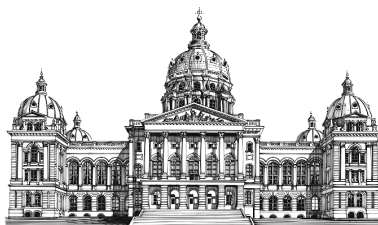

Iowa Legislative Fiscal Bureau

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State Capitol
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December 8, 1992

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Input/Output Economic Model

ISSUE

The Legislative Fiscal Bureau (LFB) recently acquired an input/output economic model which measures the linkages between the economic sectors in Iowa and can serve to provide an estimate of the impact of various changes to Iowa's economy.

BACKGROUND

With approval of the Legislative Council, the LFB has been working with representatives of the Regional Economics Applications Laboratory (REAL) to develop the Iowa Region Econometric Input-Output Model (IREIM). The IREIM is an economic model designed to project and chart future economic scenarios for Iowa based upon national, regional, state, and sector specific data. Categories of economic activity include: Agriculture, Mining, Construction, Manufacturing, Transportation/Communication/Utilities, Wholesale/Retail Trade, Finance/Real Estate, Services, and Government. These categories are comprised of 36 specified sectors.

The consultants from REAL have analyzed the sectoral data used to establish the model. They determined the current State economy mirrors the national economy in projected growth in the services sector, with 240,000 additional jobs anticipated by the year 2000. Attachment A summarizes the consultants' comments on Iowa's current and projected economy.

The input/output model provides a framework to collect, categorize and analyze data on the industry and sector structures of Iowa's economy and the interdependence between them. The model is based on identifying which inputs and finished products are purchased within the State from other sectors, which inputs are purchased outside of the State, and which finished products are exported outside the State. Using the model as a tool to understand these economic linkages can enable policymakers and public officials to better target industries for economic development within the State. The model can help determine if the State of Iowa benefits more by targeting economic dollars into a manufacturing industry, or if greater benefits are earned by targeting dollars into the wholesale and retail trade sector.

The user can introduce an expected change, or shock into the model, and then interpret the results on the Iowa economy. For example, if news of an expansion in the financial and insurance sector were announced, an increase in employment could be entered into the input/output model. The model would help to assess what the total (both direct and indirect) effect would be on not only the financial and insurance services sector, but also on other sectors in the Iowa economy, enabling the user to estimate the total effect on employment,

income, and output for the State. Again, this is possible because the linkages between sectors of the Iowa economy is an integral part of the model.

The model will yield results showing the impacts of changes in final demand on statewide income, output, and employment. The model will also produce various measures called multipliers. An employment multiplier will produce a ratio of total change in employment that is estimated to occur as a result of each employee change in a specific sector. An income multiplier will produce a ratio of change in total income resulting from each dollar change in income in a specific sector. An output multiplier will produce the ratio of total change in output resulting from each dollar change in output in a specific sector.

CURRENT SITUATION

Staff are now prepared to take requests for information and incorporate the model as a tool in making policy decisions. Attachment B is a sample of the analysis that can be done when an impact is introduced to the IREIM model.

RECOMMENDED MODEL USES

The IREIM model is best used as a tool for evaluating the impact of a proposed project, evaluating alternative uses of funds, comparing alternative projects, and evaluating proposed legislation. The model can also be used to look at long-term movements or growth rates in the economy. It is not appropriate to use the model to determine the impact of very small changes or to make specific forecasts.

The 2 attachments show examples of the analysis which can be done. Please feel free to bring questions and requests to our staff.

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SUMMARY OF THE IOWA ECONOMY

Consultants from the Regional Economics Applications Laboratory (REAL) have done extensive analysis of confidential Census information in constructing the model. In performing this analysis, the consultants developed a picture of the Iowa economy from which a number of conclusions and implications were drawn. The consultants' major predictions for the period 1990 to 2000 are presented below.

Sectors projected to *increase* by a total of 480,100 jobs between 1990 - 2000 are as follows:

- Non-durable manufacturing increases in the rubber and plastic sector (12,000 jobs; e.g., tires, hoses, gaskets), and printing sector (14,000 jobs).
- Durable manufacturing increases in the fabricated metal sector (6,000 jobs; e.g., cans, containers, hand-tools), transportation equipment sector (4,500 jobs), and instruments sector (6,600 jobs).
- Non-manufacturing increases in the services sector (240,000 jobs), trade sector (112,000 jobs), finance, insurance and real estate sector (79,000 jobs), transportation, communication and public utilities sector (6,000 jobs).

Sectors projected to *decrease* by a total of 54,000 jobs between 1990 - 2000 are:

- Non-durable manufacturing decreases in stone, clay and glass sector (-2,000 jobs; e.g., concrete, ceramics, glassware), food and kindred products sector (-12,000 jobs); and chemicals sector (-2,000 jobs).
- Durable manufacturing decreases in non-electrical machinery sector (-8,000 jobs).
- Non-manufacturing decrease in the construction sector (-30,000 jobs).

National Trends:

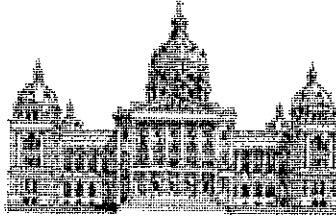
- The drop in the price of computers will lead to increased growth in output and productivity.
- Total consumption of goods and services will decrease.
- International competition is increasing which will focus more attention on regional competitiveness.

Implications for Iowa:

- Real personal income will increase.
- There will be a greater demand for services, resulting in pressure for the service sector to improve productivity and to address the cost, quality and availability of labor.
- There are strong similarities in the performance of the services sector at the U.S. and Iowa level.

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ECONOMIC IMPACT REVIEW

Greyhound Lines Inc. is consolidating operations and plans to relocate its West Des Moines accounting center to Dallas, Texas. This will result in the loss of 424 jobs to the State of Iowa.

BACKGROUND INFORMATION

Greyhound Lines Inc., based in Dallas, Texas, announced on October 6, 1992 that its West Des Moines accounting center will close in 1993, due to the company's plans for reorganization. The company will permanently layoff 424 employees. Approximately 69.3% of the affected employees are union clerical workers, earning between \$5.00 and \$10.00 per hour. The remaining 30.7% are non-union, primarily supervisory positions. The loss in total payroll is expected to be approximately \$8.9 million.

ASSUMPTIONS

The following assumptions and clarifications were used in developing this review:

- All of the positions are classified in the "Business Services" sector. This sector is a subset of the "Services Category".
- All dollar amounts are adjusted to reflect changes in the Consumer Price Index and are expressed in constant 1992 dollars.
- All of the positions will be vacant from 1993 through 1998.
- The model does not take into account any wage compensation or severance pay to employees directly affected by the layoffs.

SIGNIFICANT OUTCOMES

Table 1 depicts the effect that the layoffs will have on Iowa's Gross State Product (GSP), total output, income, and employment from in 1993 through 1998.

Table 1
Total Impact on Iowa's Economy

Description	1993	1994	1995	1996	1997	1998	Total
Gross State Product*	\$ -15.46	\$ -0.84	\$ -0.18	\$ -0.26	\$ -0.31	\$ -0.22	\$ -17.27
Total Income*	\$ -14.79	\$ -0.58	\$ 0.05	\$ -0.04	\$ -0.08	\$ -0.07	\$ -15.51
Total Output*	\$ -35.51	\$ -2.11	\$ 0.11	\$ 0.04	\$ -0.07	\$ -0.08	\$ -37.62
Total Employment**	-713	-42	0	0	-1	-1	-757

* Millions of 1992 dollars

** Individual workers

The model's results show that virtually all of the economic loss will occur in 1993. Between 1993 and 1998, the model projects a total job loss of 757 positions, which includes the 424 employees dismissed by Greyhound. In addition, the State can expect to lose \$37.6 million in total output and \$15.5 million in total income over the 6-year period. The model predicts that GSP will decline by \$17.3 million. The GSP is comprised of consumption, investment, capital stock, government spending, and net exports.

Figure 1 gives a percentage distribution of employment loss by category, 44.0% due to a multiplier effect which impacts other sectors in the economy.

Figure 1. Employment Loss - Distribution By Category

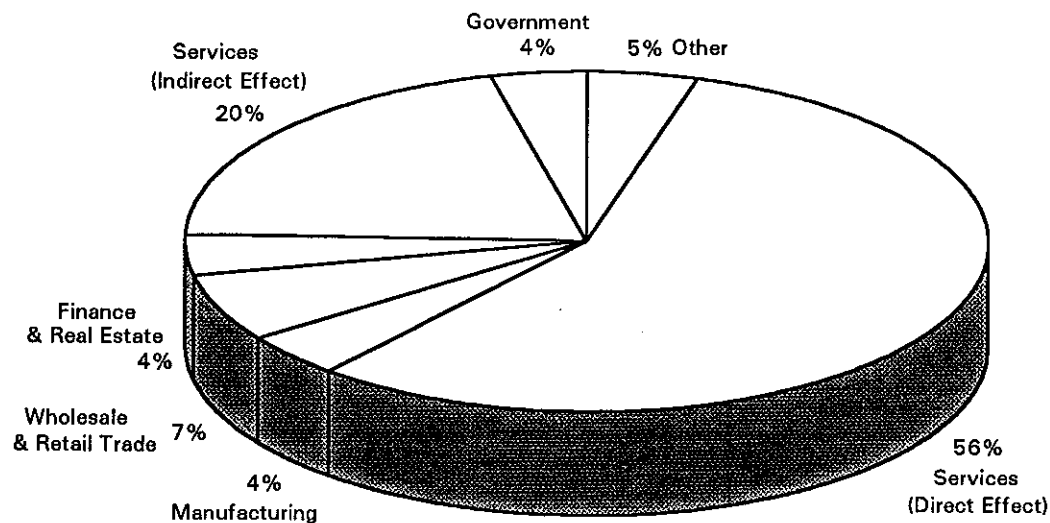
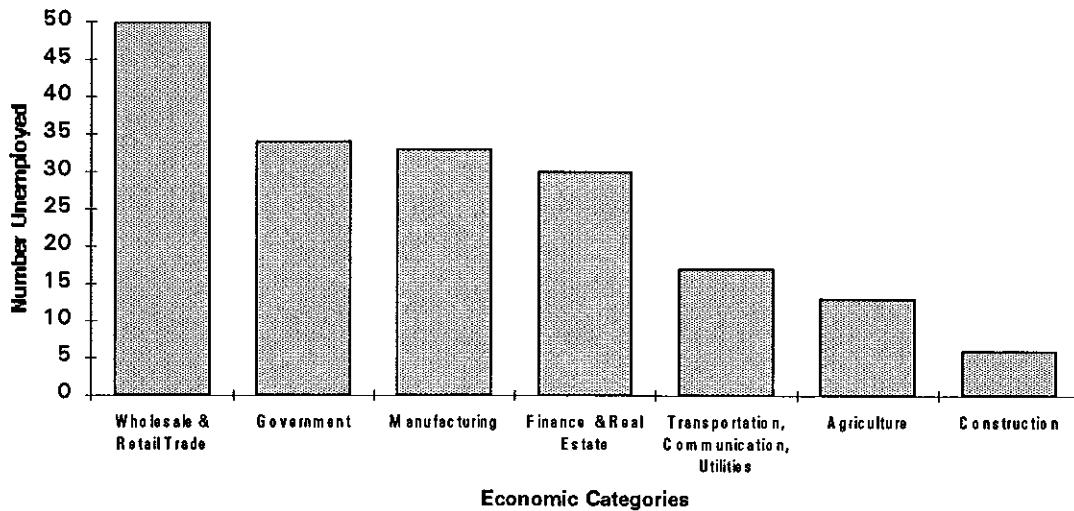


Figure 2 illustrates the number of jobs the economy is expected to lose in non-service categories due to the direct loss of 424 jobs in the Business Services sector.

Figure 2. Non-Service Employment Loss by Category



SOURCES OF INFORMATION ON COMPANY PLANS

- The Des Moines Register
- Bill Kula, Greyhound Lines Inc. spokesperson

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