RURAL INLAND WATERWAYS ECONOMIC IMPACT KIT USER GUIDE

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The primary objective of the project was to develop a PC-based Kit allowing users to evaluate the economic impact of existing rural inland waterways ports and terminals. By using the Kit the importance to a community of a port and terminals can be quantified. The Kit is designed so that users can follow a step-by-step procedure focusing on the economic impact of the totality of a port or terminal operation and linkage to the community's industrial structures and transportation systems. Two documents accompany the Rural Inland Waterways Economic Impact Kit. A User Guide has been prepared to guide the user through the operation of the Kit. By following the step-by-step procedures in the Guide, the user is led through an economic impact analysis of the various activities at a port or terminal. An Analysis Manual has also been prepared to assist the user. The Analysis Manual focuses on the details and processes that will be necessary when using the Kit to perform an economic impact analysis of a port or terminal. Included in the discussion are data collection requirements, methodology issues, and the interpretation of the findings.

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Two documents accompany the Rural Inland Waterways Kit. A User Guide has been prepared to guide the user through the operation of the Kit. By following the step-by-step procedures in the Guide, the user is led through an economic impact analysis of the various activities at a port or terminal. An Analysis Manual has also been prepared to assist the user. The Analysis Manual focuses on the details and processes that will be necessary when using the Kit to perform an economic impact analysis of a port or terminal. Included in the discussion are data collection requirements, methodology issues, and the interpretation of the findings.

Several people and institutions provided valuable support to this project. David Rasmussen preformed the computer programming tasks and the industrial classification details. Xiaogin Zeng a graduate student assistant, worked on data collection. Appreciation is expressed to the Planning and Research Division of the Arkansas Highway and Transportation Department for initiating and supporting for the project. Last but certainly not least, I am grateful to the Mack-Blackwell National Rural Transportation Study Center at the University of Arkansas for their financial support.

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USER'S GUIDE

INTRODUCTION

The User's Guide is a systematic procedural guide. The guide leads a user through the steps that are necessary to have the Port Kit estimate the economic impacts associated with cargo flow activities, port users activities, and capital expenditure activities. In this guide, each screen of the Port Kit is displayed, discussed, and the procedures to activate the implicit subroutine of the Port Kit are explained. The end results of following the guide's procedures are the summary and itemized reports of the economic impacts.

The user's guide is divided into nine sections. The topics included in these sections are

- Getting Started
- Data Requirements, Model Selection, and Regionalization Screens
- Main Menu Screen
- Regional Data Input Screens
- Cargo Flows Screens
- Port Users Screens
- Capital Expenditure Screens
- Multipliers Display Screens
- Printing and Saving: File Commands

Throughout the guide, Pulaski County, Arkansas is used for illustration purposes.

The software is designed to run on a PC with a Windows® operating system. The Port Kit runs within Windows, as a window application. The Port Kit was developed using Visual Basic programming language and operates as a stand-alone program; that is, you do not need to have Visual Basic to run the program.

1. GETTING STARTED

1.1. Setup Program

To install the Rural River Inland Waterways Kit, run the setup program found in the deploy directory on the CD-ROM. The setup program creates a folder in the program files directory called RPPEI Kit and installs all the necessary programs to run the Kit.

Start the installation by placing the CD-ROM in the drive and choosing "RUN" from the program manager pull-down menu. Type the drive letter, colon, and setup to run the setup program, i.e. E:SETUP if "E" is the drive containing the CD-ROM. Alternatively, choose the browse option, and double click on SETUP.EXE after the appropriate drive is chosen.

1.2 Starting the Kit: The RRPEI.exe Application File

The installation program creates a subdirectory called RRPEI Kit and installs the Port Kit's program files in that directory. Within the directory, there is an executable program and icon called RRPEI. Clicking on this icon activates the Port Kit. Alternatively, after running the setup program, the Kit can run with the programs found on the CD in a folder called Deploy. Open the Deploy folder to find a copy of the RRPEI executable program. Clicking on this program activates the Port Kit.

2. DATA REQUIREMENTS, MODEL SELECTION, AND REGIONALIZATION

This section of the manual describes the steps necessary to construct a new model and open a previously constructed model. Before beginning an economic impact analysis, there are a number of preparatory steps. These steps include defining the study area, choosing a level of industrial aggregation, and entering the appropriate study area data.

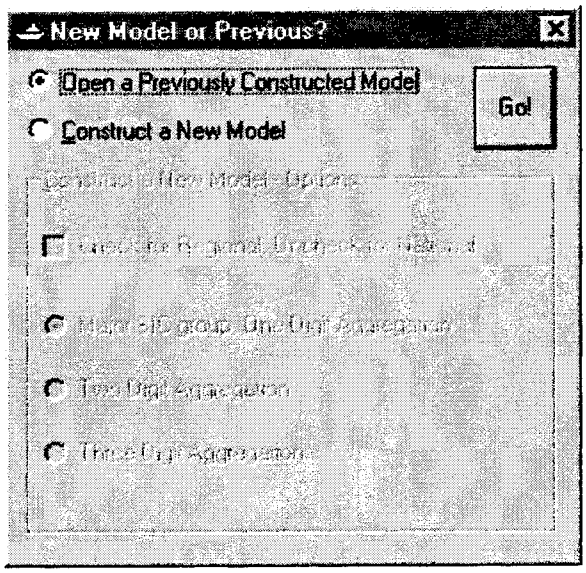

Figure 2.1.1

2.1 New Model or Previous Screen

After starting the Port Kit program, a New Model or Previous screen (Figure 2.1.1) appears. This screen enables the user to select a previously constructed model or start the procedure to construct a new model. Figure 2.1.1 shows the Open a Previously Constructed Model selection, which is discussed in section 2.3.

2.2 Constructing a New Model

By clicking on the Construct a New Model selection button, the option box shown in Figure 2.2.1 is activated. Selections in this option box activate subroutines to define the study area and create the areas input-output model. The two selections in the "Construct a New Model-Options" box are

1. The choice to regionalize the national model to match the study area or use the national model.
2. The choice of a level of industrial aggregation to use throughout the study.

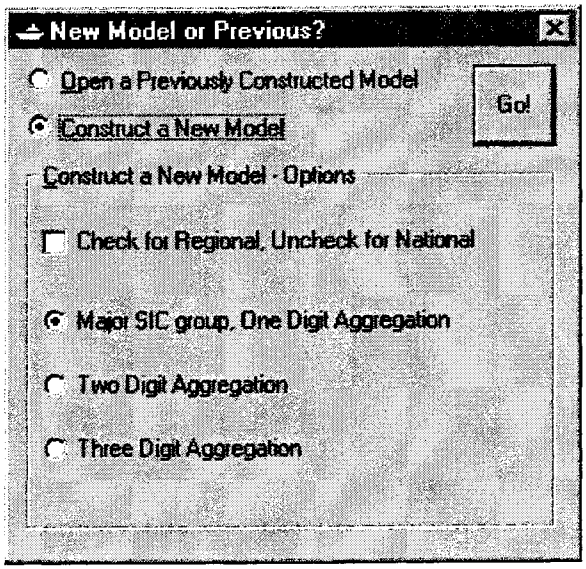

Figure 2.2.1

2.2.1 Regional Model or National Model

When users check the "Check for Regional, Uncheck for National" option box, they are in fact selecting a subroutine that regionalizes a national Input-Output (I-O) model to reflect the economy of their study area. If the box is left unchecked, the Kit defaults to a national I-O

model.[1] Choosing to regionalize the model activates a data entry subroutine. In this data entering subroutine, the user enters employment and earnings data based upon their selected level of industrial aggregation.

2.2.2 Level of Industrial Aggregation

Users must choose a level of industry aggregation by clicking the appropriate selection button. The levels of industrial aggregation correspond to the 1987 Standard Industrial Classification (SIC) codes 1-digit, 2-digit, and 3-digit industries.[2] A list of these SIC-industry groups can be found in Appendix I. Careful consideration must be given to the choice of the level of aggregation. There is a trade-off between the availability of the data and the precision in the estimates of the economic impacts. Generally, 1-digit industry data have greater availability, and the Kit requires less data than the 2-digit level of aggregation. Likewise, the 2-digit industry group has greater availability than the 3-digit industry group, and the Kit requires less data entry for a 2-digit industry group than a 3-digit industry group. The disadvantage of using aggregate data is the loss of many of the unique characteristics of a study area's economic structure and interindustrial relationships. Because of this suppression, the economic impacts derived for aggregated models are less precise than those derived from more detailed industry information. Consequently, users must choose between the availability and detail of data and the precision in the estimation of the impacts.

2.2.3 Saving a New Model

Once the regionalization and aggregation choices are made, clicking on the "Go" button takes the user to a dialog box shown in Figure 2.2.3.1. In the "Dialog" box, users name their

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[1] Lawson, Ann. Benchmark Input-Output Accounts for the U.S. Economy, 1992. *Survey of Current Business*, U.S. Department of Commerce, Volume 77, November 1977, and Volume 77, December 1997.

[2] Standard Industrial Classification Manual 1987, Executive Office of the President, Office of Management and Budget.

model and save it to the location of their choice. The file should be saved as an Access database and have an mdb-extension. Once saved the user advances to the Choose a Year screen.

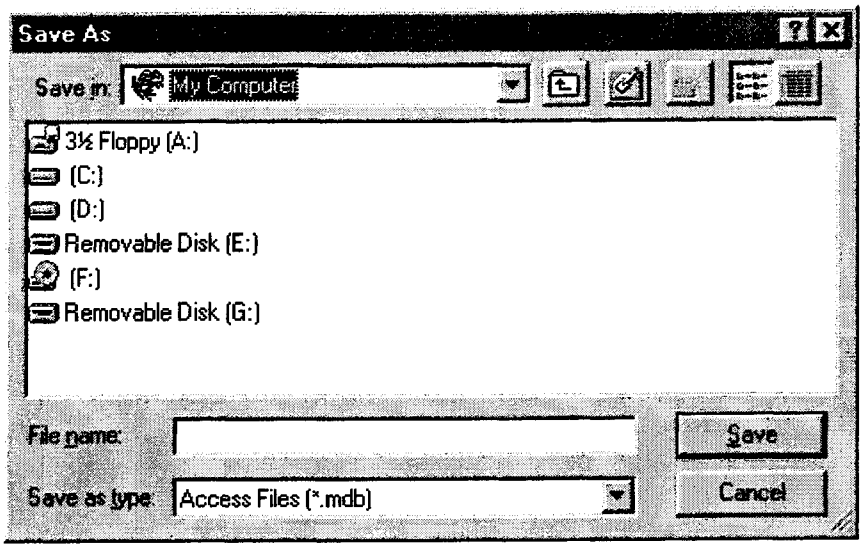

Figure 2.2.3.1

2.2.4 Choose a Year

In the Choose a Year screen (Figure 2.2.4.1), users select a year corresponding to the year of their study. This selection invokes a subroutine to adjust nominal dollar values into 1992 constant dollar values. The Kit contains a database of price indexes constructed from several published price indexes.[3] The database contains price indexes for the 1987-1997 period. When a year is selected, a subroutine uses the year's price indexes to adjust the nominal values into 1992 constant dollar amounts. After choosing a year and clicking on the "Next" button, the model proceeds to a Choose a State screen.

[3] Producer Price Indexes. U.S. Department of Labor, Bureau of Labor Statistics, various years. Agricultural Statistics, 1998. U.S. Department of Agriculture.

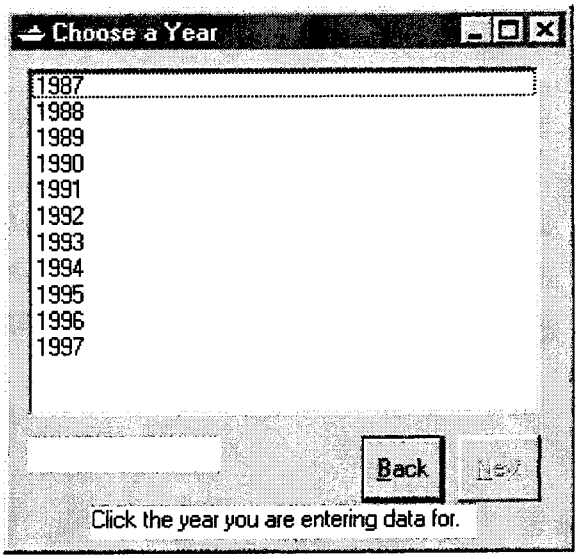

Figure 2.2.4.1

2.2.4.1 Missing Year: If users choose to use a year not included in the price index database, then the users must adjust their nominal dollar values into 1992 constant dollar equivalents outside the Kit. Given this conversion, the appropriate year for the study is 1992, and 1992 should be selected as the study year. Alternatively, users can adjust nominal values to one of the years in the Choose a Year screen and then select that year as their study year. The Kit would then convert the dollar values to the 1992 base year.

2.2.4.2 Multiple Year Study: For a multiple year study, the user must do each year separately.

2.2.5 National Default Model and Other National Models

To use a default national model, make sure the "Check for Regional, Uncheck for National" option box is unchecked, choose a level of industry aggregation, and then select 1992 as the study year. The Kit defaults to a 1992 national I-O mode that requires no data entry. To select a national model for another period, select a year, and be prepared to enter the appropriate national data in a Regional Data Input screen. This screen is discussed in the main menu section of the guide.

2.2.6 Choose a State

In the Choose a State screen (Figure 2.2.6.1), users choose the state that corresponds to their study area. Selecting a state invokes a subroutine to retrieve the appropriate state tax rate. The

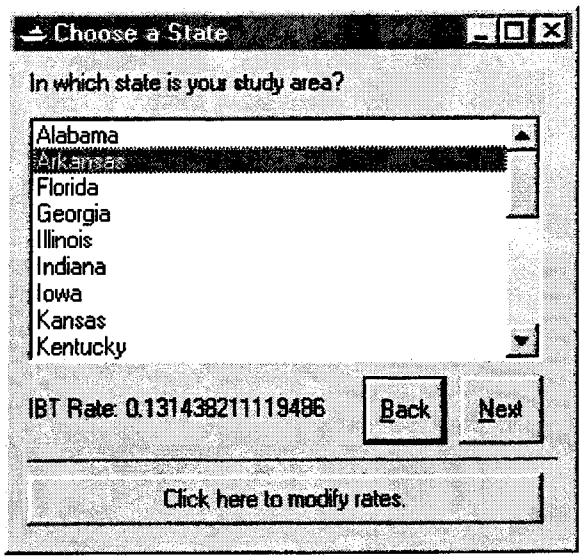

Figure 2.2.6.1

state's indirect business tax rate (IBT) appears on the screen after the user's selection. In Figure 2.2.6.1, Arkansas is the selected state, and it has a 13.14% indirect business tax rate. The Kit's IBT rate is a state's ratio of indirect business taxes to employee compensation for 1992. This ratio enables the estimation of indirect business tax revenues.[4] Appendix II lists the states contained in the IBT database and the corresponding IBT rates. Clicking the "Next" button takes a user to the Regional Data Input screen where the user is prompted to enter the appropriate data. The Regional Input screen is discussed in the main menu section of this manual. At the completion of the data entry process, the Kit advances to the Main Menu screen.

[4] Comprehensive Revision of Gross State Product by Industry, 1977-94. Survey of Current Business, U.S. Department of Commerce, Bureau of Economic Analysis, Vol. 77, Number 6, June 1997.

2.2.6.1 Modifying Indirect Business Tax Rates: Click on the "Click here to modify rates" button in the Choose a State screen to advance to the State Level: Compensation and Tax screen.

2.2.6.2 State Level Compensation and Tax Screen: This screen shown in Figure 2.2.6.2. gives the user several ways of changing the IBT rate:

1. **Changing the IBT Rate Directly**: By entering amounts for employee compensation and indirect business tax, the Kit will compute an indirect business tax rate and use that rate in estimating the economic impacts on indirect business taxes.
2. **List**: For the inland waterway states, the Kit has a database of indirect business tax rates for 1992. By clicking on the "List" button, users can view these states in the Select a Record screen shown in Figure 2.2.6.3. By clicking on a state and the "OK" button, the record is loaded into the State Level Compensation screen.

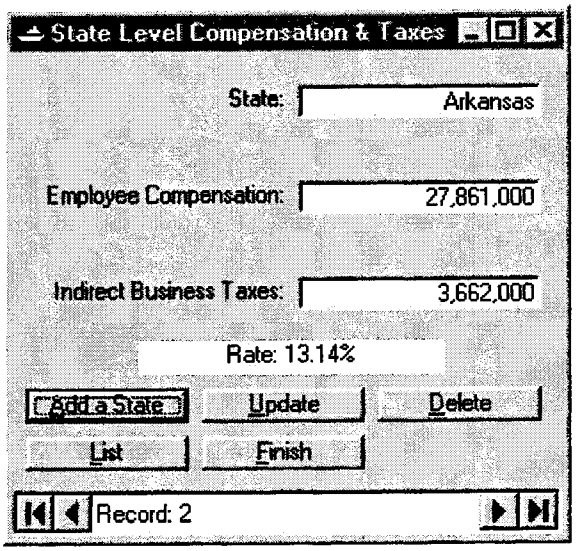

Figure 2.2.6.2

3. **Adding A State**: To add a new state or study area, the indirect tax rate database clicks on the "Add a State" Button. Users enter a name for a study area, amounts for employee compensation, and indirect business taxes. The Kit computes

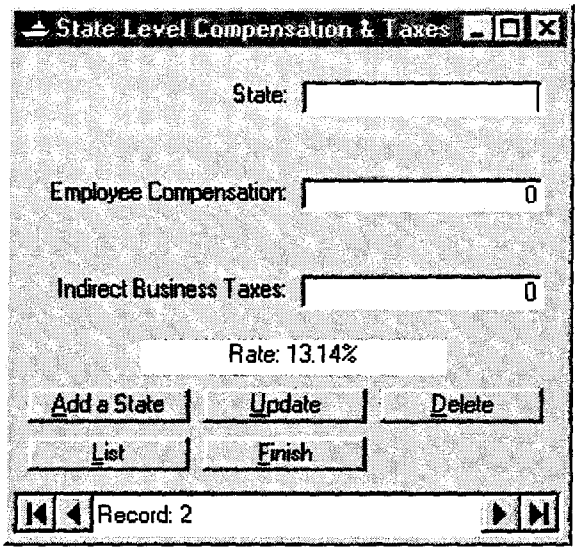

Figure 2.2.6.3

the indirect business tax rate and adds the study area to the database.

3. **Deleting**: A record can be deleted from the indirect business direct tax database by selecting the study area in the State Level Compensation and Taxes screen and then clicking on the "Delete" button. Deletion removes a record from the database permanently and should be done with caution.
4. **Update**: Before ending the IBT modification subroutine, users need to update the database by clicking on the "Update" button. By updating the database, users are creating a new record in the database for the newly added state or region. To verify this addition, the user can view the list of states and regions in the database by clicking on the "List" button.

5. **Finish**: Clicking on the "Finish" button returns the user to the State Level Compensation and Taxes screen.

2.2.6.3 Multiple State Study: No direct provisions have been made in the Kit for multiple state study areas. The IBT rate is the only rate in the model that is state specific, and since the user can change the IBT rate, multiple state studies are possible. Users can follow the steps required to add a state IBT rate, but in this case, they can enter a multiple state IBT rate. The IBT rate for a multiple state region could be a weighted average of state IBT rates that are included in the multiples state region.

2.3 Open a Previously Constructed Model

To retrieve a previously constructed model, click on the "Open Previously Constructed Model" selection as shown in Figure 2.2.1. Clicking on the "Go" button causes a dialog box to appear as in Figure 2.3.1. Click the name of a model and then the "Open" button, to retrieve and open an existing model. These steps are demonstrated in Figure 2.3.1 where a Pulaski County model is opened. Once a model is opened, the user sees a screen (Figure 2.3.2) describing the characteristics of the model. Pulaski County is a regional model, at a 1-didit level of industrial aggregation and is based on 1997 data. Click the "OK" button to advance to the Main Menu screen.

2.4 The Kit's Database File

Figure 2.3.1 also shows a file entitled backup.mdb. This is a very important file because it contains the various databases used by the Kit. Without this file the Kit will not run. If this file is not present in the current directory, the user is prompted to locate the file. In the event the file cannot be found, there is a copy on the CD-ROM in the MAKEEXE subdirectory. Appendix 3 gives a list of the databases found in this file.

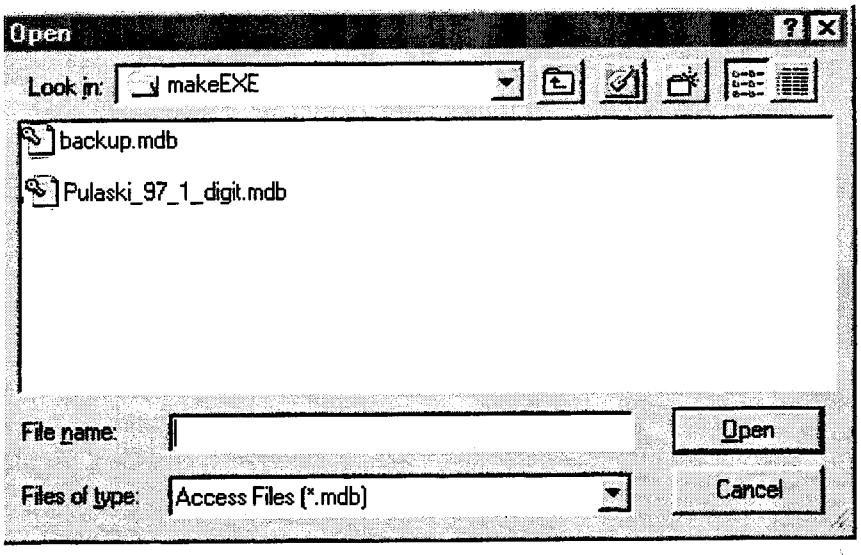

Figure 2.3.1

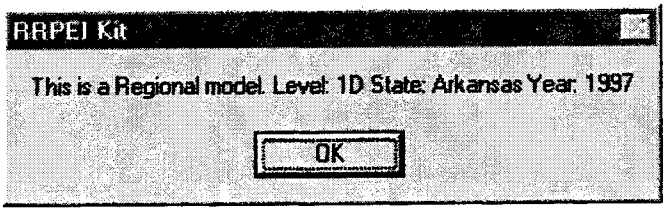

Figure 2.3.2

2.5 Editing a Previously Constructed Model

To edit an existing model, select the model and go to the Main Menu screen as shown in Figure 3.1. Click on the "Regional Data Input" button and then the "OK" button brings up the Regional Data Input screen. This screen is the gateway for editing previously entered values.

1. **Modifying Industry, Employment, and Income Data:** The database of regional and national data can now be edited directly in the Regional Input Screen. To add a previously excluded industry to the study area, change the "false" to a "true" in the present column, and then enter the appropriate industry data. If "true" is changed to "false," the industry is excluded from the analysis.

2. **Modifying the Indirect Business Tax Rate in a State**: Click on the "Back" button and return to the Choose a State screen. (For a national model, this option is not available.) Click on the "click here to modify Rates" button and then modify the indirect business tax rate as was discussed in that section of the manual. To return to the Main Menu screen, click on the "Next" button to return to the Regional Data Input screen, and then click the "Next" button again to return to the Main Menu screen.

3. **Modifying the Study Year**: Click on the "Back" button to return to the Choose a Year screen, and then select a new year. To return to the main menu, click on the series of "Next" buttons as advancing through the screens until the Main Menu screen is reached.

For more detail on these modifications, see the corresponding section in this guide.

3. Main Menu Screen

The Main Menu screen shown in Figure 3.1 has several options leading to different submenus and analysis subroutines. These options include

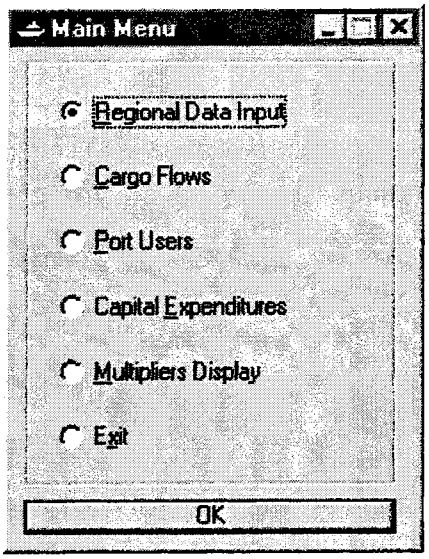

Figure 3.1

1. Editing and modifying a study area: By clicking on the "Regional Employment Input" button, users can edit and modify their study area's database.
2. Economic impact analysis: The economic impact analysis of cargo flows, port users, and capital expenditures can be shown by clicking on the appropriate button.
3. Multiplier's Display: A display of a study area's economic multipliers can be shown by clicking on the "Multipliers Display" button.

4. Regional Data Input Screen

By checking the "Regional Data Input" option as shown in Figure 3.1 and clicking the "OK" button, the user will advance to a Regional Data Input screen like in Figure 4.1. The Regional Data Input screen is where the study area's data and national data are entered into the model. In addition, specific industries can be selected for inclusion in or exclusion from the analysis.

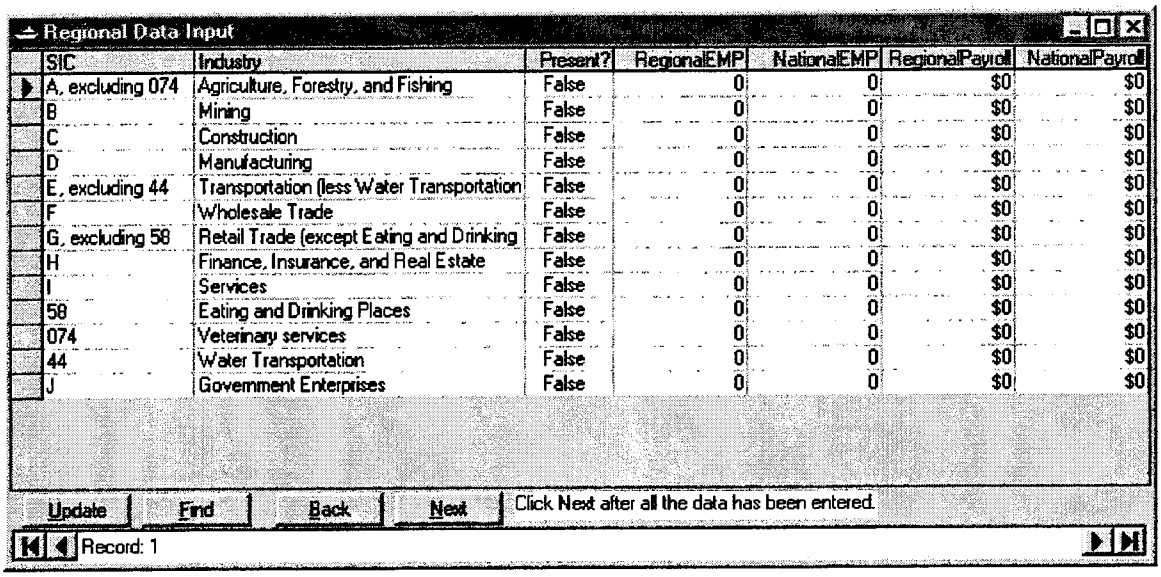

Figure 4.1

4.1 Exclusion/Inclusion of an Industry

The SIC code and Industry displayed in the first two fields (columns) and the industry records (rows) are the consequence of the earlier users choice of the level of industrial aggregation. Often a study area's economy will not have an industry listed in the industry list, or the user will lack the information for a particular industry. In any case, the user may wish to exclude the industry from the study. The user has this option in the field labeled "Present?" Clicking on the industry's record in the "Present?" field, causes a selection button to appear. By

clicking on this "Selection" button, the users can indicate whether they want to include an industry (True) or exclude the industry (False) from the analysis. The default value is to exclude the industry, which means the user need not enter data for that industry. To include an industry in the study, the user must change the "False" value to a "True" value and then proceed to enter the appropriate data for the industry.

4.2 Data Requirements and Enter

The impact analysis requires users to enter two types of data when they opt to regionalize. Employment data by industry are needed to regionalize the industrial sectors of the model. Earnings by industry are necessary to regionalize the personal consumption expenditures.

The Kit's data requirements have been designed to match the data available in annual Census Bureau County Business Patterns (CBP) publication.[5] The CBP reports national, state, and county level data on the number of establishments, number of employees, payrolls, and the number of establishments by employee-size class by SIC industry. Users are not restricted to CBP and may use alternative data input databases if they wish. Another database that fits nicely into the format of the Kit is the Regional Economic Information System.[6] Users are restricted to the industrial aggregation schemes of the Kit.

4.2.1 Regional Employment: When the users select an industry for inclusion in the analysis, they are required to enter employment data for that industry in the study area. Because of the regionalization computation, the study area's employment and the national employment counterpart must be entered. Employment data for a multistate or multicounty study area must be aggregated by industry and then entered. If users opt not to use CBP and instead use another employment database, the study areas and national employment estimates should be consistent.

4.2.2 **Regional Payroll**: Users are required to enter payroll data for the industries in their study area and at the national level. Again, both study area and national data are required because of the regionalization of personal consumption expenditures. As with employment, multistate or a multicounty study area income must be aggregated by industry and then entered. If users opt not to use CBP and instead use another income database, there must be consistency between the study areas and national industries.

4.2.3 **Example**: Figure 4.2.3.1 shows a completed Regional Data Input screen for Pulaski county in Arkansas for the 1-digit aggregation level in 1997. All 1-digit industries have been included except government enterprises. If a user wants to include this in the study but has no data, then the default values of the Kit may be used. The Kit's default values are explained in the next section.

4.3 Default Values

The Kit defaults to national values. If a user checks the "Check for regional, Uncheck for National" option and opts not to enter an industry's employment or income levels, the Kit will not regionalize that industry and instead will use a national value. There are several possible ways to use the Kit's default values.

1. **1992 Default Values:** When a study area is a region and an industry is selected to be included in the study, but neither employment or payroll datum is entered at the national level, the Kit defaults to the 1992 national value for that industry.

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[5] County Business Patterns (CBP), U.S. Department of Commerce, Bureau of the Census.
[6] Regional Economic Information System (REIS), Bureau of Economic Analysis, U.S. Department of Commerce,

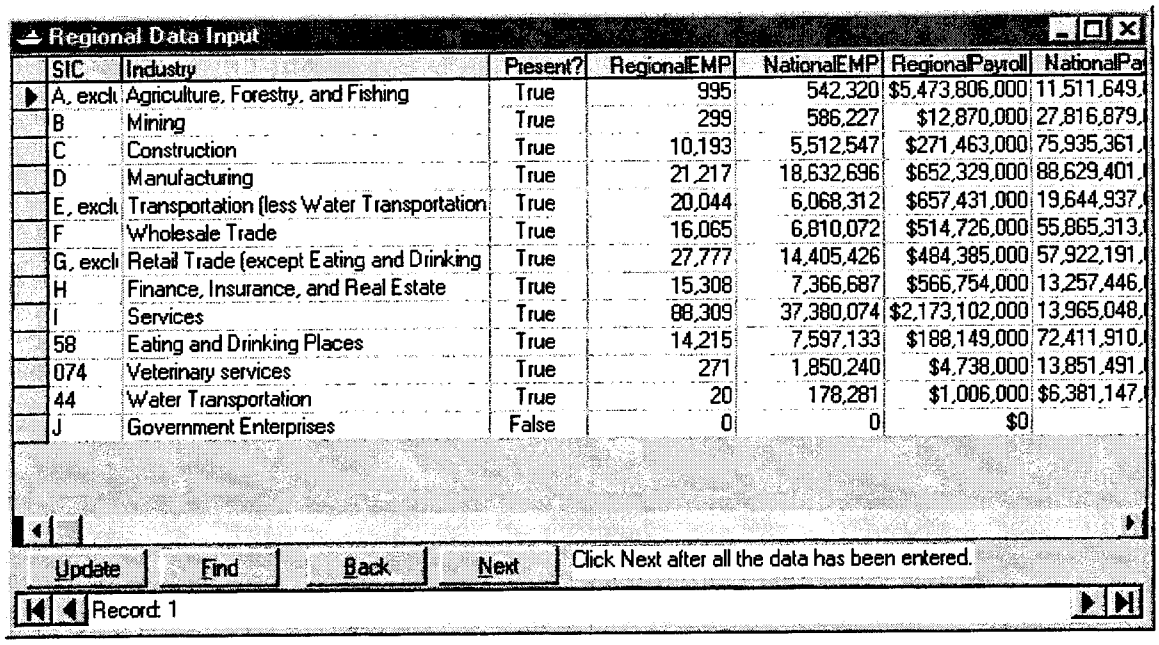

Figure 4.2.3.1

2. **Default values for a selected year and industry:** If the user has national employment and payroll data for selected industries and the year of the study, this data can be entered, and the Kit will use the national values as default values for calculations.

4.4 Find, Update, and Next Buttons

The regional input screen contains the following items to assist with the data enter subroutine.

4.4.1: Find Button: Clicking on the "Find" button allows the user to search the industry list for a particular industry.

4.4.2: Update Button: Clicking on the "Update" button saves any changes to the employment and payroll database. Clicking on this button results in overwriting existing data in the database.

4.4.3: Next Button: Clicking on the "Next" button has the same effect on the database as clicking on the "Update" button, plus it advances the Kit to the Regional Purchase Coefficient screen.

4.5 Regional Purchase Coefficients

A regional purchase coefficient is an estimate of the amount of an industry output that is purchased within the study area. For a dollar of demand for an industry's output, the RPC is the value of the industry output supplied by regional firms within the industry. After the employment and income data are entered in the Regional Data Input screen, clicking on the "Update" and "Next" buttons invokes a subroutine that computes the RPC by industry including the households. The results of the calculations are displayed in the Regional Purchase Coefficient screen.

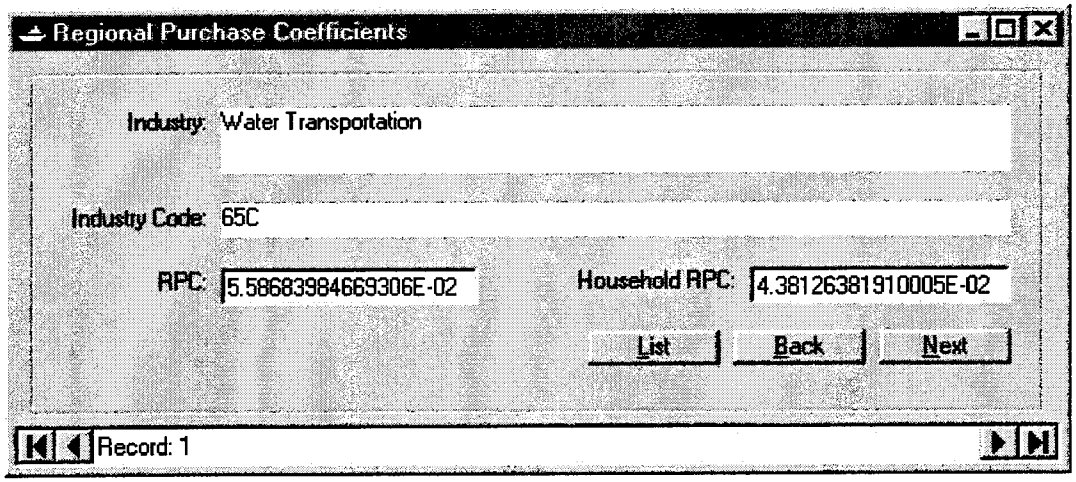

Figure 4.5.1

The Kit uses national and study area employment and earnings data to compute RPC for the household sector and industry sectors. The computations of RPCs are discussed in Appendix I of the *Analysis Manual.* The Kit enables users to modify the estimates of the RPCs. Click on the "next" button to advance to a Production Function screen.

4.6 Production Function

A production function is the description of the technical requirements and relationships between the inputs required to produce a product or output. When a production function is expressed in terms of its technical coefficients, it measures the dollar amounts of various industry inputs needed to produce a dollar of a given industries output. Technical coefficients are computed by the Kit for each industry and can be viewed in the Production Functions screen (Figure 4.6.1).

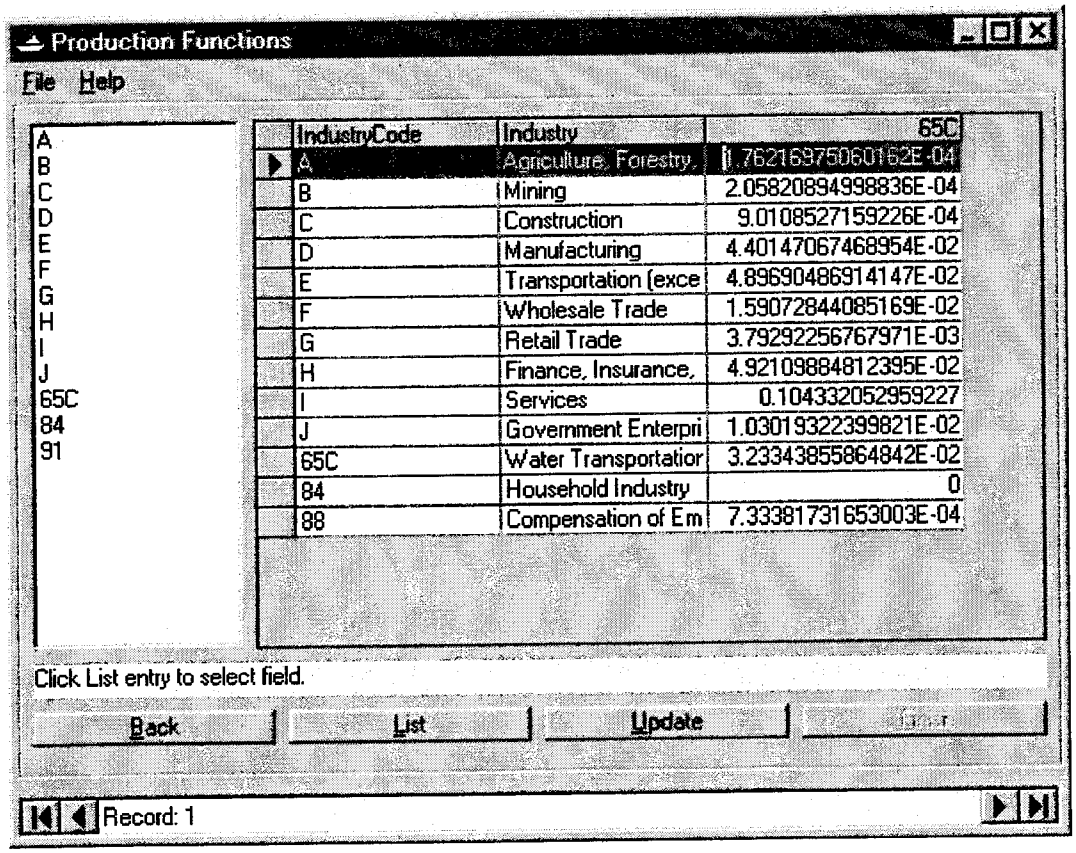

Figure 4.6.1

Each industry has a production function that can be accessed by selecting a particular industry from the list on the left. A selected industry's technical coefficients are shown in the

right-hand column. The numeric values are the amounts of interindustry purchases required to produce a dollar of the selected industry output.

5. Cargo Flows

Cargo flows in and about a port or terminal can be very complex. Cargoes may be moved many times within a port as they are transferred from terminals to warehouses and other storage facilities, between port users and to locations inside and outside the study area. The Kit breaks the analysis of cargo flows into internal flows or on site flows and external cargo flows or inland flows (offsite flows). To analyze the economic impact of cargo flows, the user chooses the Cargo Flows option in the Main Mmenu screen as shown in Figure 5.1. After the user clicks on the "OK" button, the Kit will advance to the Cargo Input screen.

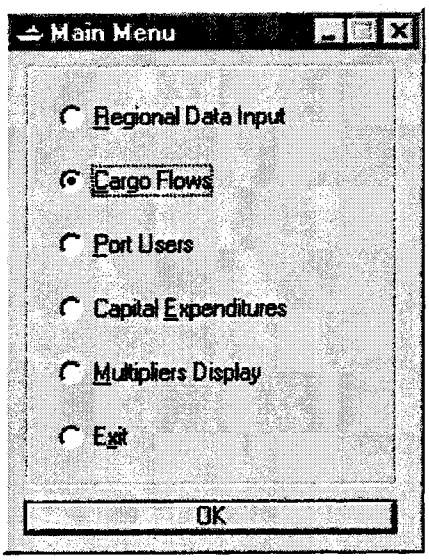

Figure 5.1

5.1 Cargo Input Screen

To begin an impact analysis of cargo flows, users must identify the type of cargo, the amount handled, the direct impact per unit of cargo type, and mode of transportation. The Kit computes the direct impact of cargo type by converting the cargo units into cargo revenue earned by shipping and handling the cargo, or equivalently, the dollar cost of handling and

shipping the cargo. The Kit is designed to analyze cargo types one at a time, cumulate the economic impact findings, and give a summary report.

A Cargo Input screen is shown in Figure 5.1.1. This screen is divided into three parts. At the bottom of the screen are data control indicating the record number which corresponds to a cargo type. The upper section of the screen is the data entry section where the information about the cargo types is entered and records manipulated. Each cargo type is given a record number that is displayed in the data control section of the screen. The middle section of the Cargo Input screen contains option boxes to indicate whether a particular cargo is transported inland or transported internally within the port.

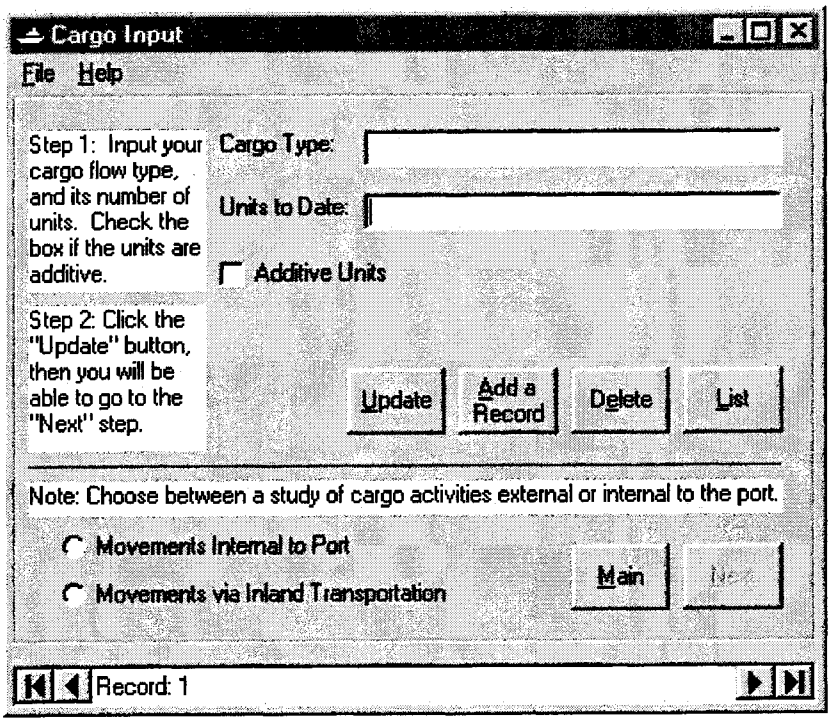

Figure 5.1.1

5.1.1. Cargo Type: Users must name a cargo type. This will create a record for the particular cargo in the cargo database. The cargo type record numbers are displayed in the

data control box. Clicking on the arrows in the data control box cycles through the cargo types records.

5.1.2 Units to Date: For the time period under consideration and particular cargo type, users must enter the amount of the cargo that has been handled and shipped. For example, the cargo type to be analyzed could be the annual amount of aggregates shipped though the Port. The Kit is indifferent to the weight of the units, so tonnage can be in long tons, short tons, or metric tons, etc. Instead of tons, an alternative approach is to count units such as railcars, containers, truckloads, or barges moved by the port industries. The Kit is capable of carrying out the analysis in terms of the number of containers moved, or railcars moved for example.

5.1.3 Update: Once the cargo type and units to date are entered, click on the "Update" button to create and save a record for the cargo. An example is shown in Figure 5.1.2. In this example, the first record refers to 15 jumbo hopper railcars.

5.1.4 Add a Record: Clicking on the "Add a Record" button enables the user to enter a new cargo type and add a new cargo to the analysis as shown in Figure 5.1.3. In this case, a second record has been created for dry bulk cargoes.

5.1.5 Additive Units: The purpose of the "Additive Check" box is to sum the cargo types when they are measured in similar units. Checking this box causes the amounts in the "Units to Date" box to be summed across the cargo type records, and the total displayed in a Total Units display as shown in Figure 5.1.3. This example shows that there are two records, with the second record being 2,500 tons of dry bulk cargo. The combined tonnage to the two cargo types is 3,500 tons implying that the first record or cargo type must be 1,000 tons.

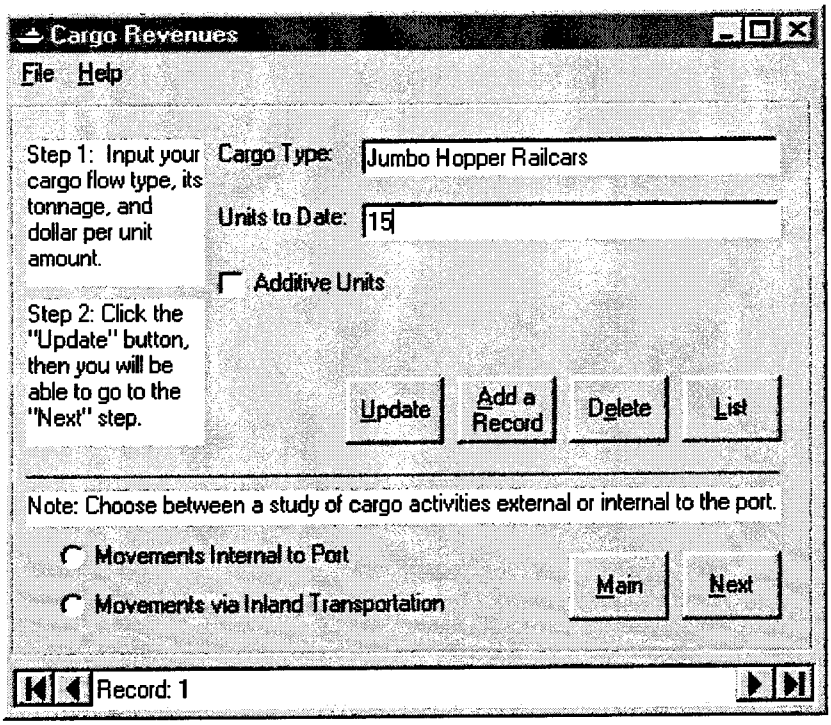

Figure 5.1.2

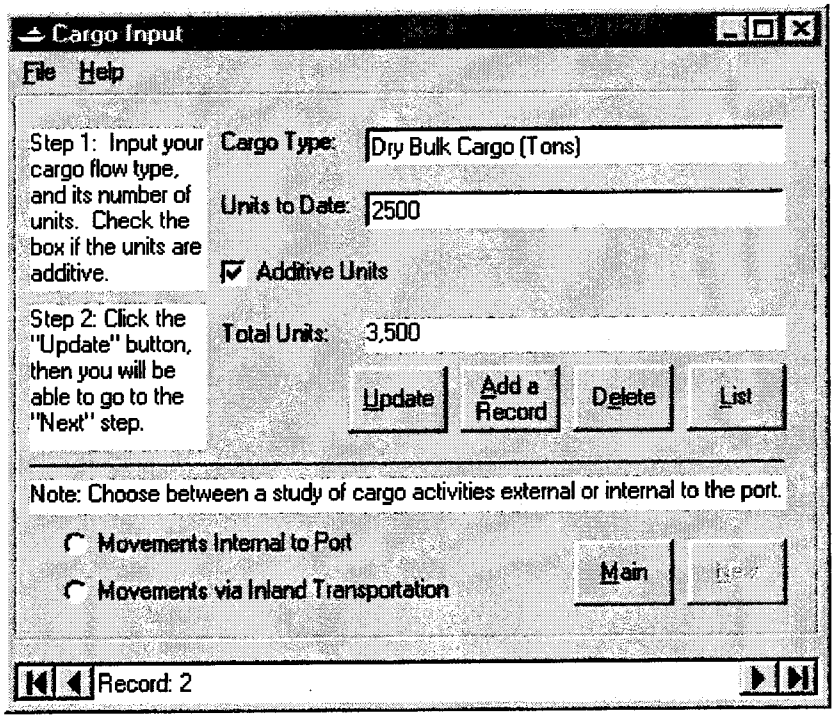

Figure 5.1.3

5.1.6 List: To list the cargo in the cargo database, click on the "List" button. The cargo in this list has been entered by the user and is incorporated into the impact analysis.

5.1.7 Delete: To delete a cargo from the cargo database and from impact analysis, select the record (cargo type) to be deleted from the cargo list and click on the delete button. This removes the cargo record from the database.

5.2 Impact of Cargo Flows

Once the cargo type information is entered and updated, the user is ready to begin an impact analysis. The Kit separates cargo flows into movements internal to the port and movements via inland transportation. The appropriate cargo flows transportation scenario is selected by checking an option box, and then clicking the "Next" button to access the cargo flow's impact analysis subroutines.

5.2.1 Cargo Flow Movements Internal to Port

A screen to analyze cargo movement internal to a port is shown in Figure 5.2.1.1. For transporting cargo internal to port, users enter the percentage breakdown by transportation mode. That is the percentage of each cargo type moved by rail, truck, or barge. When the Kit allocates the cargo units to the different transportation modes, it uses these percentages. For each mode, the revenue earned per unit of cargo moved or the cost of moving a unit of cargo must be entered in the appropriate box in the "Dollar per Unit by mode" column. The Kit uses the percent by transportation mode, the dollars per unit by mode, and the number of units moved to estimate the direct impact of the cargo flows by mode.

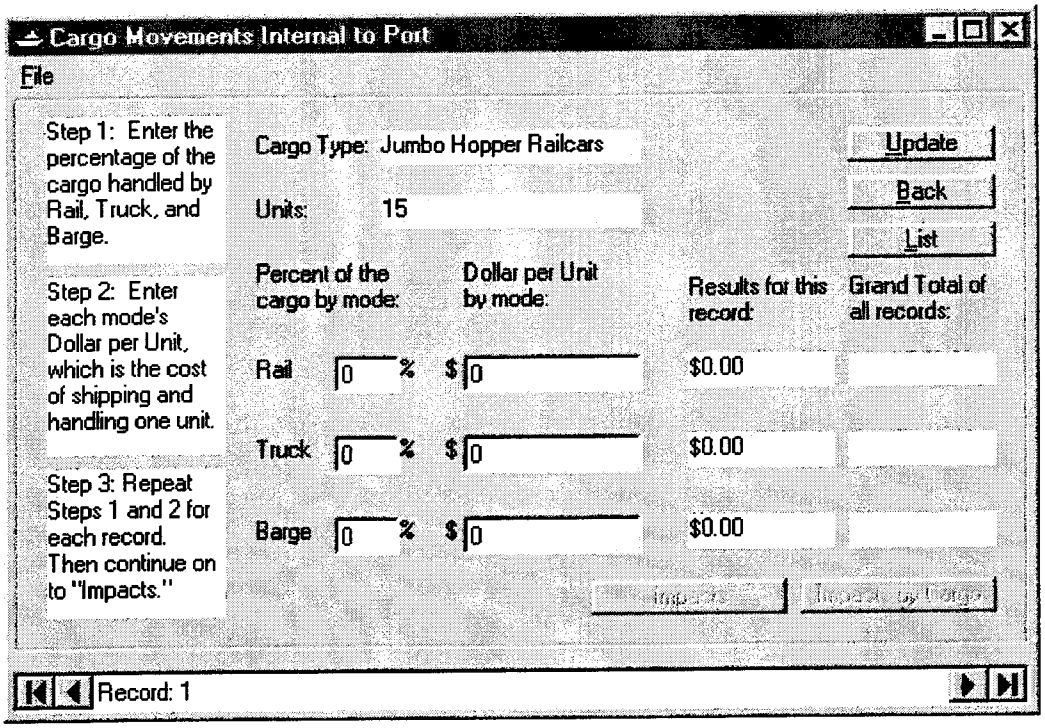

Figure 5.2.1.1

5.2.1.1 Update: Once the percentages by cargo mode and dollars per unit by mode are entered, click on the "Update" button. The Kit will then compute value of the direct impacts by each mode as:

Direct impact by mode = (Dollar per unit by mode) x

(Units) x (Percent of cargo by Mode)

The results of these computations are then displayed in the two sets of output boxes as demonstrated in Figure 5.2.1.2. For each record and by mode, the direct impacts are shown in the "Results for this record" box. The grand totals for all the cargo types are

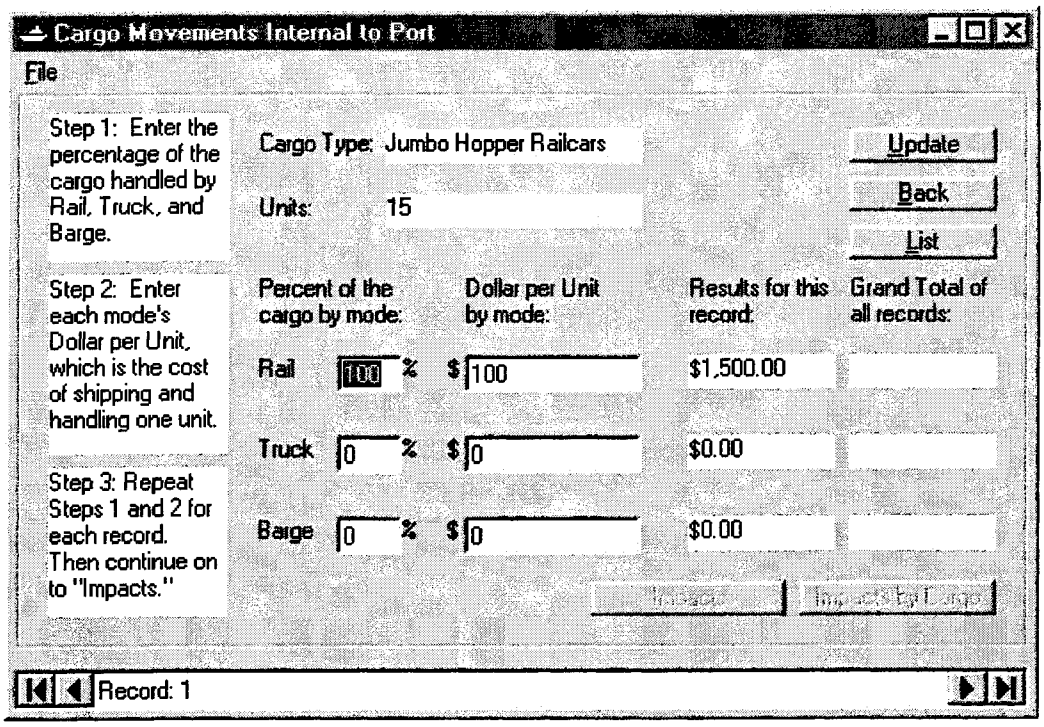

Figure 5.2.1.2

shown in the "Grand Total of all Record Information" box. Figure 5.2.1.2 gives an example where cargoes transported in jumbo hopper railcars have a direct impact of $100 per unit, or for the 15 railcars a total of $1,500. Since this is the only record, the grand total of all records is also $1,500.

Figure 5.2.1.3 shows another example where two transportation modes are used to move 1,000 tons of aggregates. In this example, the barge mode and the truck mode each move 50% of the 1,000 tons with a dollar per unit cost of $0.097 and $0.535 per ton, respectively. The estimated direct impacts are shown in the "Results for this record" box and the "Grand Total of all records." box.

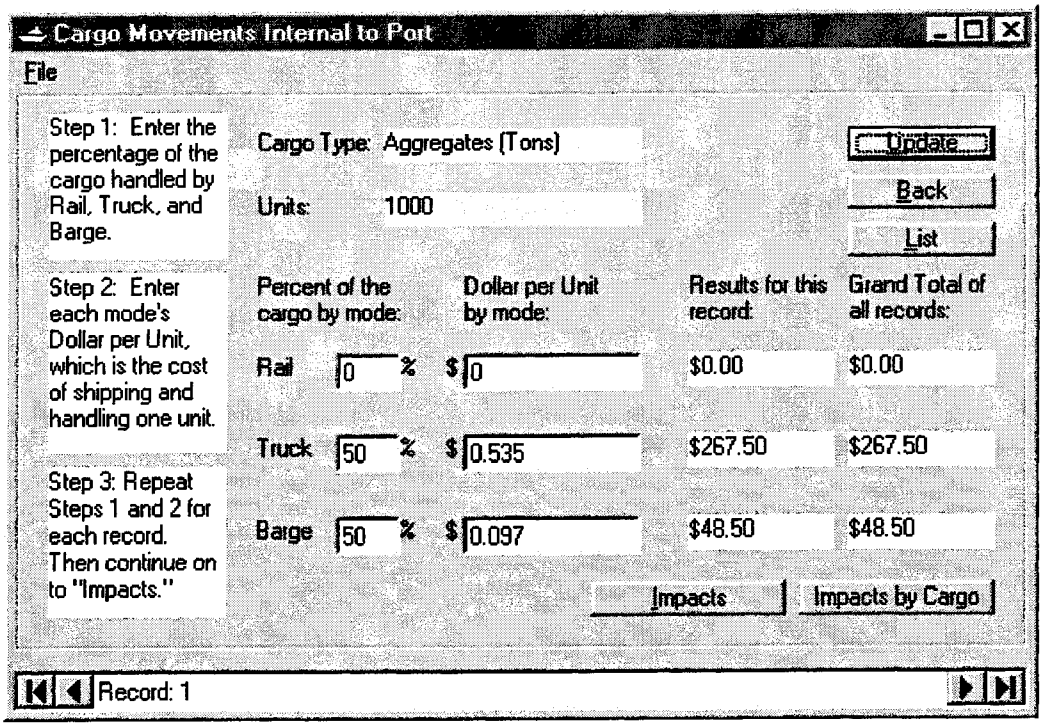

Figure 5.2.1.3

Clicking on the "Update" button also activates two option buttons labeled "Impacts" and "Impacts by Cargo." The subroutines to estimate the indirect and induced impacts are activated by clicking on either button.

5.2.1.2 Reporting Impacts: The user has two options for viewing the results of the impact analysis activated by clicking on either the "Impacts" of "Impacts by Cargo." The format of the reports includes a summary report of the grand totals and an itemized summary.

5.2.1.2.1 Summary Report: To access a summary report of the grand totals for internal cargo flows, click on the "Impacts" button to view an Impact screen similar to the one shown in Figure 5.2.1.3. This screen shows the direct, indirect, induced, and total impacts associated with the movement of the 15 jumbo hopper railcars within the port area on the study areas output, employment level, employee compensation, and indirect business taxes.

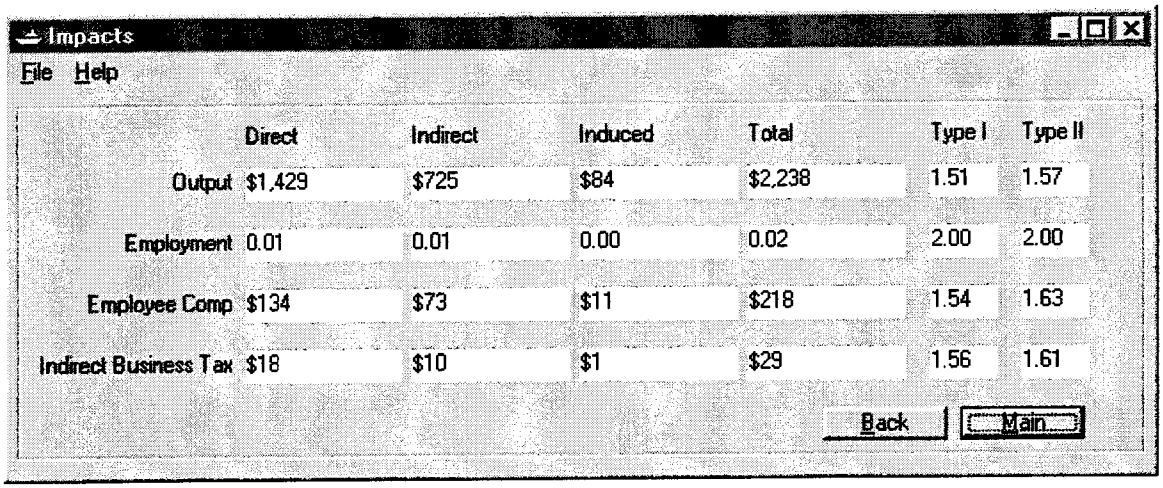

Figure 5.2.1.3

5.2.1.2.2 Itemized Reports: To access an itemized report, click the "Impacts by Cargo" button to view a screen similar to the one in Figure 5.2.1.4. This screen identifies two cargo types associated with internal port movement. At the botton of the screen are four display options. Selecting one of these options will result in the corresponding display of the cargo flow impacts on the output, employment, personal income, or indirect business taxes. The default screen is the cargo flow's impact on output. The screen also has an option to preview and print an itemized summary report.

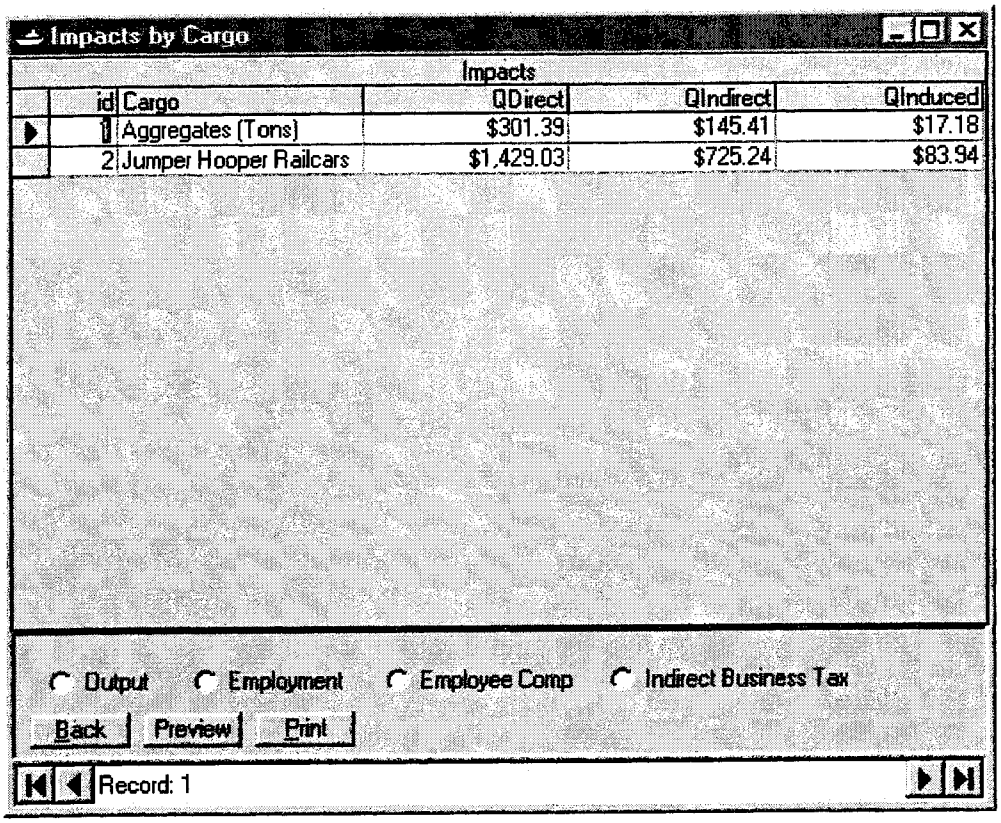

Figure 5.2.1.4

5.2.2 Inland Transportation and Inland Transportation Screen

Transporting cargo inland generates economic impacts in the study area. The starting point for the analysis of the economic impact of inland transportation is the Cargo Input screen (Figure 5.1.1) after the user has entered the information about cargo types and units to date is discussed in section 5.1. In the Cargo Input screen, select the option "movement via inland transportation" and click the "next" button to reach the Inland Transportation screen. This screen is shown in Figure 5.2.2.1.

Users must select the appropriate record by clicking on the record buttons to identify a

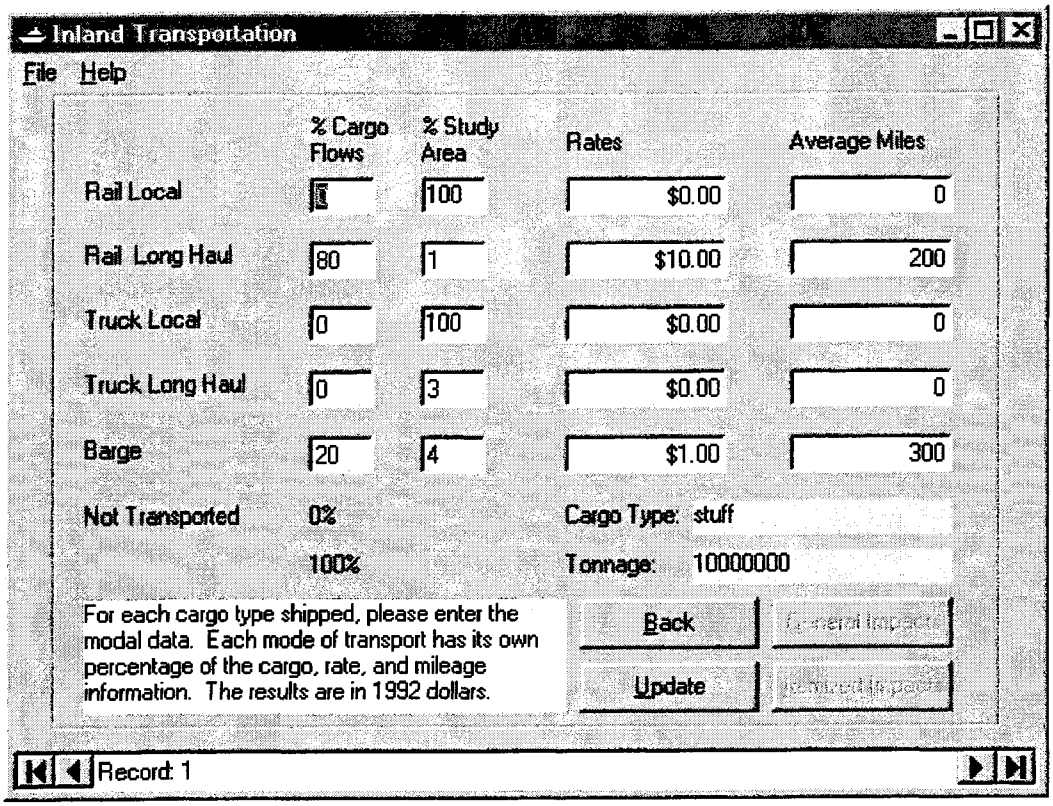

Figure 5.2.2.1

cargo type shipped inland. Once a cargo type is identified for inland transportation, users enter the percent of cargo flows by mode (% Cargo Flows), the percentage of the expenditures that occur within the study area (% Study Area), the rate per unit (Rates), and the average miles hauled by mode. After completing this data entry task, users can advance to a new cargo type (record) and continue to enter data, or users can click on the next button to advance to the Impact screen.

5.2.2.1 Example of Inland Transportation: Figure 5.2.2.2 is an example of the inland transportation of 1,500 tons general cargo (record 3) transported by truck and rail. In this example, 50% of the general cargoes are transported by rail of which 10% goes locally and

40% is for long-haul. The rate per ton mile for both local and long-haul rail is $.0253 (displayed as 3 cents). For long-haul rail, 10% of the revenues or expenditures are realized within the study area. The average haul is 250 miles. All revenue from local rail are realized within the study area. The average haul is 50 miles. Long-haul trucking accounts for 50% of the transported general cargoes, 25% of the revenue is realized locally, and the general cargo on average is hauled 100 miles at a per ton mile cost of 5.35 cents (displayed as $.05).

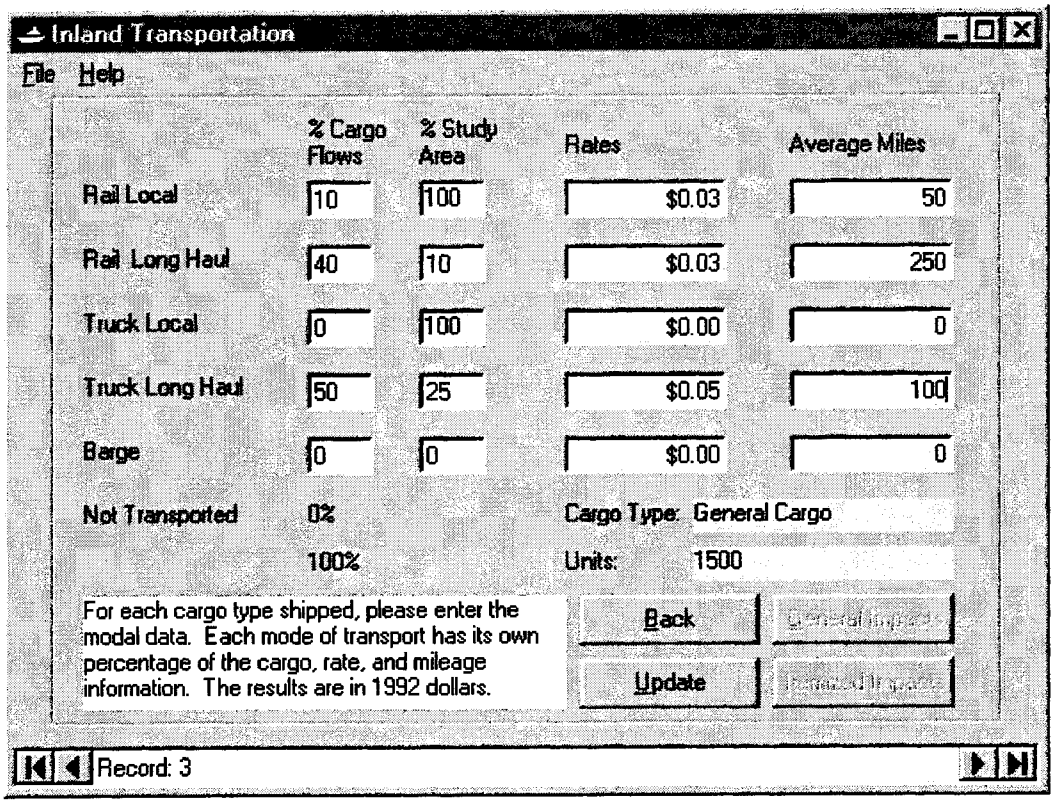

Figure 5.2.2.2

5.2.2.2 Updating: After completing the task of entering the inland transportation data requirements, clicking on the update button will cause the Kit to compute the direct impacts of the cargoes transported inland and activate the report options. For any given mode, the direct impact of inland transportation is computed as

Direct impact of inland cargo by type and mode =

(Dollars per unit mile)x(Units)x(Average Miles) x

(% of Cargo Flows)x(% Spent in Study Area).

For clarification, when the units are in terms of containers or railcars, the Dollars per Unit Mile is the cost of moving the unit one mile. When the units are in tonnage, the Dollars per Unit Mile are the cost to move a ton of cargo one mile.

5.2.2.3 Reporting Impacts: Clicking on the "Update" button also activates two report buttons for general and itemized impacts. For a discussion of these report screens see section 5.2.1.2.

6.0 PORT USERS

Port users are industries that are dependent on a port for shipping products and receiving inputs. The dependence on a port varies amoung port users. Some port users may be completely dependent on a port for their existence. Other industries gain economic advantages from using a port facility instead of some other alternative.

The port user's section of the Port Kit estimates port users total impact on the study area's economy. Users are required to enter data concerning the level of economic activity of a port user and the extent the industries utilize a port. Since data concerning port users' activities are likely limited, the Port Kit has several options to measure a port user's direct level of economic activity. Among these options are sales, employment, and payroll. Once the direct economic impact of a port user is determined, the Port Kit computes the indirect and induced economic impacts. To begin an analysis of a port user's economic impact, click on the "Port Users" button in the main menu screen as shown in Figure 6.1, and then click the OK bar to advance to the Port Users screen.

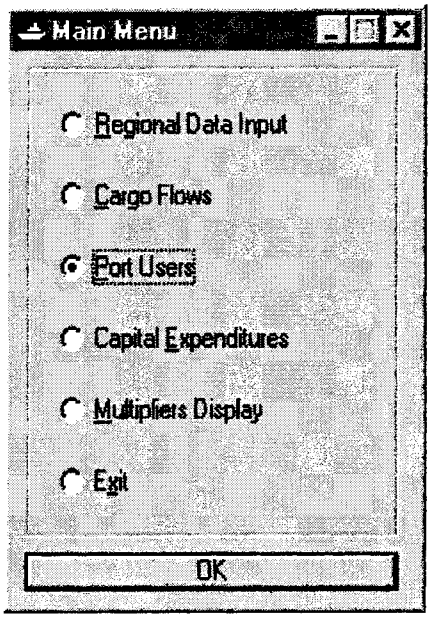

Figure 6.1

6.1 Port Users Screen

The Port Users screen is shown in Figure 6.1.1. This screen has two parts. The upper section is designed to select an industry and enter the direct impacts. The lower section of the screen shows the computed economic impact in 1992 constant dollars.

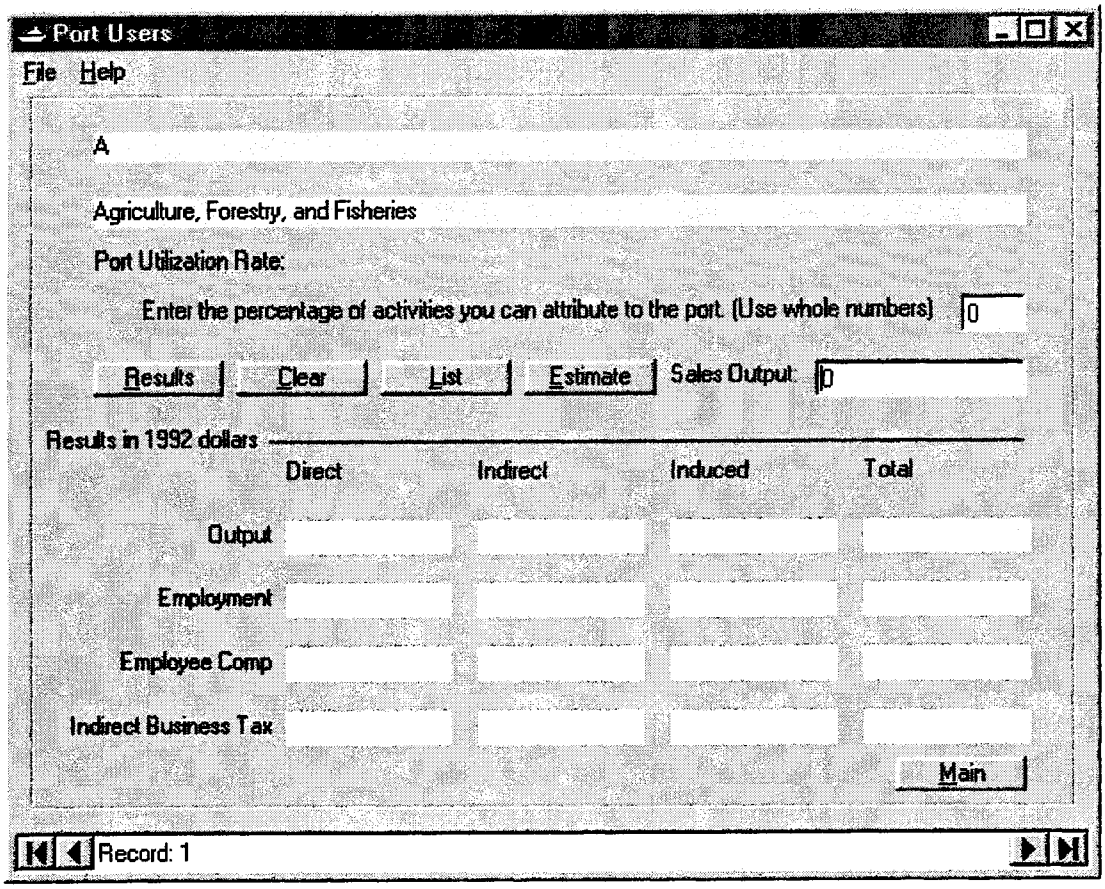

Figure 6.1.1

6.1.1 Selection of Port Users Industry: The earlier selection of a level of aggregation determines the list of port user industries. This list can be viewed in two ways:

1. **List Button**: Clicking on the "List" button will cause a Select a Record screen to appear (Figure 6.1.1.1) The records in the screen are the industries selected in the aggregation choice. Clicking on an industry and on the "OK" button will cause the industry (record) to be displayed on the display lines in the Port Users screen.

2. **Record Arrow**: Clicking on the record arrow cycles though the industry list.

3 **Clear button**: The economic impacts of port users are cumulated in the results section of the Port Users screen. That is, as the different port users' data are entered into the Kit, the cumulative impacts will be shown in the results section of the screen when the "Results" button is clicked. To analyze the economic impact of each industry separately, click the "Clear" button to remove previous findings from the display boxes.

6.1.2 Port Utilization: The direct economic impacts of port users on the business activities in a study area are only those business activities dependent on the presence of the port. Only business activities associated with the movement of goods and resources through a port count in assessing the direct economic impact of a port user. The value of port user activities that is related to a port are a proportion of the port users total activities. This fraction is called the port utilization rate and its value can vary between zero and 100%. A port utilization rate of zero indicates an industry is not a port user; a value of 100% means the port user is totally reliant on a port for all its business activities. A port utilization rate (0-100) must be determined and entered for each port users industry. This number is entered in the "Port Utilization" box. In most cases, the value of the port utilization percent will be a judgment call. A starting point for this judgment call is to consider the amount of activity a port user would have in the absences of the port. The percentage of loss in the industry's activities would be an estimate of the industry's port utilization rate.

6.1.3 Port Users Sales: The Port Kit uses the sales revenue or sales output of port users' industries to gauge their level of economic activity. To estimate the direct impact of a port users dependence on a port, the sales output of the port user is multiplied by the port utilization rate.

Direct Impact of a Port User Industry = (Sales Output) x (Port Utilization Rate).

The direct impact is then applied to the study areas input-output multipliers to derive the estimates of the indirect and induced impacts.

6.1.3.1. Sales Output Box: To begin an impact analysis of a port user, the port users level of sales must be entered in the "Sales Output" Box.

6.1.3.2. Results Button: After entering a port utilization rate and sales output for a port user, clicking on the "Results" button activates the economic impact analysis. The results are printed on the lower portion of the port user screen.

6.1.3.3. Multiple Port Users: To analyze more than one port user, select another port user industry by clicking on the "List" button or clicking on the "Record" button. This will cause a new port user industry to be displayed in the display lines. To begin an economic impact analysis of a new port user industry, enter a port utilization rate for the industry and the industry sales output. Clicking on the "Results" button activates the economic impact analysis and the impact results are added to the other port users impacts in the lower portion of the screen. When there is more than one port user being analyzed, the results that are shown in the lower portion of the "Port users" screen are the cumulative results from all industries that have had economic impacts estimated. To delete the previous results, click on the "Clear" button.

6.1.4 Estimating Sales Output

A data series containing sales data for port users may prove to be elusive. The Kit provides two optional methods to estimate sales. The Kit contains two national databases, employment-to-output ratio, and a personal-income-to-output ratio. If users are willing to assume that these national ratios approximate the corresponding study area's ratios, then local port users sales can be estimated using the national ratios. Kit users have the option to estimate sales output by industry by entering either employment data or payroll data for the

port user industry. To choose a sales estimating technique, click on the "Estimate" button to advance to the estimation subroutines and the Sales Output Estimation screen (Figure 6.1.4.1).

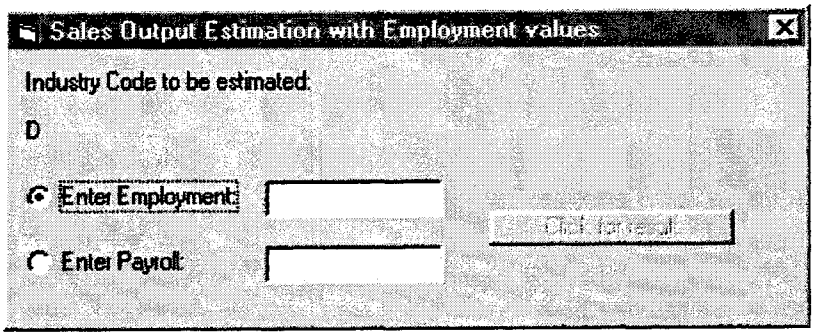

Figure 6.1.4.1

6.1.4.1: Estimating Sales Using Employment: Click on the "Enter Employment" option, and then enter the employment level for the industry. Clicking on the "Click for Result" button will activate a subroutine that estimates sales output for the industry and returns the Kit to the Port Users screen where the impact analysis can proceed.

6.1.4.2: Estimating Sales Using Payrolls: Click on the "Enter Payroll" option, and then enter the amount of payroll for the industry. Clicking on the "Click for Result" button will activate a subroutine that estimates sale output for the industry and returns the Kit to the Port Users screen.

7. CAPITAL EXPENDITURES

Port capital expenditures have economic impacts. Port capital expenditures include new port construction, enlargement, improvements, and rehabilitation of port facilities. To begin the impact analysis of a capital expenditure, click on the "Capital Expenditures" button in the main menu (Figure 7.1), and then click the "OK" button to advance to the Total Construction screen.

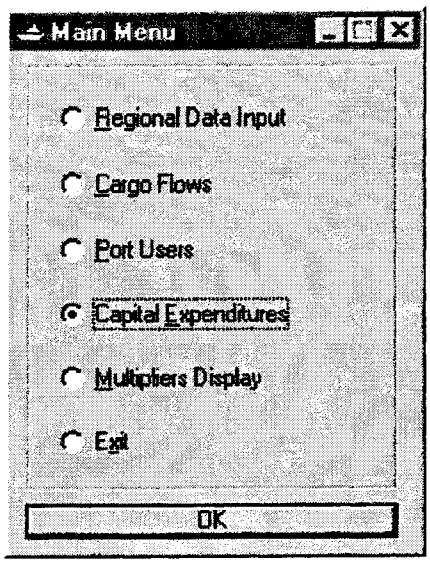

Figure 7.1

7.1 Total Construction Cost Screen

The Construction screen is shown in Figure 7.1.1. The Kit requires the users to name a project in the "Project Input" box. This creates a record number that is identified in the record line. The total expenditures for the construction project is entered next in the "Expenditure Amount" box.

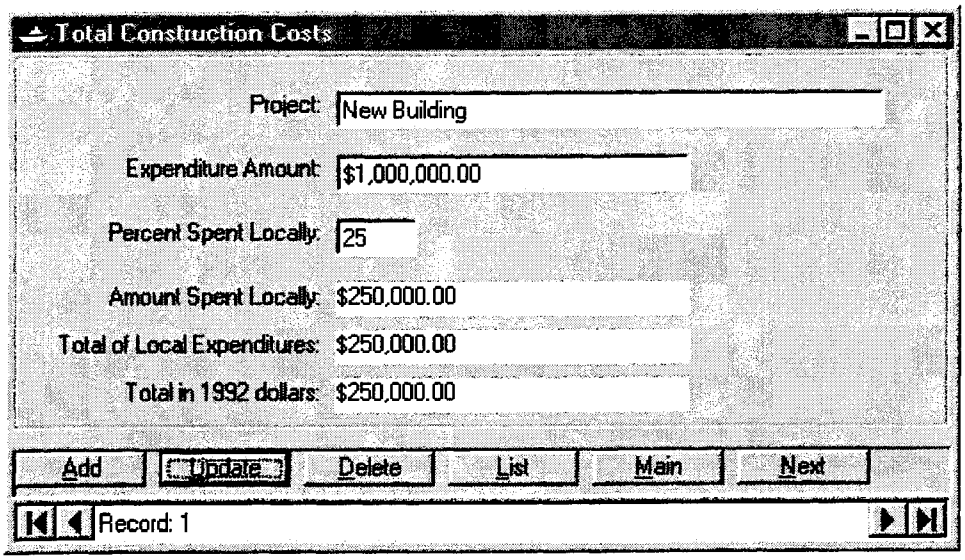

Figure 7.1.1

Once the amount of expenditures spent on the construction project is entered, the percentage of the construction expenditures spent locally must be entered into the "Percent Spent Locally" Input box. This percentage should reflect the local content of the construction project materials and labor.

7.1.1 Add: By clicking on the "Add" button, a new construction project can be created and added to the capital expenditures database. Note that this also creates a new record number for the new project.

7.1.2 Update: Clicking on the "Update" button will calculate the expenditure that have been made locally and convert them to 1992 dollars.

7.1.3 Delete: Clicking on the "Delete" button deletes the current record.

7.1.4 List: Clicking on the "List" button displays a list of all projects.

7.1.5 Next: Clicking on the "Next" button advances the Kit to the Capital Expenditure screen.

7.2 Capital Expenditure Screen

The Capital Expenditure screen is shown in Figure 7.2.1. The construction amount is the amount of local construction expenditures for the project in 1992 dollars. That is, the construction amount is the sum of total local expenditures converted into 1992 dollars. This amount is the estimate of the direct impact of construction expenditures. Clicking on the "Results" button results in the calculations of the indirect and induced economic impacts. The results of such a calculation are shown in Figure 7.2.2.

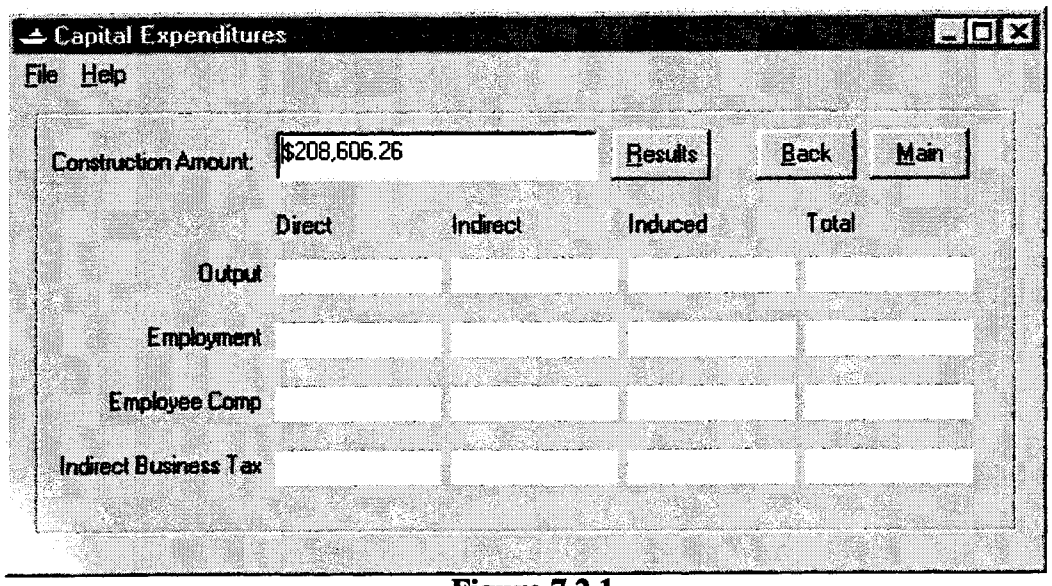

Figure 7.2.1

Figure 7.2.2 shows the total economic impact of the $1,000,000 new building. Again this includes the indirect and induced impacts on the study area's output, employment, employee compensation, and indirect business taxes. To print or save a copy of the results, click on the "File" drop-down menu to access these options. To analyze a new construction project, click on the "Back" button to return to the Total Construction Cost screen.

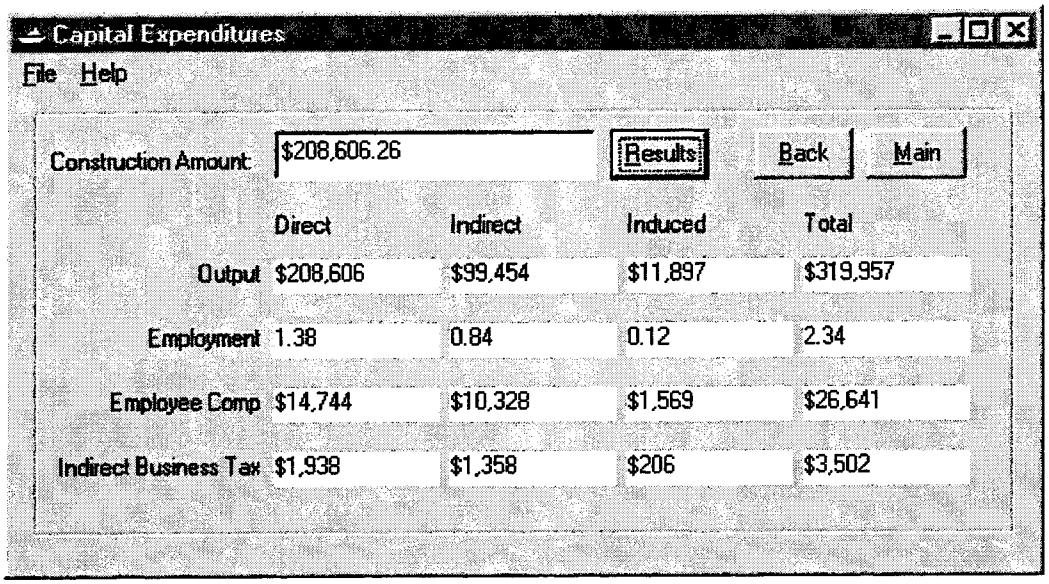
Capital Expenditures
File Help
Construction Amount: $208,606.26
Results
Back
Main
Direct
Indirect
Induced
Total
Output $208,606 $99,454 $11,897 $319,957
Employment 1.38 0.84 0.12 2.34
Employee Comp $14,744 $10,328 $1,569 $26,641
Indirect Business Tax $1,938 $1,358 $206 $3,502

Figure 7.2.2

8.0 MULTIPLIERS DISPLAY

The economic impact multipliers for the study area that have been calculated by the Kit are available for display. From the Main Menu, (Figure 8.1) click on the "Multipliers Display" button and the "OK" button. A Multipliers screen will appear like the one shown in Figure 8.2.

The Multipliers screen shows the direct, indirect, and induced multipliers by industry for output, employment, personal income, and indirect business taxes. Different industries' multipliers can be displayed by either clicking on a record arrow or selecting an industry from the industry list after it is displayed by either clicking on a record arrow or selecting an industry from the industry list after clicking on the industry list button. The commands drop-down menu also gives several ways to retrieve industry multipliers.

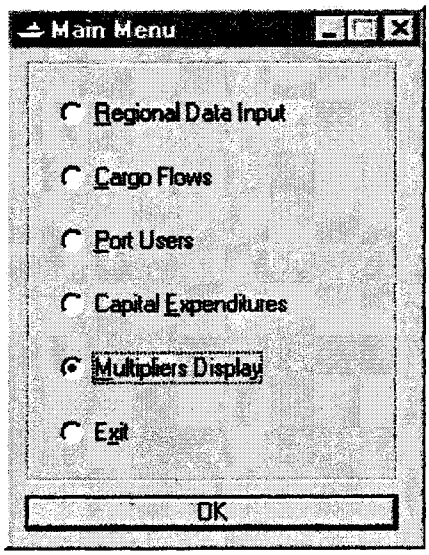

Figure 8.1

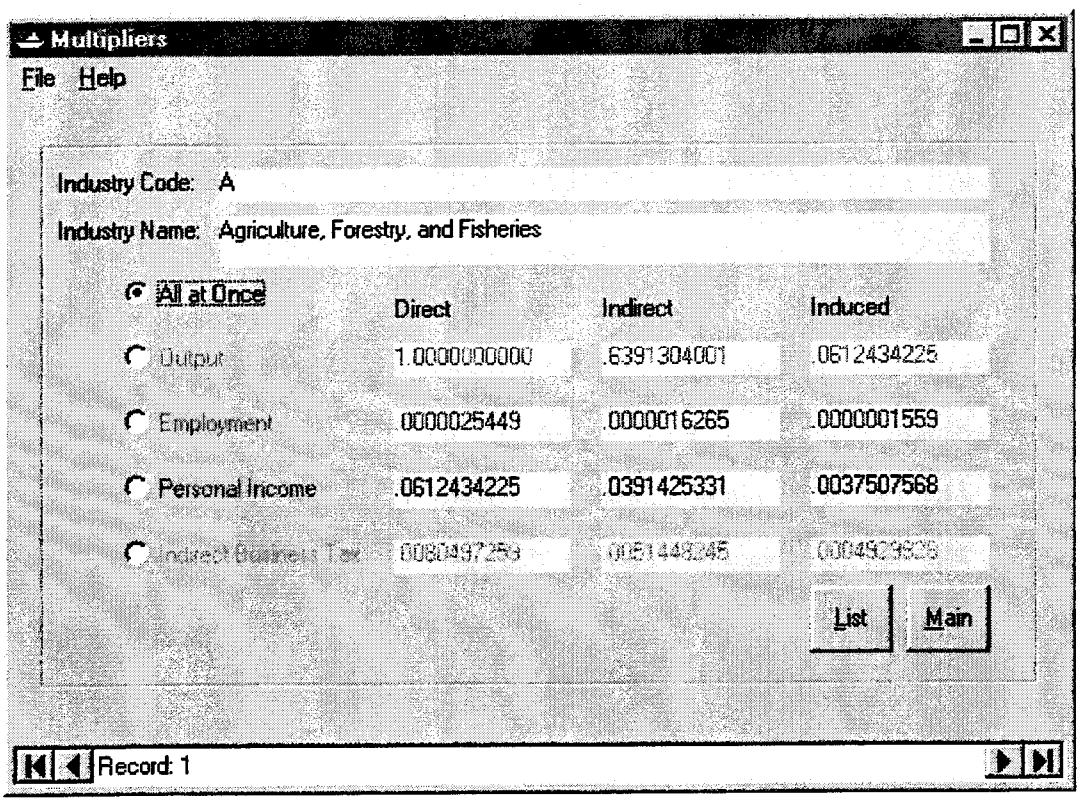

Figure 8.2

Clicking on the "Multipliers Screen Command" button results in several options. Users can save the database, list the industries, or search for a particular industry's multipliers based on an industry code.

9.0 PRINTING AND SAVING: FILE COMMANDS

Clicking on the File command in the menu bar causes a drop-down menu to appear. The menu gives the user options:

1. Save a copy of the database.
2. Save a text file of the Impact Results.
3. Print the results of the Impact Study.

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APPENDIX I

Major SIC Industry Groups

One Digit Industry Groups

The accompanying table lists the major industries included in the one digit level of aggregation. The industrial code is based upon the 1987 Standard Industrial Classification System (SIC) and is shown in the column labeled SIC.[7] The Kit bridges the SIC codes to the Input-Output (I-O) industry classification system used by the Bureau of Economic Analysis (BEA).[8] The I-O industry classification is given in the industry code column. In most cases, there is a direct link between the two classification systems, but not always. This proved to be particularly true at the one digit level of aggregation. Hence, several of the industries were excluded from their SIC industry so that the Port Kit could map them to the appropriate I-O industry. This is the reason for excluding eating and drinking places and veterinary services from the SIC classification and mapping them into separate the I-O industries. The water transportation industry is separated from the transportation public utilities industry group to allow the explicit recognition of this industry in the economic impact analysis.

One Digit Level of Aggregation

id	IndustryCode	SIC	Industry
1	A	A, excluding 074	Agriculture, Forestry, and Fishing
2	B	B	Mining
3	C	C	Construction
4	D	D	Manufacturing
5	E	E, excluding 44	Transportation (less Water Transportation, plus Rail), Communications, Public Utilities
6	F	F	Wholesale Trade

[7] *Standard Industrial Classification Manual 1987*, Executive Office of the President, Office of Management and Budget.

[8] For a description of the systems used in the I-O accounts, see the section "Definitions and conventions for classification" in the *Survey of Current Business*, U.S. Department of Commerce, November 1997, Vol. 77.

One Digit Level of Aggregation (Continued)

id	IndustryCode	SIC	Industry
7	G	G, excluding 58	Retail Trade (except Eating and Drinking places)
8	H	H	Finance, Insurance, and Real Estate
9	I	I	Services
10	74	58	Eating and Drinking Places
11	I	074	Veterinary services
13	65C	44	Water Transportation
15	J	J	Government Enterprises

Two Digit Level of Industry Aggregation

The following table shows the industries at the 2-digit level of industry aggregation. The second column shows the I-O industry codes, and the third column shows corresponding SIC industries.

Two Digit Level of Industry

id	IndustryCode	SIC	Industry
1	01+03+04	02	Agricultural Production - Livestock
2	01+03+04	07, excluding 074	Agricultural Services
3	01+03+04	08	Forestry
4	01+03+04	09	Fishing, Hunting, and Trapping
5	02	01	Agricultural Production - Crops
6	05+06	10	Metal Mining
7	07	12	Coal Mining
8	08	13	Oil and Gas Extraction
9	09+10	14	Nonmetallic Minerals, Except Fuels
10	13+37+38+39+40+41+42+59A+59B +60+61	33	Primary Metal Industries
11	13+37+38+39+40+41+42+59A+59B +60+61	34	Fabricated Metal Products
12	13+37+38+39+40+41+42+59A+59B +60+61	37	Transportation Equipment
13	14	20	Food and Kindred Products
14	15	21	Tobacco Products
15	16+17+18+19	22	Textile Mill Products
16	16+17+18+19	23	Apparel and Other Textile Products
17	20+21	24	Lumber and Wood Products

id	IndustryCode	SIC	Industry
18	22+23	25	Furniture and Fixtures
19	24+25	26	Paper and Allied Products
20	26A+26B	27	Printing and Publishing
21	27A+27B+28+29A+29B+30	28	Chemicals and Allied Products
22	31	29	Petroleum and Coal Products
23	32	30	Rubber and Misc. Plastics Products
24	33+34	31	Leather and Leather Products
25	35+36	32	Stone, Clay, and Glass Products
26	43+(44+45)+46+47+48+49+50+51+52	35	Industrial Machinery and Equipment
27	53+54+55+56+57+58	36	Electronic and Other Electric Equipment
28	62+63	38	Instruments and Related Products
29	64	39	Miscellaneous Manufacturing Industries
30	65A+65E	40	Railroad Transportation
31	65A+65E	41	Local and Interurban Passenger Transit
32	65A+65E	46	Pipelines, Except Natural Gas
33	65A+65E	47	Transportation Services
34	65B	42	Trucking and Warehousing
35	65D	45	Transportation by Air
36	66+67	48	Communications
37	68A+68B+68C	49	Electric, Gas, and Sanitary Services
38	70A	60	Depository Institutions
39	70A	61	Nondepository Institutions
40	70A	62	Security and Commodity Brokers
41	70A	67	Holding and Other Investment Offices
42	70B	63	Insurance Carriers
43	70B	64	Insurance Agents, Brokers, and Service
44	71B	65	Real Estate
45	72A	70	Hotels and Other Lodging Places
47	72B+73A+73B+73C+73D+77B	72	Personal Services
48	72B+73A+73B+73C+73D+77B	73	Business Services
49	72B+73A+73B+73C+73D+77B	76	Miscellaneous Repair Services
50	72B+73A+73B+73C+73D+77B	81	Legal Services
51	72B+73A+73B+73C+73D+77B	82	Educational Services
52	72B+73A+73B+73C+73D+77B	83	Social Services
53	72B+73A+73B+73C+73D+77B	84	Museums, Botanical, Zoological Gardens
54	72B+73A+73B+73C+73D+77B	86	Membership Organizations

id	IndustryCode	SIC	Industry
55	72B+73A+73B+73C+73D+77B	87	Engineering and Management Services
56	72B+73A+73B+73C+73D+77B	89	Services, NEC
57	74	58	Eating and Drinking Places
58	75	75	Auto Repair, Services, and Parking
59	76	78	Motion Pictures
60	76	79	Amusement and Recreation Services
61	77A	074	Veterinary Services
62	77A	80	Health Services
63	65C	44	Water Transportation
65	C	C	Construction
66	F	F	Wholesale Trade
67	G	G, excluding 58	Retail Trade
68	J	J	Government Enterprises

Three digit level of Industry Aggregation

The following table shows the industries at the 3-digit level of industry aggregation. The second column shows the I-O industry codes, and the third column shows the SIC counterparts.

Three Digit Level of Aggregation

id	IndustryCode	SIC	Industry
1	01+04	021	Livestock, Except Dairy and Poultry
2	01+04	024	Dairy farms
3	01+04	025	Poultry and Eggs
4	01+04	027	Animal Specialties
5	01+04	029	General Farms, Primarily Animal
6	01+04	071	Soil Preparation
7	01+04	072	Crop Preparation
8	01+04	075	Animal Services, Except Veterinary
9	01+04	076	Farm Labor and Management Services
10	01+04	078	Landscape and Horticultural Services
11	01+04	085	Forest Services
12	01+04	092	Fish Hatcheries and Preserves
13	02	011	Cash Grains
14	02	013	Field Crops, Except Cash Grains
15	02	016	Vegetables and Melons
16	02	017	Fruits and Tree Nuts
17	02	018	Horticultural specialties
18	02	019	General Farms, primarily crop
19	03	081	Timber Tracts
20	03	083	Forest Products

id	IndustryCode	SIC	Industry
21	03	091	Commercial Fishing
22	03	097	Hunting, Trapping, and Game
23	05+06	101	Iron Ores
24	05+06	102	Copper Ores
25	05+06	103	Lead and Zinc Ores
26	05+06	104	Gold and Silver Ores
27	05+06	106	Ferroalloy Ores, except Vanadium
28	05+06	108	Metal Mining Services
29	05+06	109	Miscellaneous Metal Ores
30	07	122	Bituminous Coal and Lignite
31	07	123	Anthracite
32	07	124	Coal Mining Services
33	08	131	Crude Petroleum and Natural Gas
34	08	132	Natural Gas Liquids
35	08	138	Oil Field Services
36	09+10	141	Dimension Stone
37	09+10	142	Crushed and Broken Stone
38	09+10	144	Sand and Gravel
39	09+10	145	Clay, Ceramic, and Refactory Minerals
40	09+10	147	Chemical Fertilizers Minerals
41	09+10	148	Nonmetallic Minerals Services
42	09+10	149	Miscellaneous Nonmetallic Metals
43	13+59A+59B+60+61	348	Ordnance and Accessories, NEC
44	13+59A+59B+60+61	371	Motor Vehicles and Equipment
45	13+59A+59B+60+61	372	Aircraft and Parts
46	13+59A+59B+60+61	373	Ship and Boat Building and Repairing
47	13+59A+59B+60+61	374	Railroad Equipment
48	13+59A+59B+60+61	375	Motorcycles, Bicycles, and Parts
49	13+59A+59B+60+61	376	Guided Missiles, Space Vehicles, Parts
50	13+59A+59B+60+61	379	Miscellaneous Transportation Equipment
51	14	201	Meat Products
52	14	202	Dairy Products
53	14	203	Preserved Fruits and Vegetables
54	14	204	Grain Mill Products
55	14	205	Bakery Products
56	14	206	Sugar and Confectionery Products
57	14	207	Fats and Oils
58	14	208	Beverages
59	14	209	Misc. Food and Kindred Products
60	15	211	Cigarettes
61	15	212	Cigars
62	15	213	Chewing and smoking tobacco and snuff
63	15	214	Tobacco stemming and redrying
64	16	221	Broadwoven Fabric Mills, Cotton
65	16	222	Broadwoven Fabric Mills, Manmade

id	IndustryCode	SIC	Industry
66	16	223	Broadwoven Fabric Mills, Wool
67	16	224	Narrow Fabric Mills
68	16	226	Textile Finishing, Except Wool
69	16	228	Yarn and Thread Mills
70	17	227	Carpets and Rugs
71	17	229	Miscellaneous Textile Goods
72	18	225	Knitting Mills
73	18	231	Men's and Boy's Suits and Coats
74	18	232	Men's and Boy's Furnishing
75	18	233	Women's and Misses Outerwear
76	18	234	Women's and Children's Undergarments
77	18	235	Hats, Caps, and Millinery
78	18	236	Girl's and Children's Outerwear
79	18	237	Fur Goods
80	18	238	Miscellaneous Apparel and Accessories
81	19	239	Misc. Fabricated Textile Products
82	20+21	241	Logging
83	20+21	242	Sawmills and Planing Mills
84	20+21	243	Millwork, Plywood & Structural Members
85	20+21	244	Wood Containers
86	20+21	245	Wood Buildings and Mobile Homes
87	20+21	249	Miscellaneous Wood Products
88	22+23	251	Household Furniture
89	22+23	252	Office Furniture
90	22+23	253	Public Building and Related Furniture
91	22+23	254	Partitions and Fixtures
92	22+23	259	Miscellaneous Furniture and Fixtures
93	24	261	Pulp Mills
94	24	262	Paper Mills
95	24	263	Paperboard Mills
96	24	267	Misc. Converted Paper Products
97	25	265	Paperboard Containers and Boxes
98	26A	271	Newspapers
99	26A	272	Periodicals
100	26B	273	Books
101	26B	274	Miscellaneous Publishing
102	26B	275	Commercial Printing
103	26B	276	Manifold Business Forms
104	26B	277	Greeting Cards
105	26B	278	Blankbooks and Bookbinding
106	26B	279	Printing Trade Services
107	27A	281	Industrial Inorganic Chemicals
108	27A	286	Industrial Organic Chemicals
109	27A	289	Miscellaneous Chemical Products
110	27B	287	Agricultural Chemicals
111	28	282	Plastics Materials and Synthetics

id	IndustryCode	SIC	Industry
112	29A	283	Drugs
113	29B	284	Soap, Cleaners, and Toilet Goods
114	30	285	Paints and Allied Products
115	31	291	Petroleum Refining
116	31	295	Asphalt Paving and Roofing Materials
117	31	299	Misc. Petroleum and Coal Products
118	32	301	Tires and Inner Tubes
119	32	302	Rubber and Plastics Footwear
120	32	305	Hose & Belting & Gaskets & Packing
121	32	306	Fabricated Rubber Products, NEC.
122	32	308	Miscellaneous Plastics Products, NEC.
123	33+34	311	Leather Tanning and Finishing
124	33+34	313	Boot and Shoe Cut Stock and Findings
125	33+34	314	Footwear, Except Rubber
126	33+34	315	Leather Gloves and Mittens
127	33+34	316	Luggage
128	33+34	317	Handbags and Personal Leather Goods
129	33+34	319	Leather Goods, NEC.
130	35	321	Flat Glass
131	35	322	Glass and Glassware, Pressed or Blown
132	35	323	Glass and Glass Products, except
133	36	324	Cement, Hydraulic
134	36	325	Structural Clay Products
135	36	326	Pottery and Related Products
136	36	327	Concrete, Gypsum, and Plaster Products
137	36	328	Cut Stone and Stone Products
138	36	329	Misc. Nonmetallic Mineral Products
139	37+38+41	331	Blast Furnace and Basic Steel Products
140	37+38+41	332	Iron and Steel foundries
141	37+38+41	333	Primary Nonferrous Metals
142	37+38+41	334	Secondary Nonferrous metals
143	37+38+41	335	Nonferrous Rolling and Drawing
144	37+38+41	336	Nonferrous Foundries (Castings)
145	37+38+41	339	Miscellaneous Primary Metal Products
146	37+38+41	345	Screw Machine Products, Bolts, Etc.
147	37+38+41	346	Metal Forgings and Stampings
148	39	341	Metal Cans and Shipping Containers
149	40	343	Plumbing and Heating, Except Electric
150	40	344	Fabricated Structural Metal Products
151	42	342	Cutlery, Handtools, and Hardware
152	42	347	Metal Services, NEC
153	42	349	Misc. Fabricated Metal Products
154	43	351	Engines and Turbines
155	(44+45)+46	352	Farm and Garden Machinery
156	(44+45)+46	353	Construction and Related Machinery

id	IndustryCode	SIC	Industry
157	47	354	Metalworking Machinery
158	48	355	Special Industry Machinery
159	49	356	General Industrial Machinery
160	50	359	Industrial Machinery, NEC
161	51	357	Computer and Office Equipment
162	52	358	Refrigeration and Service Machinery
163	53	361	Electric Distribution Equipment
164	53	362	Electrical Industrial Apparatus
165	54	363	Household Appliances
166	55	364	Electric Lighting and Wiring Equipment
167	56	365	Household Audio and Video Equipment
168	56	366	Communications Equipment
169	57	367	Electronic Components and Accessories
170	58	369	Misc. Electrical Equipment & Supplies
171	62	381	Search and Navigation Equipment
172	62	382	Measuring and Controlling Devices
173	62	384	Medical Instruments and Supplies
174	62	387	Watches, Clocks, Watchcases, and Parts
175	63	385	Ophthalmic Goods
176	63	386	Photographic Equipment and Supplies
177	64	391	Jewelry, Silverware, and Plated Ware
178	64	393	Musical Instruments
179	64	394	Toys and Sporting Goods
180	64	395	Pens, Pencils, Office, & Art Supplies
181	64	396	Costume Jewelry and Notions
182	64	399	Miscellaneous Manufactures
183	65A	401	Railroads
184	65A	411	Local and Suburban Transportation
185	65A	412	Taxicabs
186	65A	413	Intercity and Rural Bus Transportation
187	65A	414	Bus Charter Service
188	65A	415	School Buses
189	65A	417	Bus Terminal and Service Facilities
190	65A	474	Rental of Railroad Cars
191	65B	421	Trucking and Courier Services, ex. Air
192	65B	422	Public Warehousing and Storage
193	65B	423	Trucking Terminal Facilities
194	65D	451	Air Transportation, Scheduled
195	65D	452	Air Transportation, Nonscheduled
196	65D	458	Airports, Flying Fields, & Services
197	65E	461	Pipelines, Except Natural Gas
198	65E	472	Passenger Transportation Arrangement
199	65E	473	Freight Transportation Arrangement
200	65E	478	Miscellaneous Transportation Services
201	66	481	Telephone Communications

id	IndustryCode	SIC	Industry
202	66	482	Telegraph and Other Communications
203	66	484	Cable and Other Pay TV Services
204	66	489	Communications Services, NEC
205	67	483	Radio and TV Broadcasting
206	68A+68B	491	Electric Services
207	68A+68B	492	Gas Production and Distribution
208	68A+68B	493	Electric and Other services Combined
209	68C	494	Water Supply
210	68C	495	Sanitary Services
211	68C	496	Steam and Air-Conditioning Supply
212	68C	497	Irrigation Systems
213	70A	601	Central Reserve Depositories
214	70A	602	Commercial Banks
215	70A	603	Savings Institutions
216	70A	606	Credit Unions
217	70A	608	Foreign Bank and Branches/Agencies
218	70A	609	Functions Closely Related to Banking
219	70A	611	Federal & Fed.-Sponsored Credit
220	70A	614	Personal Credit Institutions
221	70A	615	Business Credit Institutions
222	70A	616	Mortgage Bankers and Brokers
223	70A	621	Security Brokers and Dealers
224	70A	622	Commodity Contracts Brokers, Dealers
225	70A	623	Security and Commodity Exchanges
226	70A	628	Security and Commodity Services
227	70A	671	Holding offices
228	70A	672	Investment offices
229	70A	673	Trusts
230	70A	679	Miscellaneous investing
231	70B	631	Life Insurance
232	70B	632	Medical Service and Health Insurance
233	70B	633	Fire, Marine, and Casualty Insurance
234	70B	635	Surety Insurance
235	70B	636	Title Insurance
236	70B	637	Pension, Health, and Welfare Funds
237	70B	639	Insurance Carriers, NEC
238	70B	641	Insurance Agents, Brokers, & Service
239	71B	651	Real Estate Operators and Lessors
240	71B	653	Real Estate Agents and Managers
241	71B	654	Title Abstract Offices
242	71B	655	Subdividers and Developers
243	72A	701	Hotels and Motels
244	72A	702	Rooming and Boarding Houses
245	72A	703	Camps and Recreational Vehicle Parks
246	72A	704	Membership-Basis Organization Hotels
247	72B	721	Laundry, Cleaning, and garment services

id	IndustryCode	SIC	Industry
248	72B	722	Photographic Studios, Portrait
249	72B	723	Beauty Shops
250	72B	724	Barber Shops
251	72B	725	Shoe Repair and Shoeshine Parlors
252	72B	726	Funeral Service and Crematories
253	72B	729	Miscellaneous Personal Services
254	72B	762	Electrical Repair Shops
255	72B	763	Watch, Clock, and Jewelry Repair
256	72B	764	Re-upholstery and Furniture Repair
257	73A	737	Computer and Data Processing Services
258	73B	811	Legal Services
259	73B	871	Engineering, Architectural, and
260	73B	872	Accounting, Auditing, and Bookkeeping
261	73B	899	Services, nec
263	73C+77B	732	Credit Reporting and Collection
264	73C+77B	733	Mailing, Reproduction, Stenographic
265	73C+77B	734	Services to dwellings and Other
266	73C+77B	735	Misc. Equipment Rental and Leasing
267	73C+77B	736	Personnel Supply Services
268	73C+77B	738	Miscellaneous Business Services
269	73C+77B	769	Miscellaneous Repair Shops
270	73C+77B	821	Elementary and Secondary Schools
271	73C+77B	822	Colleges, Universities, and Professional
272	73C+77B	823	Libraries
273	73C+77B	824	Vocational schools
274	73C+77B	829	Schools & Educational Services, NEC
275	73C+77B	832	Accounting, Auditing, and Bookkeeping
276	73C+77B	833	Job training and Related Services
277	73C+77B	835	Child Day Care Services
278	73C+77B	836	Residential Care
279	73C+77B	839	Social Services, nec
280	73C+77B	841	Museums and Art Galleries
281	73C+77B	842	Botanical and Zoological Gardens
282	73C+77B	861	Business Associations
283	73C+77B	862	Professional organizations
284	73C+77B	863	Labor Organizations
285	73C+77B	864	Civic and Social Associations
286	73C+77B	865	Political Organizations
287	73C+77B	866	Religious Organizations
288	73C+77B	869	Membership Organizations, NEC
289	73C+77B	873	Research and Testing Services
290	73C+77B	874	Management and Public Relations
291	73D	731	Advertising
292	74	58	Eating and Drinking Places
293	75	751	Automotive Rental and Leasing, without
294	75	752	Automobile Parking

id	IndustryCode	SIC	Industry
295	75	753	Automotive Repair shops
296	75	754	Automotive Services, Except Repair
297	76	781	Motion Picture Production and Services
298	76	782	Motion Picture Distribution and Services
299	76	783	Motion Picture Theaters
300	76	784	Video Tape Rental
301	76	791	Dance Studios, Schools, and Halls
302	76	792	Producers, Orchestras, Entertainers
303	76	793	Bowling Centers
304	76	794	Commercial Sports
305	76	799	Misc. Amusement, Recreation Services
306	77A	074	Veterinary Services
307	77A	801	Offices and Clinics of Medical Doctors
308	77A	802	Offices and Clinics of Dentists
309	77A	803	Offices of Osteopathic Physicians
310	77A	804	Offices of Other Health Practitioners
311	77A	805	Nursing and Personal Care Facilities
312	77A	806	Hospitals
313	77A	807	Medical and Dental Laboratories
314	77A	808	Home Health Care Services
315	77A	809	Health and Allied Services, NEC
317	65C	441	Deep Sea Foreign Trans. of Freight
318	65C	442	Deep Sea Domestic Trans. of Freight
319	65C	443	Freight Trans. on the Great Lakes
320	65C	444	Water Transportation of Freight, NEC
321	65C	448	Water Transportation of Passengers
322	65C	449	Water Transportation Services
323	C	C	Construction
324	F	F	Wholesale Trade
325	G	G, excluding	Retail Trade
326	J	J	Government Enterprises

APPENDIX 2

Indirect Business Tax Rates
1992

id	State	Employee Compensation	IBT	IBT Rate
1	Alabama	$ 48,940	$ 5,361	10.95%
2	Arkansas	$ 24,814	$ 3,222	12.98%
3	Florida	$ 163,302	$ 29,193	17.88%
4	Georgia	$ 94,516	$ 11,890	12.58%
5	Illinois	$ 182,240	$ 24,050	13.20%
6	Indiana	$ 75,229	$ 8,649	11.50%
7	Iowa	$ 33,305	$ 4,541	13.63%
8	Kansas	$ 32,376	$ 4,400	13.59%
9	Kentucky	$ 43,192	$ 6,533	15.13%
10	Louisiana	$ 46,984	$ 9,229	19.64%
11	Minnesota	$ 69,174	$ 8,657	12.51%
12	Mississippi	$ 24,200	$ 3,400	14.05%
13	Missouri	$ 69,562	$ 8,346	12.00%
14	Nebraska	$ 20,503	$ 2,761	13.47%
15	Ohio	$ 151,145	$ 17,612	11.65%
16	Oklahoma	$ 35,350	$ 4,451	12.59%
17	Oregon	$ 37,763	$ 4,563	12.08%
18	Tennessee	$ 65,211	$ 8,714	13.36%
19	Texas	$ 233,187	$ 39,991	17.15%
20	United States	$ 3,627,099	$ 505,591	13.94%
21	Washington	$ 76,180	$ 12,823	16.83%
22	West Virginia	$ 17,693	$ 2,602	14.71%
23	Wisconsin	$ 67,554	$ 9,317	13.79%

Millions of dollars
Source: Comprehensive Revision of Gross State Product by Industry, 1977-94. Survey of Current Business, U.S. Department of Commerce, Bureau of Economic Analysis, Vol. 77, Number 6, June 1997.

APPENDIX 3

Price Indexes

The Kit contains a database of price indexes for 1987-1997 by industry.[9] Because of the lack of published price index numbers for some of the industries, and because of the many aggregation schemes, it was necessary to interpolate many of the actual price index numbers in the Kit's price index database. For missing price index numbers, the interpolation consisted of fitting the missing price index number into an appropriate industry aggregation level for which a price index number existed. For example, if industry x did not have price index numbers, and it belonged in an industrial aggregate made up of industries x, y, and z for which a price index was known, then industry x was assigned that price index number. The accompanying table is the Kit's database of price indexes.

[9] The major data sources for the Kit's price indexes database are
U.S. Department of Agriculture, *Agriculture Statistics*. United States Government Printing Office.
U.S. Department of Labor Bureau of Labor Statistics, *Producers Price Index Detailed Report*, various years.

Appendix 3
Price Indexes

IndustryCode	Industry Name	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
01+03+04	Agricultural products and related services	94.32	97.97	100.62	97.79	98 88	100	102.28	103 35	104.07	112.05	108.31
02	Other agricultural products	85 22	74 78	85.22	92 17	91 30	100	88.70	105.22	100.35	116.63	99 93
05+10	Metallic ores mining	130 68	131.46	130.94	121 93	107.31	100	90.99	106.27	132 38	120.23	112 01
07	Coal mining	102.13	100 64	100.32	102.66	102.45	100	99.26	99.15	97 45	97.23	98 09
08	Crude petroleum and natural gas	97 12	89 54	98.95	108.10	101 83	100	99 61	92 94	87 06	110.85	114 38
09+10	Nonmetallic minerals mining	89.45	91 91	94.64	96 77	98.98	100	101.11	102.55	105.36	108 17	109 62
13+37+38+39+40+41+ 42+59A+59B+60+61	Metal products	87 12	91 43	95.70	97.34	98 79	100	101.61	104 61	108.55	108 93	109 45
14	Food and kindred products	87.77	91.62	95 98	99 40	99 66	100	101.54	102.74	104.11	108 73	109.41
15	Tobacco products	54.95	61 60	70.11	79 58	90.14	100	94.70	81.58	83 93	86 49	91 57
16+17+18+19	Textile goods	89 11	92.31	94.67	97 05	98 64	100	100.53	100.76	102.37	103 84	104.58
20+21	Lumber and wood products	81 19	84.19	88.90	90.21	92.06	100	114.34	119.04	118.81	118.35	122.51
22+23	Furniture and fixtures	86 57	90.64	94.06	96.91	98.94	100	102.03	105 53	108.46	110 82	112.45
24+25	Paper goods	86.55	93.81	99.67	100 58	99.92	100	99 17	102.06	121 04	114.36	110 15
26A+26B	Printed materials	79.69	83 95	88 57	92 68	96 88	100	103 41	106 32	112 93	117.61	120.10
27A+27B+28+29A+29B+30	Chemical products	82.35	89 83	95.07	96 18	98 89	100	101 11	103 34	113.99	115 90	116.93
31	Petroleum refining and related products	87 80	84.31	94.27	113.82	103.49	100	96 64	93.15	96 14	108 84	106 60
32	Rubber and miscellaneous plastics products	88 35	93 43	96 50	97 46	99 56	100	101.05	102.54	107 97	107 79	107 53
33+34	Footwear, leather, and leather products	83.94	89.29	92.91	96.54	98 27	100	101.57	102 83	105.59	106 06	107.95
35+36	Stone, clay and glass products	92.64	93.79	95.66	97.52	99 56	100	102.30	106 03	110.20	111.52	112.94
43+44+45+46+47+48+49+50+51+52	Machinery, except Electrical	88.43	91.17	94.86	97.60	99.74	100	100.09	100 69	101.97	102 14	101 54
53+54+55+56+57+58	Electrical equipment	93.23	94.40	96.66	98.29	99.37	100	101.08	101.71	102.26	102.17	100.72
62+63	Scientific, Controlling, Opthalmic, and Photographic equipment	88 54	90 14	93.34	96 55	98 40	100	101 77	102.86	104 47	105 39	105.81
64	Miscellaneous Manufacturing	86.79	89.88	93.48	96 07	98.24	100	101.59	103.09	105.27	106.86	107.86
65A+65E	Ground Transportation, except Trucking	96.50	99.12	96.14	97.12	100 16	100	97.70	99.32	98.18	100.20	102 07
65B	Motor Freight Transportation and Warehousing	83.45	91.61	96.51	102.88	99.23	100	100.96	107.01	109.97	107 40	112.21
65C	Water Transportation	77.26	85.05	88.97	91.48	96.27	100	99.70	100.00	103.00	103.70	104 20
65D	Air Transportation	99.07	112 32	109.80	99.69	103.54	100	105 60	108 50	113.70	121 10	125 30
66+67	Communications	93 98	94.14	97.02	98.29	98 53	100	102.17	104.38	107 00	108.37	107.73
68A+68B+68C	Utilities	92.27	90 52	93.07	94 44	99.55	100	102.11	100 57	100.77	99.79	101.42
72B+73A+73B+73C+73D+77B	Finance, Professional and Educational/Social services	77.93	82.31	85.36	90.95	94 44	100	102.15	105.40	108.40	112 45	116 92
70A	Financial Institutions	80.16	72.40	76.27	85 00	93.50	100	101.94	109 52	112.73	116 01	125 81
70B	Insurance	85.22	91.21	92.31	95.98	106 40	100	113.14	115.98	124.61	132.45	146.14
71B	Real Estate and Royalties	83.82	86 90	90.97	95.07	98.04	100	103.03	105.88	108.65	111.60	114.76
72A	Hotels and Lodging places	85.50	87.65	91 16	93 67	96 14	100	103.89	105.59	109.07	113 95	121 52
74	Eating and Drinking places	85 59	85.44	88.57	92.15	96 88	100	101.24	102.36	102.35	101 07	99.91
75	Automotive Repair and services	79.54	83 16	86.83	90.58	95 32	100	106.16	111.22	112.52	113.45	113 85
78	Amusements	78.13	81.96	86.55	91 53	96 39	100	102.89	107 41	110.79	115 15	117 50
77A	Health Services	67.96	73 44	79.62	86.28	93 05	100	105.85	110.97	114.89	118.07	121.40
A	Agriculture, Forestry, and Fisheries	94.557	104 57	111.54	109.46	101 66	100	103.70	100 08	103.14	114.13	103.21
B	Mining	97.79	91.81	99.35	106.37	101 95	100	99.35	95.32	92.33	109.75	111 96
C	Construction	90.56	93 80	96 16	99.08	99 88	100	103.45	107.58	112.65	116 16	119.84
D	Manufacturing	85.95	88.93	93 36	97 53	98.72	100	101 45	102.81	105 79	108.26	108 60
E	Transportation (except Water Transportation), Communications, and Utilities	92.64	94.70	97.13	98.06	99.78	100	101 76	102.49	104.09	103 67	104.97
F	Wholesale Trade	93.21	97.85	97.26	101 86	101.81	100	101.62	104 34	107.82	106.82	105.78
G	Retail Trade	85.59	85.44	88.57	92 15	96 88	100	101.24	102 36	102.35	101 07	99 91
H	Finance, Insurance, and Real Estate	81 69	83.36	87.07	92 35	97 82	100	103.73	105 91	112.94	116.26	122.11
I	Services	75 35	79 87	84 00	89.85	94 33	100	103.55	107 47	110.73	114.47	118 46
J	Government Enterprises	80.65	83.83	87.20	91.40	96.08	100	103.07	106.29	109.83	113.21	116.24

APPENDIX 4

List of Kits Assess Tables

1D	One digit SIC to BEA bridge for regionalizing data.
2D	Two digit SIC to BEA bridge for regionalizing data.
3D	Three digit SIC to BEA bridge for regionalizing data.
capitalexp	Capital Expenditures list and amounts.
cargorevenue	Cargo Revenues based tonnage, unit cost, and mode.
choice	Datafile descriptors; Aggregation choice, year, locale, etc.
datatable	Producer Price index data by year vs industry.
IBT	Indirect Business Tax data for several states and nation, Survey of Current Business.
NewADJCOS	The "A" matrix, a regioanlized version of NewCoefficients.
NewCoefficients	The National "A" matrix of coefficients.
NewInverse	The Leontief inverse of (I-A).
PortUsers	The data for the Port Users section.
RPCs	The regional purchase coefficients, these regionalize "A."
tblCode	The industry names for various BEA codes.
tblMULT	The output multipliers.
tblRats	The Employment:Output ratio, Payroll:Output ratio, and adjusted Employee Compensation row from NewInverse.
tblScrap	Contains the Scrap industry data, as well as output and the three bridges.
u1D	The aggregation of the national USE table, bridged to 1-digit SIC. Q being total commodity output.
u2D	The aggregation of the national USE table, bridged to 2-digit SIC.
u3D	The aggregation of the national USE table, bridged to 3-digit SIC.
v1D	The aggregation of the national MAKE table, bridged to 1-digit SIC. X being total commodity output.
v2D	The aggregation of the national MAKE table, bridged to 2-digit SIC.
v3D	The aggregation of the national MAKE table, bridged to 3-digit SIC.
aggScrap	The aggregated scrap values.
qryDetail	The bridged version of the data the user entered in "1D", "2D", "3D."
qryMODa	Rail, Truck, Barge data summed from Cargo Revenue section, internal to port.
qryMULT	The multipliers.
qryRRTB	Rail, Truck, Barge impacts, external to port.
qrySumINV	The column sums of NewInverse.