.	0.	0.029254	0.	0.	0.812231	0.	0.	0.	0.
8	N-G-L	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9	REFINING	0.007401	0.000890	0.000579	0.000151	0.000039	0.000608	0.000149	0.000453	0.002697	0.003687
10	PIPELINES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	CONSTRUCT	0.075115	0.080750	0.006045	0.019485	0.000113	0.000816	0.004486	0.004448	0.005498	0.023084
12	LOG/MILLS	0.	0.230427	0.	0.	0.	0.	0.	0.032591	0.	0.
13	OTHER-MFG	0.036359	0.006152	0.	0.000219	0.	0.	0.000601	0.046372	0.025521	0.015224
14	TRANS/COMM	0.004994	0.022941	0.085338	0.034175	0.000516	0.	0.003414	0.134632	0.008410	0.041610
15	ELECT-UT	0.000999	0.033527	0.016259	0.006676	0.	0.000208	0.033707	0.002705	0.019409	0.026998
16	GAS-UT	0.001398	0.010429	0.008356	0.000194	0.	0.	0.	0.005627	0.043200	0.008479
17	WAT/SEW/TR	0.000599	0.000385	0.000173	0.000091	0.000034	0.000067	0.	0.001884	0.008111	0.002054
18	WHOLESALE	0.016501	0.004489	0.003408	0.003789	0.001817	0.001105	0.007618	0.000666	0.014988	0.052620
19	EAT/DRINK	0.	0.000638	0.000127	0.000033	0.	0.	0.	0.000123	0.	0.002033
20	OTHER-RET	0.025213	0.003062	0.001984	0.000516	0.000134	0.002107	0.000671	0.001545	0.009219	0.012573
21	F/I/R/E	0.010388	0.008967	0.002302	0.002100	0.	0.000836	0.087599	0.051369	0.020479	0.049396
22	HEALTH-SER	0.	0.	0.000127	0.001281	0.	0.	0.	0.	0.	0.000237
23	EDUCAT-SER	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.001519
24	LODGING	0.	0.001461	0.000020	0.000077	0.	0.	0.	0.000370	0.	0.000665
25	OTHER-SERV	0.013285	0.034874	0.001752	0.005770	0.000629	0.002769	0.012889	0.027869	0.028535	0.041068
26	LOC-GOVT	0.	0.	0.	0.	0.	0.	0.	0.000148	0.	0.
27	LOC-TAXES	0.002897	0.004162	0.005843	0.118509	0.037163	0.007715	0.	0.016622	0.002584	0.001787
28	HOUSEHOLDS	0.227042	0.250170	0.175066	0.216722	0.100571	0.046208	0.223707	0.225557	0.342225	0.380031
29	STATE-GOVT	0.014683	0.017901	0.005685	0.012135	0.000886	0.000977	0.	0.003244	0.010107	0.014275
30	FED-GOVT	0.039755	0.040385	0.037896	0.060480	0.008545	0.007175	0.001357	0.087563	0.092317	0.085327
31	TRANSFERS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
32	PROFITS	0.121499	0.090923	0.119450	0.219095	0.043742	0.067178	0.363527	0.246759	0.274295	0.134641
33	IMP-WYOM	0.144878	0.011619	0.001923	0.034884	0.006497	0.001383	0.047984	0.022023	0.014757	0.008186
34	IMP-WORLD	0.256195	0.145848	0.282293	0.263616	0.108855	0.048618	0.212291	0.087430	0.077649	0.094505

APPENDIX B-2
(continued)

		21	22	23	24	25	26	27	28	29	30
		F/I/R/E	HEALTH-SER	EDUCAT-SER	LODGING	OTHER-SERV	LOC-GOVT	LOC-TAXES	HOUSEHOLDS	STATE-GOVT	FED-GOVT
1	CROP-LVSTK	0.	0.	0.000354	0.	0.	0.	0.	0.003422	0.002042	0.
2	COAL-MIN	0.	0.	0.	0.	0.	0.	0.	0.000055	0.	0.
3	TRONA-MIN	0.	0.	0.	0.	0.	0.	0.	0.	0.013946	0.
4	O/G-EXPLOR	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	O/G-DRILL	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	O/G-SERV	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	O/G-PROD	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
8	N-G-L	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9	REFINING	0.000115	0.000711	0.000016	0.003734	0.002278	0.000315	0.	0.027967	0.	0.
10	PIPELINES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	CONSTRUCT	0.002843	0.000225	0.021375	0.	0.007321	0.072196	0.	0.003633	0.	0.012851
12	LOG/MILLS	0.	0.	0.	0.	0.	0.	0.	0.000074	0.	0.
13	OTHER-MFG	0.001375	0.002045	0.000072	0.002787	0.012565	0.002661	0.	0.023997	0.002643	0.000968
14	TRANS/COMM	0.006989	0.010341	0.017359	0.018113	0.023447	0.004836	0.005185	0.023898	0.019061	0.039996
15	ELECT-UT	0.000854	0.002881	0.046664	0.182679	0.007519	0.007051	0.	0.010754	0.000196	0.000048
16	GAS-UT	0.001194	0.005350	0.	0.049230	0.012169	0.	0.	0.010754	0.000074	0.000047
17	WAT/SEW/TR	0.000166	0.000685	0.001410	0.037743	0.002473	0.	0.005516	0.005254	0.000820	0.000314
18	WHOLESALE	0.000232	0.001738	0.002322	0.007945	0.007358	0.003813	0.	0.048728	0.003513	0.000431
19	EAT/DRINK	0.000296	0.000119	0.	0.	0.	0.	0.	0.012122	0.000031	0.
20	OTHER-RET	0.000406	0.002433	0.000061	0.012722	0.007763	0.001081	0.	0.095245	0.001628	0.
21	F/I/R/E	0.009751	0.007989	0.054555	0.136587	0.035418	0.018319	0.	0.069127	0.002921	0.
22	HEALTH-SER	0.	0.025303	0.	0.	0.	0.003962	0.111100	0.033292	0.000774	0.
23	EDUCAT-SER	0.000277	0.000315	0.000038	0.	0.000099	0.	0.453193	0.005165	0.249365	0.007513
24	LODGING	0.	0.000311	0.	0.	0.	0.	0.	0.	0.000057	0.
25	OTHER-SERV	0.022774	0.007813	0.008065	0.035000	0.040906	0.017617	0.	0.040782	0.005318	0.004033
26	LOC-GOVT	0.000003	0.	0.	0.	0.	0.000730	0.314206	0.	0.405639	0.033846
27	LOC-TAXES	0.001647	0.002210	0.	0.005573	0.013257	0.	0.	0.013045	0.	0.
28	HOUSEHOLDS	0.099533	0.350889	0.421179	0.216737	0.351906	0.177068	0.	0.003111	0.184871	0.081645
29	STATE-GOVT	0.000890	0.004138	0.053719	0.020342	0.002078	0.002111	0.	0.053653	0.017304	0.381981
30	FED-GOVT	0.039872	0.020333	0.017816	0.047373	0.035715	0.004527	0.	0.169977	0.002430	0.001068
31	TRANSFERS	0.587324	0.	0.010483	0.	0.	0.006539	0.	0.013789	0.038066	0.431640
32	PROFITS	0.091267	0.313812	0.207829	0.123924	0.230020	0.266037	0.110800	0.050669	0.022304	0.
33	IMP-WYOM	0.008245	0.010021	0.000921	0.015207	0.030416	0.001408	0.	0.066607	0.005720	0.000726
34	IMP-WORLD	0.123947	0.230339	0.135762	0.084304	0.177294	0.409729	0.	0.214879	0.021278	0.002893

APPENDIX B-2
(continued)

		31	32	33	34	35	36	37
		INVESTMENT	ROAD-CONST	COMM-CONST	HOUS-CONST	COAL-CONST	TRANSFERS	EXPORTS
1	CROP-LVSTK	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.018844
2	COAL-MIN	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.053595
3	TRONA-MIN	0.	0.067563	.132923E 37	.132923E 37	.132923E 37	0.	0.275266
4	O/G-EXPLOR	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.003225
5	O/G-DRILL	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.
6	O/G-SERV	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.027253
7	O/G-PROD	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.327984
8	N-G-L	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.019737
9	REFINING	0.	0.004644	.132923E 37	.132923E 37	.132923E 37	0.	0.
10	PIPELINES	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.007999
11	CONSTRUCT	1.000000	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.
12	LOG/MILLS	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.002575
13	OTHER-MFG	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.006733
14	TRANS/COMM	0.	0.021935	.132923E 37	.132923E 37	.132923E 37	0.	0.099272
15	ELECT-UT	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.053109
16	GAS-UT	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.
17	WAT/SEW/TR	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.
18	WHOLESALE	0.	0.018806	.132923E 37	.132923E 37	.132923E 37	0.	0.010116
19	EAT/DRINK	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.006972
20	OTHER-RET	0.	0.015891	.132923E 37	.132923E 37	.132923E 37	0.	0.
21	F/I/R/E	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.
22	HEALTH-SER	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.
23	EDUCAT-SER	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.
24	LODGING	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.010595
25	OTHER-SERV	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.004680
26	LOC-GOVT	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.
27	LOC-TAXES	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.
28	HOUSEHOLDS	0.	0.398724	.132923E 37	.132923E 37	.132923E 37	1.364096	0.
29	STATE-GOVT	0.	0.028030	.132923E 37	.132923E 37	.132923E 37	0.	0.
30	FED-GOVT	0.	0.059330	.132923E 37	.132923E 37	.132923E 37	0.	0.
31	TRANSFERS	0.	0.	.132923E 37	.132923E 37	.132923E 37	0.	0.
32	PROFITS	0.	0.090770	.132923E 37	.132923E 37	.132923E 37	-0.364096	0.
33	IMP-WYOM	0.	0.005842	.132923E 37	.132923E 37	.132923E 37	0.	0.004650
34	IMP-WORLD	0.	0.288464	.132923E 37	.132923E 37	.132923E 37	0.	0.067395

APPENDIX B-3

ROCK SPRINGS REGION, WYOMING, DIRECT AND INDIRECT REQUIREMENTS PER DOLLAR DELIVERED TO FINAL DEMAND, 1980

(Households in Processing Sector)

		1 CROP-LVSTK	2 COAL-MIN	3 TRONA-MIN	4 O/G-EXPLOR	5 O/G-DRILL	6 O/G-SERV	7 O/G-PROD	8 N-G-L	9 REFINING	10 PIPELINES
1	CROP-LVSTK	1.1633	0.0010	0.0012	0.0018	0.0015	0.0016	0.0162	0.0091	0.0128	0.0015
2	COAL-MIN	0.0344	1.1995	0.0430	0.0075	0.0072	0.0077	0.0189	0.0472	0.0211	0.1420
3	TRONA-MIN	0.0019	0.0013	1.0019	0.0022	0.0023	0.0020	0.0015	0.0031	0.0015	0.0019
4	O/G-EXPLOR	0.0005	0.0002	0.0004	1.0004	0.0003	0.0003	0.0210	0.0110	0.0165	0.0003
5	O/G-DRILL	0.0022	0.0008	0.0017	0.0017	1.0012	0.0013	0.0881	0.0463	0.0696	0.0011
6	O/G-SERV	0.0027	0.0009	0.0020	0.0021	0.0028	1.0016	0.1070	0.0561	0.0844	0.0014
7	O/G-PROD	0.0273	0.0092	0.0203	0.0209	0.0143	0.0161	1.0761	0.5647	0.8493	0.0137
8	N-G-L	0.	0.	0.	0.	0.	0.	0.	1.0000	0.	0.
9	REFINING	0.0272	0.0067	0.0070	0.0178	0.0113	0.0116	0.0047	0.0076	1.0043	0.0101
10	PIPELINES	0.0001	0.0000	0.0341	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	1.0001
11	CONSTRUCT	0.0088	0.0043	0.0089	0.0208	0.0048	0.0227	0.0161	0.0620	0.0140	0.0336
12	LOG/MILLS	0.0030	0.0009	0.0009	0.0014	0.0015	0.0013	0.0005	0.0008	0.0005	0.0010
13	OTHER-MFG	0.0119	0.0078	0.0118	0.0135	0.0145	0.0122	0.0095	0.0188	0.0091	0.0118
14	TRANS/COMM	0.0327	0.0137	0.0225	0.0206	0.0264	0.0280	0.0154	0.0200	0.0169	0.0180
15	ELECT-UT	0.0408	0.0079	0.0217	0.0080	0.0075	0.0083	0.0221	0.0558	0.0248	0.1714
16	GAS-UT	0.0046	0.0038	0.0162	0.0063	0.0051	0.0070	0.0068	0.0061	0.0056	0.0056
17	WAT/SEW/TR	0.0019	0.0018	0.0016	0.0025	0.0022	0.0024	0.0011	0.0017	0.0013	0.0024
18	WHOLESALE	0.0714	0.0213	0.0218	0.0326	0.0355	0.0289	0.0126	0.0194	0.0114	0.0230
19	EAT/DRINK	0.0026	0.0028	0.0029	0.0046	0.0043	0.0046	0.0017	0.0027	0.0015	0.0044
20	OTHER-RET	0.0928	0.0230	0.0239	0.0607	0.0384	0.0394	0.0161	0.0260	0.0146	0.0344
21	F/I/R/E	0.1690	0.0220	0.0212	0.0351	0.0453	0.0479	0.0191	0.0241	0.0198	0.0305
22	HEALTH-SER	0.0131	0.0131	0.0120	0.0139	0.0138	0.0136	0.0095	0.0109	0.0084	0.0170
23	EDUCAT-SER	0.0270	0.0230	0.0150	0.0069	0.0090	0.0076	0.0200	0.0148	0.0171	0.0233
24	LODGING	0.0001	0.0002	0.0004	0.0001	0.0025	0.0020	0.0005	0.0003	0.0004	0.0008
25	OTHER-SERV	0.0588	0.0564	0.0156	0.0873	0.0370	0.0384	0.0218	0.0395	0.0201	0.0358
26	LOC-GOVT	0.0179	0.0149	0.0094	0.0034	0.0051	0.0040	0.0134	0.0094	0.0114	0.0149
27	LOC-TAXES	0.0568	0.0472	0.0299	0.0107	0.0162	0.0126	0.0426	0.0300	0.0363	0.0473
28	HOUSEHOLDS	0.1902	0.2230	0.2365	0.3689	0.3158	0.3548	0.1294	0.2155	0.1194	0.3362

APPENDIX B-3
(continued)

		11 CONSTRUCT	12 LOG/MILLS	13 OTHER-MFG	14 TRANS/COMM	15 ELECT-UT	16 GAS-UT	17 WAT/SEW/TR	18 WHOLESALE	19 EAT/DRINK	20 OTHER-RET
1	CROP-LVSTK	0.0016	0.0023	0.0019	0.0015	0.0013	0.0134	0.0013	0.0018	0.0026	0.0026
2	COAL-MIN	0.0110	0.0464	0.0919	0.0137	0.8311	0.0167	0.0330	0.0155	0.0273	0.0345
3	TRONA-MIN	0.0091	0.0045	0.1629	0.0018	0.0015	0.0016	0.0017	0.0095	0.0066	0.0058
4	O/G-EXPLOR	0.0004	0.0006	0.0010	0.0002	0.0002	0.0171	0.0002	0.0004	0.0011	0.0006
5	O/G-DRILL	0.0019	0.0027	0.0043	0.0010	0.0009	0.0718	0.0009	0.0018	0.0048	0.0027
6	O/G-SERV	0.0022	0.0032	0.0052	0.0013	0.0011	0.0872	0.0011	0.0022	0.0058	0.0032
7	O/G-PROD	0.0226	0.0324	0.0523	0.0126	0.0113	0.8769	0.0114	0.0219	0.0584	0.0324
8	N-G-L	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9	REFINING	0.0177	0.0156	0.0093	0.0095	0.0085	0.0062	0.0086	0.0112	0.0159	0.0193
10	PIPELINES	0.0003	0.0002	0.0056	0.0001	0.0001	0.0001	0.0001	0.0003	0.0002	0.0002
11	CONSTRUCT	1.0866	0.1205	0.0139	0.0297	0.0058	0.0150	0.0086	0.0176	0.0127	0.0337
12	LOG/MILLS	0.0016	1.3010	0.0010	0.0010	0.0010	0.0006	0.0011	0.0433	0.0018	0.0036
13	OTHER-MFG	0.0509	0.0275	1.0106	0.0112	0.0095	0.0097	0.0102	0.0588	0.0408	0.0356
14	TRANS/COMM	0.0281	0.0561	0.1049	1.0523	0.0165	0.0156	0.0185	0.1627	0.0347	0.0779
15	ELECT-UT	0.0091	0.0540	0.0264	0.0157	1.0087	0.0195	0.0392	0.0139	0.0297	0.0389
16	GAS-UT	0.0072	0.0213	0.0149	0.0049	0.0045	1.0064	0.0044	0.0123	0.0505	0.0174
17	WAT/SEW/TR	0.0028	0.0037	0.0022	0.0028	0.0023	0.0014	1.0019	0.0045	0.0110	0.0056
18	WHOLESALE	0.0382	0.0352	0.0228	0.0226	0.0240	0.0148	0.0244	1.0227	0.0416	0.0843
19	EAT/DRINK	0.0041	0.0066	0.0038	0.0040	0.0035	0.0021	0.0036	0.0047	1.0056	0.0086
20	OTHER-RET	0.0601	0.0532	0.0318	0.0325	0.0289	0.0211	0.0295	0.0381	0.0541	1.0658
21	F/I/R/E	0.0421	0.0552	0.0290	0.0334	0.0274	0.0219	0.1138	0.0858	0.0618	0.1002
22	HEALTH-SER	0.0129	0.0189	0.0142	0.0274	0.0182	0.0108	0.0112	0.0178	0.0176	0.0213
23	EDUCAT-SER	0.0082	0.0141	0.0163	0.0613	0.0349	0.0208	0.0063	0.0222	0.0111	0.0158
24	LODGING	0.0001	0.0020	0.0002	0.0001	0.0002	0.0004	0.0000	0.0005	0.0001	0.0008
25	OTHER-SERV	0.0352	0.0768	0.0228	0.0255	0.0471	0.0241	0.0325	0.0535	0.0570	0.0767
26	LOC-GOVT	0.0045	0.0080	0.0102	0.0414	0.0230	0.0138	0.0032	0.0142	0.0060	0.0079
27	LOC-TAXES	0.0142	0.0255	0.0324	0.1315	0.0731	0.0439	0.0103	0.0447	0.0192	0.0251
28	HOUSEHOLDS	0.3284	0.4656	0.2968	0.3176	0.2848	0.1645	0.2908	0.3624	0.4489	0.5273

APPENDIX B-3
(continued)

		21 F/I/R/E	22 HEALTH-SER	23 EDUCAT-SER	24 LODGING	25 OTHER-SERV	26 LOC-GOVT	27 LOC-TAXES	28 HOUSEHOLDS
1	CROP-LVSTK	0.0006	0.0020	0.0028	0.0024	0.0023	0.0011	0.0019	0.0052
2	COAL-MIN	0.0034	0.0101	0.0476	0.1603	0.0163	0.0108	0.0264	0.0189
3	TRONA-MIN	0.0009	0.0025	0.0028	0.0026	0.0045	0.0022	0.0023	0.0056
4	O/G-EXPLOR	0.0001	0.0004	0.0004	0.0012	0.0006	0.0002	0.0003	0.0008
5	O/G-DRILL	0.0005	0.0018	0.0016	0.0050	0.0025	0.0009	0.0012	0.0035
6	O/G-SERV	0.0006	0.0021	0.0020	0.0061	0.0031	0.0011	0.0015	0.0043
7	O/G-PROD	0.0065	0.0216	0.0200	0.0611	0.0310	0.0106	0.0149	0.0428
8	N-G-L	0.	0.	0.	0.	0.	0.	0.	0.
9	REFINING	0.0040	0.0131	0.0153	0.0148	0.0158	0.0081	0.0110	0.0332
10	PIPELINES	0.0000	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001	0.0002
11	CONSTRUCT	0.0050	0.0053	0.0294	0.0073	0.0149	0.0813	0.0397	0.0117
12	LOG/MILLS	0.0003	0.0011	0.0014	0.0014	0.0015	0.0008	0.0010	0.0028
13	OTHER-MFG	0.0058	0.0153	0.0170	0.0159	0.0279	0.0135	0.0138	0.0344
14	TRANS/COMM	0.0139	0.0304	0.0420	0.0407	0.0487	0.0182	0.0337	0.0493
15	ELECT-UT	0.0036	0.0110	0.0564	0.1934	0.0174	0.0120	0.0308	0.0200
16	GAS-UT	0.0034	0.0117	0.0076	0.0557	0.0195	0.0040	0.0060	0.0160
17	WAT/SEW/TR	0.0010	0.0034	0.0047	0.0404	0.0055	0.0016	0.0085	0.0069
18	WHOLESALE	0.0079	0.0260	0.0325	0.0321	0.0343	0.0193	0.0240	0.0642
19	EAT/DRINK	0.0019	0.0054	0.0065	0.0047	0.0057	0.0031	0.0046	0.0143
20	OTHER-RET	0.0136	0.0447	0.0522	0.0505	0.0537	0.0275	0.0376	0.1129
21	F/I/R/E	1.0219	0.0447	0.0997	0.1764	0.0774	0.0411	0.0639	0.0953
22	HEALTH-SER	0.0052	1.0423	0.0200	0.0166	0.0192	0.0134	0.1293	0.0426
23	EDUCAT-SER	0.0038	0.0091	1.0110	0.0169	0.0160	0.0049	0.4611	0.0183
24	LODGING	0.0000	0.0004	0.0001	1.0001	0.0001	0.0000	0.0001	0.0001
25	OTHER-SERV	0.0313	0.0319	0.0397	0.0682	1.0698	0.0338	0.0325	0.0613
26	LOC-GOVT	0.0020	0.0045	0.0057	0.0102	0.0093	1.0032	0.3185	0.0084
27	LOC-TAXES	0.0062	0.0144	0.0180	0.0325	0.0296	0.0079	1.0130	0.0268
28	HOUSEHOLDS	0.1317	0.4290	0.5237	0.3737	0.4595	0.2465	0.3657	1.1528

APPENDIX B-4

ROCK SPRINGS REGION, WYOMING, DIRECT AND INDIRECT REQUIREMENTS PER DOLLAR DELIVERED TO FINAL DEMAND, 1980

(Households in Final Demand)

		1	2	3	4	5	6	7	8	9	10
		CROP-LVSTK	COAL-MIN	TRONA-MIN	O/G-EXPLOR	O/G-DRILL	O/G-SERV	O/G-PROD	N-G-L	REFINING	PIPELINES
1	CROP-LVSTK	1.1625	0.0000	0.0002	0.0001	0.0000	0.0000	0.0156	0.0081	0.0123	0.0000
2	COAL-MIN	0.0313	1.1958	0.0391	0.0015	0.0021	0.0019	0.0167	0.0437	0.0191	0.1364
3	TRONA-MIN	0.0010	0.0002	1.0008	0.0004	0.0008	0.0003	0.0009	0.0020	0.0009	0.0003
4	O/G-EXPLOR	0.0004	0.0000	0.0002	1.0001	0.0001	0.0001	0.0209	0.0108	0.0164	0.0000
5	O/G-DRILL	0.0017	0.0001	0.0009	0.0006	1.0002	0.0002	0.0877	0.0456	0.0692	0.0001
6	O/G-SERV	0.0020	0.0001	0.0011	0.0007	0.0016	1.0003	0.1065	0.0553	0.0840	0.0001
7	O/G-PROD	0.0202	0.0009	0.0115	0.0072	0.0026	0.0029	1.0713	0.5567	0.8449	0.0012
8	N-G-L	0.	0.	0.	0.	0.	0.	0.	1.0000	0.	0.
9	REFINING	0.0218	0.0003	0.0002	0.0072	0.0022	0.0014	0.0010	0.0014	1.0008	0.0004
10	PIPELINES	0.0000	0.0000	0.0341	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	1.0000
11	CONSTRUCT	0.0068	0.0021	0.0065	0.0170	0.0016	0.0191	0.0148	0.0598	0.0128	0.0302
12	LOG/MILLS	0.0026	0.0004	0.0004	0.0005	0.0008	0.0004	0.0002	0.0003	0.0002	0.0002
13	OTHER-MFG	0.0062	0.0011	0.0047	0.0025	0.0051	0.0016	0.0056	0.0123	0.0055	0.0018
14	TRANS/COMM	0.0246	0.0041	0.0123	0.0048	0.0129	0.0128	0.0098	0.0107	0.0117	0.0036
15	ELECT-UT	0.0375	0.0041	0.0176	0.0016	0.0021	0.0021	0.0199	0.0520	0.0227	0.1656
16	GAS-UT	0.0020	0.0007	0.0129	0.0012	0.0007	0.0020	0.0050	0.0031	0.0040	0.0009
17	WAT/SEW/TR	0.0008	0.0004	0.0002	0.0003	0.0003	0.0002	0.0003	0.0004	0.0006	0.0004
18	WHOLESALE	0.0608	0.0089	0.0086	0.0120	0.0179	0.0092	0.0054	0.0074	0.0048	0.0043
19	EAT/DRINK	0.0002	0.0000	0.0000	0.0001	0.0004	0.0003	0.0001	0.0001	0.0001	0.0003
20	OTHER-RET	0.0741	0.0011	0.0008	0.0246	0.0075	0.0046	0.0035	0.0049	0.0029	0.0015
21	F/I/R/E	0.1533	0.0036	0.0016	0.0046	0.0192	0.0185	0.0084	0.0062	0.0099	0.0027
22	HEALTH-SER	0.0061	0.0049	0.0033	0.0003	0.0022	0.0005	0.0047	0.0030	0.0040	0.0046
23	EDUCAT-SER	0.0239	0.0194	0.0112	0.0010	0.0040	0.0020	0.0180	0.0113	0.0152	0.0180
24	LODGING	0.0001	0.0002	0.0004	0.0000	0.0025	0.0020	0.0004	0.0002	0.0004	0.0007
25	OTHER-SERV	0.0487	0.0446	0.0030	0.0677	0.0202	0.0196	0.0149	0.0280	0.0138	0.0179
26	LOC-GOVT	0.0165	0.0132	0.0077	0.0007	0.0028	0.0014	0.0124	0.0079	0.0105	0.0124
27	LOC-TAXES	0.0524	0.0420	0.0244	0.0022	0.0088	0.0043	0.0396	0.0250	0.0335	0.0395

APPENDIX B-4
(continued)

		11 CONSTRUCT	12 LOG/MILLS	13 OTHER-MFG	14 TRANS/COMM	15 ELECT-UT	16 GAS-UT	17 WAT/SEW/TR	18 WHOLESALE	19 EAT/DRINK	20 OTHER-RET
1	CROP-LVSTK	0.0002	0.0002	0.0006	0.0000	0.0000	0.0127	0.0000	0.0001	0.0006	0.0002
2	COAL-MIN	0.0057	0.0388	0.0870	0.0085	0.8264	0.0140	0.0283	0.0096	0.0200	0.0259
3	TRONA-MIN	0.0075	0.0023	0.1615	0.0003	0.0002	0.0008	0.0003	0.0077	0.0044	0.0032
4	O/G-EXPLOR	0.0002	0.0003	0.0008	0.0000	0.0000	0.0170	0.0000	0.0002	0.0008	0.0002
5	O/G-DRILL	0.0009	0.0012	0.0034	0.0001	0.0001	0.0713	0.0001	0.0007	0.0034	0.0010
6	O/G-SERV	0.0010	0.0015	0.0041	0.0001	0.0001	0.0865	0.0001	0.0008	0.0041	0.0013
7	O/G-PROD	0.0104	0.0151	0.0413	0.0008	0.0007	0.8708	0.0006	0.0084	0.0417	0.0128
8	N-G-L	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9	REFINING	0.0082	0.0022	0.0008	0.0004	0.0003	0.0015	0.0003	0.0008	0.0030	0.0041
10	PIPELINES	0.0003	0.0001	0.0055	0.0000	0.0000	0.0000	0.0000	0.0003	0.0002	0.0001
11	CONSTRUCT	1.0832	0.1158	0.0109	0.0264	0.0029	0.0133	0.0056	0.0139	0.0081	0.0283
12	LOG/MILLS	0.0008	1.2998	0.0003	0.0002	0.0003	0.0002	0.0003	0.0425	0.0007	0.0023
13	OTHER-MFG	0.0411	0.0136	1.0017	0.0017	0.0010	0.0047	0.0016	0.0479	0.0274	0.0199
14	TRANS/COMM	0.0141	0.0361	0.0922	1.0388	0.0044	0.0085	0.0061	0.1472	0.0155	0.0554
15	ELECT-UT	0.0034	0.0459	0.0213	0.0102	1.0038	0.0167	0.0342	0.0076	0.0219	0.0297
16	GAS-UT	0.0026	0.0148	0.0108	0.0005	0.0005	1.0041	0.0004	0.0072	0.0443	0.0100
17	WAT/SEW/TR	0.0008	0.0009	0.0004	0.0009	0.0006	0.0004	1.0001	0.0023	0.0083	0.0025
18	WHOLESALE	0.0199	0.0092	0.0063	0.0049	0.0081	0.0057	0.0082	1.0025	0.0166	0.0549
19	EAT/DRINK	0.0001	0.0009	0.0001	0.0000	0.0000	0.0001	0.0000	0.0002	1.0000	0.0021
20	OTHER-RET	0.0280	0.0076	0.0027	0.0014	0.0010	0.0050	0.0010	0.0026	0.0101	1.0141
21	F/I/R/E	0.0149	0.0168	0.0045	0.0072	0.0039	0.0083	0.0898	0.0558	0.0247	0.0566
22	HEALTH-SER	0.0008	0.0018	0.0033	0.0157	0.0077	0.0047	0.0004	0.0044	0.0010	0.0018
23	EDUCAT-SER	0.0030	0.0067	0.0116	0.0563	0.0304	0.0182	0.0016	0.0165	0.0040	0.0074
24	LODGING	0.0000	0.0019	0.0001	0.0001	0.0001	0.0004	0.0000	0.0005	0.0000	0.0007
25	OTHER-SERV	0.0178	0.0520	0.0071	0.0087	0.0320	0.0153	0.0171	0.0342	0.0331	0.0486
26	LOC-GOVT	0.0021	0.0046	0.0080	0.0390	0.0209	0.0126	0.0011	0.0116	0.0027	0.0040
27	LOC-TAXES	0.0065	0.0147	0.0255	0.1241	0.0665	0.0401	0.0035	0.0363	0.0087	0.0128

APPENDIX B-4
(continued)

		21	22	23	24	25	26	27
		F/I/R/E	HEALTH-SER	EDUCAT-SER	LODGING	OTHER-SERV	LOC-GOVT	LOC-TAXES
1	CROP-LVSTK	0.0000	0.0001	0.0004	0.0007	0.0002	0.0000	0.0002
2	COAL-MIN	0.0012	0.0031	0.0391	0.1542	0.0088	0.0068	0.0204
3	TRONA-MIN	0.0003	0.0004	0.0002	0.0008	0.0023	0.0011	0.0005
4	O/G-EXPLOR	0.0000	0.0001	0.0000	0.0009	0.0003	0.0000	0.0000
5	O/G-DRILL	0.0001	0.0005	0.0000	0.0039	0.0011	0.0001	0.0001
6	O/G-SERV	0.0002	0.0006	0.0001	0.0047	0.0014	0.0001	0.0001
7	O/G-PROD	0.0016	0.0057	0.0005	0.0473	0.0139	0.0015	0.0013
8	N-G-L	0.	0.	0.	0.	0.	0.	0.
9	REFINING	0.0002	0.0008	0.0003	0.0041	0.0025	0.0010	0.0005
10	PIPELINES	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
11	CONSTRUCT	0.0037	0.0009	0.0241	0.0035	0.0103	0.0788	0.0359
12	LOG/MILLS	0.0000	0.0001	0.0001	0.0005	0.0004	0.0002	0.0002
13	OTHER-MFG	0.0019	0.0024	0.0014	0.0047	0.0142	0.0062	0.0028
14	TRANS/COMM	0.0083	0.0120	0.0196	0.0247	0.0290	0.0077	0.0180
15	ELECT-UT	0.0013	0.0036	0.0473	0.1869	0.0095	0.0077	0.0245
16	GAS-UT	0.0016	0.0057	0.0003	0.0505	0.0131	0.0005	0.0009
17	WAT/SEW/TR	0.0003	0.0008	0.0015	0.0381	0.0028	0.0001	0.0063
18	WHOLESALE	0.0006	0.0021	0.0034	0.0113	0.0087	0.0056	0.0036
19	EAT/DRINK	0.0003	0.0001	0.0000	0.0001	0.0000	0.0000	0.0000
20	OTHER-RET	0.0007	0.0027	0.0009	0.0138	0.0086	0.0033	0.0018
21	F/I/R/E	1.0110	0.0092	0.0564	0.1455	0.0394	0.0207	0.0336
22	HEALTH-SER	0.0004	1.0265	0.0007	0.0028	0.0022	0.0043	0.1158
23	EDUCAT-SER	0.0017	0.0023	1.0027	0.0109	0.0087	0.0010	0.4553
24	LODGING	0.0000	0.0003	0.0000	1.0001	0.0000	0.0000	0.0000
25	OTHER-SERV	0.0243	0.0091	0.0119	0.0483	1.0453	0.0207	0.0130
26	LOC-GOVT	0.0010	0.0014	0.0018	0.0075	0.0060	1.0014	0.3158
27	LOC-TAXES	0.0032	0.0044	0.0058	0.0238	0.0189	0.0022	1.0045

APPENDIX B-5

ROCK SPRINGS REGION, WYOMING, SALES DISTRIBUTION COEFFICIENTS, 1980

		1	2	3	4	5	6	7	8	9	10
		CROP-LVSTK	COAL-MIN	TRONA-MIN	O/G-EXPLOR	O/G-DRILL	O/G-SERV	O/G-PROD	N-G-L	REFINING	PIPELINES
1	CROP-LVSTK	0.139542	0.	0.	0.	0.	0.	0.165518	0.	0.	0.
2	COAL-MIN	0.	0.161338	0.041791	0.	0.	0.	0.	0.	0.	0.
3	TRONA-MIN	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
4	O/G-EXPLOR	0.	0.	0.	0.	0.	0.	0.696804	0.	0.	0.
5	O/G-DRILL	0.	0.	0.	0.	0.	0.	1.000000	0.	0.	0.
6	O/G-SERV	0.	0.	0.	0.	0.000667	0.	0.580647	0.	0.	0.
7	O/G-PROD	0.	0.	0.	0.	0.	0.	0.061903	0.026869	0.023473	0.
8	N-G-L	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9	REFINING	0.046354	0.001933	0.002998	0.006396	0.005722	0.006492	0.003268	0.000780	0.000032	0.000170
10	PIPELINES	0.	0.	0.544563	0.	0.	0.	0.	0.	0.	0.
11	CONSTRUCT	0.000120	0.	0.006054	0.000872	0.000053	0.006291	0.019933	0.005379	0.000052	0.002645
12	LOG/MILLS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
13	OTHER-MFG	0.000907	0.	0.040904	0.	0.004364	0.000320	0.054543	0.005118	0.000424	0.000098
14	TRANS/COMM	0.001598	0.000754	0.020442	0.	0.001990	0.004911	0.013665	0.000447	0.000303	0.000172
15	ELECT-UT	0.010358	0.003710	0.039039	0.	0.000278	0.000960	0.080918	0.010382	0.001004	0.036934
16	GAS-UT	0.	0.	0.313071	0.	0.	0.008634	0.139538	0.	0.	0.000791
17	WAT/SEW/TR	0.	0.000722	0.	0.	0.	0.000989	0.001069	0.000678	0.001170	0.000302
18	WHOLESALE	0.035937	0.024751	0.057292	0.002728	0.013913	0.014148	0.010657	0.001542	0.000130	0.001003
19	EAT/DRINK	0.	0.000128	0.000248	0.	0.001099	0.001457	0.000209	0.	0.	0.000436
20	OTHER-RET	0.046310	0.001933	0.003001	0.006402	0.005725	0.006494	0.003272	0.000792	0.000035	0.000184
21	F/I/R/E	0.088930	0.	0.	0.	0.012862	0.026947	0.007199	0.	0.000859	0.
22	HEALTH-SER	0.	0.000075	0.006882	0.	0.002028	0.	0.000338	0.	0.	0.
23	EDUCAT-SER	0.	0.001370	0.001326	0.	0.	0.	0.	0.	0.	0.
24	LODGING	0.	0.002130	0.008744	0.	0.007045	0.011505	0.000390	0.	0.	0.001118
25	OTHER-SERV	0.022868	0.122158	0.001258	0.017118	0.014088	0.028790	0.066560	0.008617	0.000446	0.005023
26	LOC-GOVT	0.	0.	0.000025	0.	0.	0.	0.	0.	0.	0.
27	LOC-TAXES	0.022133	0.093952	0.109251	0.	0.004018	0.002680	0.254039	0.000160	0.000299	0.009889
28	HOUSEHOLDS	0.004474	0.058476	0.154760	0.009375	0.024746	0.059174	0.025072	0.005906	0.000369	0.012812
29	STATE-GOVT	0.003198	0.289617	0.076307	0.002080	0.005052	0.004291	0.111643	0.000981	0.000031	0.000541
30	FED-GOVT	0.005975	0.026091	0.127225	0.005376	0.012474	0.018910	0.368037	0.002473	0.002140	0.016256
31	TRANSFERS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
32	PROFITS	0.003485	0.074197	0.170613	0.010279	0.026016	0.045100	0.320806	0.005682	0.001439	0.011290
33	IMP-WYOM	0.028202	0.081697	0.189910	0.003263	0.010738	0.016413	0.013817	0.008454	0.008317	0.002129
34	IMP-WORLD	0.017000	0.045226	0.186245	0.002381	0.015857	0.041642	0.075231	0.003942	0.000711	0.003831

APPENDIX B-5
(continued)

		11	12	13	14	15	16	17	18	19	20
		CONSTRUCT	LOG/MILLS	OTHER-MFG	TRANS/COMM	ELECT-UT	GAS-UT	WAT/SEW/TR	WHOLESALE	EAT/DRINK	OTHER-RET
1	CROP-LVSTK	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2	COAL-MIN	0.	0.	0.010844	0.	0.393751	0.	0.	0.	0.	0.
3	TRONA-MIN	0.000497	0.	0.015506	0.	0.	0.	0.	0.	0.	0.
4	O/G-EXPLOR	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	O/G-DRILL	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	O/G-SERV	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	O/G-PROD	0.	0.	0.002074	0.	0.	0.024166	0.	0.	0.	0.
8	N-G-L	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9	REFINING	0.114049	0.000393	0.001378	0.001759	0.000270	0.000608	0.000038	0.001533	0.002599	0.012573
10	PIPELINES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	CONSTRUCT	0.075115	0.002312	0.000934	0.014769	0.000050	0.000053	0.000075	0.000977	0.000344	0.005108
12	LOG/MILLS	0.	0.230427	0.	0.	0.	0.	0.	0.250000	0.	0.
13	OTHER-MFG	0.235249	0.001140	0.	0.001076	0.	0.	0.000065	0.065890	0.010325	0.021797
14	TRANS/COMM	0.006589	0.000867	0.017401	0.034175	0.000304	0.	0.000075	0.039008	0.000694	0.012148
15	ELECT-UT	0.002238	0.002151	0.005631	0.011339	0.	0.000030	0.001258	0.001331	0.002719	0.013387
16	GAS-UT	0.021561	0.004604	0.019912	0.002269	0.	0.	0.	0.019052	0.041647	0.028930
17	WAT/SEW/TR	0.035970	0.000661	0.001604	0.004138	0.000901	0.000260	0.	0.024827	0.030438	0.027277
18	WHOLESALE	0.075141	0.000585	0.002399	0.013077	0.003693	0.000326	0.000578	0.000666	0.004267	0.053023
19	EAT/DRINK	0.	0.000292	0.000313	0.000401	0.	0.	0.	0.000432	0.	0.007195
20	OTHER-RET	0.113937	0.000396	0.001386	0.001768	0.000270	0.000617	0.000050	0.001533	0.002605	0.012573
21	F/I/R/E	0.046187	0.001141	0.001582	0.007078	0.	0.000241	0.006489	0.050156	0.005693	0.048599
22	HEALTH-SER	0.	0.	0.000203	0.010083	0.	0.	0.	0.	0.	0.000546
23	EDUCAT-SER	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.001903
24	LODGING	0.	0.000664	0.000048	0.000926	0.	0.	0.	0.001289	0.	0.002335
25	OTHER-SERV	0.059242	0.004452	0.001208	0.019503	0.001252	0.000801	0.000958	0.027292	0.007956	0.040526
26	LOC-GOVT	0.	0.	0.	0.	0.	0.	0.	0.000207	0.	0.
27	LOC-TAXES	0.010247	0.000421	0.003195	0.317736	0.058666	0.001770	0.	0.012912	0.000571	0.001399
28	HOUSEHOLDS	0.126473	0.003990	0.015072	0.091503	0.025001	0.001669	0.002076	0.027592	0.011920	0.046845
29	STATE-GOVT	0.030359	0.001060	0.001817	0.019018	0.000817	0.000131	0.	0.001473	0.001307	0.006531
30	FED-GOVT	0.034737	0.001010	0.005118	0.040055	0.003332	0.000407	0.000020	0.016802	0.005044	0.016499
31	TRANSFERS	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
32	PROFITS	0.057146	0.001224	0.008683	0.078106	0.009181	0.002049	0.002849	0.025487	0.008067	0.014013
33	IMP-WYOM	0.270047	0.000620	0.000554	0.049284	0.005404	0.000167	0.001490	0.009015	0.001720	0.003376
34	IMP-WORLD	0.098831	0.001611	0.016831	0.077079	0.018740	0.001216	0.001364	0.007407	0.001873	0.008067

APPENDIX B-5
(continued)

		21	22	23	24	25	26	27	28	29	30
		F/I/R/E	HEALTH-SER	EDUCAT-SER	LODGING	OTHER-SERV	LOC-GOVT	LOC-TAXES	HOUSEHOLDS	STATE-GOVT	FED-GOVT
1	CROP-LVSTK	0.	0.	0.000380	0.	0.	0.	0.	0.037314	0.001808	0.
2	COAL-MIN	0.	0.	0.	0.	0.	0.	0.	0.000125	0.	0.
3	TRONA-MIN	0.	0.	0.	0.	0.	0.	0.	0.	0.001265	0.
4	O/G-EXPLOR	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
5	O/G-DRILL	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
6	O/G-SERV	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
7	O/G-PROD	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
8	N-G-L	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
9	REFINING	0.000400	0.001055	0.000043	0.003624	0.007871	0.000764	0.	0.773716	0.	0.
10	PIPELINES	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	CONSTRUCT	0.000639	0.000022	0.003777	0.	0.001642	0.011349	0.	0.006522	0.	0.003444
12	LOG/MILLS	0.	0.	0.	0.	0.	0.	0.	0.004615	0.	0.
13	OTHER-MFG	0.002000	0.001274	0.000083	0.001136	0.018230	0.002707	0.	0.278733	0.002494	0.001678
14	TRANS/COMM	0.002074	0.001314	0.004047	0.001505	0.006937	0.001003	0.001934	0.056603	0.003667	0.014141
15	ELECT-UT	0.000430	0.000622	0.018476	0.025783	0.003778	0.002484	0.	0.043260	0.000064	0.000029
16	GAS-UT	0.004140	0.007942	0.	0.047809	0.042074	0.	0.	0.297666	0.000165	0.000195
17	WAT/SEW/TR	0.002236	0.003960	0.014949	0.142680	0.033289	0.	0.093591	0.566056	0.007178	0.005055
18	WHOLESALE	0.000237	0.000762	0.001868	0.002279	0.007513	0.002730	0.	0.398337	0.002332	0.000526
19	EAT/DRINK	0.001065	0.000183	0.	0.	0.	0.	0.	0.348033	0.000073	0.
20	OTHER-RET	0.000413	0.001058	0.000049	0.003621	0.007867	0.000768	0.	0.772674	0.001073	0.
21	F/I/R/E	0.009751	0.003420	0.042860	0.038250	0.035313	0.012803	0.	0.551746	0.001894	0.
22	HEALTH-SER	0.	0.025303	0.	0.	0.	0.006469	0.326194	0.620706	0.001173	0.
23	EDUCAT-SER	0.000353	0.000172	0.000038	0.	0.000126	0.	0.725064	0.052472	0.205783	0.011394
24	LODGING	0.	0.000476	0.	0.	0.	0.	0.	0.	0.000131	0.
25	OTHER-SERV	0.022842	0.003355	0.006355	0.009831	0.040906	0.012350	0.	0.326476	0.003458	0.004819
26	LOC-GOVT	0.000005	0.	0.	0.	0.	0.000730	0.565062	0.	0.376273	0.057699
27	LOC-TAXES	0.001311	0.000753	0.	0.001242	0.010516	0.	0.	0.082840	0.	0.
28	HOUSEHOLDS	0.012470	0.018820	0.041456	0.007604	0.043959	0.015505	0.	0.003111	0.015016	0.012188
29	STATE-GOVT	0.000414	0.000824	0.019626	0.002649	0.000963	0.000686	0.	0.199145	0.005217	0.211645
30	FED-GOVT	0.007836	0.001711	0.002751	0.002607	0.006998	0.000622	0.	0.266629	0.000310	0.000250
31	TRANSFERS	0.470181	0.	0.006593	0.	0.	0.003659	0.	0.088104	0.019757	0.411707
32	PROFITS	0.009655	0.014212	0.017272	0.003671	0.024261	0.019670	0.014732	0.042782	0.001530	0.
33	IMP-WYOM	0.003457	0.001799	0.000303	0.001785	0.012714	0.000413	0.	0.222880	0.001555	0.000363
34	IMP-WORLD	0.010754	0.008556	0.009254	0.002048	0.015337	0.024846	0.	0.148808	0.001197	0.000299

APPENDIX B-5
(continued)

		31 INVESTMENT	32 ROAD-CONST	33 COMM-CONST	34 HOUS-CONST	35 COAL-CONST	36 TRANSFERS	37 EXPORTS
1	CROP-LVSTK	0.	0.	0.	0.	0.	0.	0.655437
2	COAL-MIN	0.	0.	0.	0.	0.	0.	0.392150
3	TRONA-MIN	0.	0.001870	0.	0.	0.	0.	0.980861
4	O/G-EXPLOR	0.	0.	0.	0.	0.	0.	0.303196
5	O/G-DRILL	0.	0.	0.	0.	0.	0.	0.
6	O/G-SERV	0.	0.	0.	0.	0.	0.	0.418687
7	O/G-PROD	0.	0.	0.	0.	0.	0.	0.861515
8	N-G-L	0.	0.	0.	0.	0.	0.	1.000000
9	REFINING	0.	0.003183	0.	0.	0.	0.	0.
10	PIPELINES	0.	0.	0.	0.	0.	0.	0.455437
11	CONSTRUCT	0.831470	0.	0.	0.	0.	0.	0.
12	LOG/MILLS	0.	0.	0.	0.	0.	0.	0.514958
13	OTHER-MFG	0.	0.	0.	0.	0.	0.	0.249444
14	TRANS/COMM	0.	0.001287	0.	0.	0.	0.	0.749945
15	ELECT-UT	0.	0.	0.	0.	0.	0.	0.681407
16	GAS-UT	0.	0.	0.	0.	0.	0.	0.
17	WAT/SEW/TR	0.	0.	0.	0.	0.	0.	0.
18	WHOLESALE	0.	0.003809	0.	0.	0.	0.	0.263750
19	EAT/DRINK	0.	0.	0.	0.	0.	0.	0.638436
20	OTHER-RET	0.	0.003194	0.	0.	0.	0.	0.
21	F/I/R/E	0.	0.	0.	0.	0.	0.	0.
22	HEALTH-SER	0.	0.	0.	0.	0.	0.	0.
23	EDUCAT-SER	0.	0.	0.	0.	0.	0.	0.
24	LODGING	0.	0.	0.	0.	0.	0.	0.963200
25	OTHER-SERV	0.	0.	0.	0.	0.	0.	0.119494
26	LOC-GOVT	0.	0.	0.	0.	0.	0.	0.
27	LOC-TAXES	0.	0.	0.	0.	0.	0.	0.
28	HOUSEHOLDS	0.	0.009879	0.	0.	0.	0.112686	0.
29	STATE-GOVT	0.	0.002578	0.	0.	0.	0.	0.
30	FED-GOVT	0.	0.002306	0.	0.	0.	0.	0.
31	TRANSFERS	0.	0.	0.	0.	0.	0.	0.
32	PROFITS	0.	0.001899	0.	0.	0.	-0.025396	0.
33	IMP-WYOM	0.	0.000484	0.	0.	0.	0.	0.049630
34	IMP-WORLD	0.	0.004949	0.	0.	0.	0.	0.148865

APPENDIX C

SURVEY FORM USED FOR THE ROCK SPRINGS REGION INTERINDUSTRY STUDY

Privacy Code No._____

EXPENDITURES AND FLOW OF FUNDS

STEP I: SHOW LOCAL EXPENDITURES AND FLOW OF FUNDS MADE ONLY IN LINCOLN, SWEETWATER, SUBLETTER, OR UINTA COUNTIES:

1. Crop Agriculture and Services, Private Timber: $_____
2. Livestock: $_____
3. Coal Mining and Services: $_____
4. Trona and Other Fertilizer Mining: $_____
5. Other Metal and Nonmetal Mining and Services: $_____
6. Oil and Gas Exploration: $_____
7. Oil and Gas Drilling: $_____
8. Oil and Gas Well and Field Services: $_____
9. Oil and Gas Production: $_____
10. Natural Gas Liquids: $_____
11. Petroleum Refining: $_____
12. Petroleum and Gas Pipelines: $_____
13. Construction: Building Contractors; Heavy Construction (dirt work, pipeline, road); Trades, e.g., electricians, carpenters, plumbers, painters, heating specialists, etc. $_____
14. Logging and Sawmills: $_____
15. Other Manufacturing: (includes newspapers & printing) $_____
16. Transportation and Communication: trucking and storage, railroad, bus, airlines, telephone, radio, TV, Post Office $_____
17. Electric Utilities: $_____
18. Gas Utilities: $_____
19. Water, Sewer, Trash Removal: $_____
20. Wholesale: purchases from all firms that principally sell to firms (as opposed to retail that sells to the general public) $_____

APPENDIX C (continued)

21. Restaurants and Drinking Places: $_____

22. Other Retail: hardware and lumber, office supplies, auto part and dealers, gas stations, grocery, variety, catalog stores, etc. $_____

23. Finance, Insurance, Real Estate: interest (no principal), insurance premiums, real estate commissions, property developers. $_____

24. Health: doctors, hospitals, clinics, retirement homes. $_____

25. Educational Services: $_____

26. Lodging: motels, hotels, trailer parks, camps. $_____

27. All Other Services: business and computer services, garages and repairs, leasing, legal, accounting, laundry, etc. $_____

28. Local Roads: $_____

29. Local Government: $_____

30. Local Taxes: $_____

STEP II: FOR THESE CATEGORIES SHOW EXPENDITURES AND FLOW OF FUNDS IN LINCOLN, SWEETWATER, SUBLETTE, AND UINTA COUNTIES AND ALL OTHER REGIONS COMBINED FOR YOUR DIVISIONAL OPERATIONS:

31. Gross Salaries and Wages: $_____

32. Wyoming State Government: taxes, fees, licenses, royalties. $_____

33. Federal Government: payroll and income taxes, fees, royalties, etc. $_____

34. Property Rents, Depreciation, Dividends, Current Earnings: $_____

STEP III: SHOW RESIDENTIAL EXPENSES AND OUTLAYS NOT YET ASSIGNED ABOVE:

35. Expenses and Outlays in the Rest of Wyoming: $_____

36. Expenses and Outlays in the Rest of U.S. and World: $_____

37. TOTAL (CATEGORIES 1 THROUGH 36): (This figure should equal sales) $_____

APPENDIX C (continued)

STEP IV:

a) Please state your major business; e.g., contractor, accountant, manufacturer, etc.

_____

b) Inventory change from end of 1979 to end of 1980: $_____

c) What was your FTE (Full Time Equivalent) employment in 1980?
Average Number of Employees: _____

d) At what level of capacity did you operate during 1980?

	% of Capacity	When
Lowest:	_____	_____
Highest:	_____	_____

e) Water Intake, per day or per month or per year? _____ Gallons.

f) Amount of Capital Outlays (that were not expensed) in 1980: $_____

g) Amounts paid as Principal on Business Indebtedness in 1980: $_____

h) Describe plans, if any, for future capital outlays (dollars? renovation? expansion? etc.) The purpose of this question is to anticipate where business activity and capacity will go.

APPENDIX D

DATA SOURCES BY SECTOR

Agricultural Production and Livestock SIC 01, 02, 07, 08

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Coal Production SIC 12
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Oil and Natural Gas Production SIC 13

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Construction SIC 144, 15, 16, 17

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All Manufacturing SIC 20, 23, 24, 25, 26, 27, 28, 29, 31, 32, 33, 34, 35, 38, 39

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Wyoming. Public Service Commission. Files.

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Wyoming. Employment Security Commission. Data from Form 202 quarterly reports. 1980.

Wyoming. Public Service Commission. Files.

Wholesale Trade; also Retail Trade — SIC 50, 51; SIC 52, 53, 54, 55, 56, 57, 58, 59

Industry Survey Data.

Wyoming. Department of Administration and Fiscal Control. Division of Research and Statistics. Sales and Use Tax Collections, by County, by Major Industries, for Fiscal Years 1970 through 1976. December 1976.

Wyoming. Department of Revenue and Taxation. Annual Report. 1980.

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Finance, Insurance, and Real Estate — SIC 60, 61, 62, 63, 64, 65, 66

Denver Research Institute. Analysis of Financing Problems in Coal and Oil Shale Boomtowns. (Prepared for Federal Energy Administration NTIS PB-259 438.) July 1976.

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Services SIC 70, 72, 73, 75, 76, 78, 79, 81, 84, 86, 88, 89

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Education SIC 82

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Water and Sanitation; also
Local and County Roads; also
Local and County Government; also
State Government; also
Federal Government

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