

Regional Economic Impact Model of Owyhee County, Idaho
and the Four County Area Including Ada, Canyon, Elmore,
and Owyhee Counties

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Agricultural Economics Extension Series No. 03-06
June 2003



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Background

A socio-economic study of Owyhee County was completed in 1998-1999 (Rimbey, et al. 1999; Harp and Rimbey 1999; Darden, et al. 1999), and information derived in that analysis was used in the Owyhee Resource Area Draft Resource Management Plan (ORMP). The county level economic impact analysis of the earlier study answered many questions about the economic structure of Owyhee County and potential economic impacts resulting from changing public land forage allocations. Owyhee County is located in the Southwestern corner of the state, bordering Elko County, Nevada and Malheur County, Oregon. The county spans over 4.9 million acres with approximately 83% managed by federal or state government agencies and 17% private and tribal owned lands.

The population of the county has grown approximately 2.6% per year from 1991 to 2000 while the state of Idaho's population grew at 2.5% per year over the same time period. Both the state and Owyhee County's population grew approximately 25% between 1991 to 2000. Due to this growth in population and various other factors, much has changed in Owyhee County since the first study was completed and is reflected in the new economic impact model of the county. The biggest change in the economy came in 1999. In the wake of a decline in gold prices Kinross Gold Corporation closed its DeLamar and Stone Creek Mines. Following the closure, the mining industry in Owyhee County lost approximately 180 jobs (150 from DeLamar itself) and over \$17 million in output. Although only 6% of the total employment and output in the county, the mining industry at one time had also provided a fiscal boost to the state and county coffers

garnering a 2% mining license tax on the value of ores extracted as well as Ad Valorem taxes and royalties from payments to the federal government. Other changes to the economy included a boom in the dairy industry resulting in a doubling of output from that sector and an increase in the manufacturing production in the county.

Methods and Procedures

Model Construction

Input-output models for Owyhee County and the four county region, including Ada, Canyon, Elmore, and Owyhee counties, were developed using the microcomputer IMPLAN model. The Micro IMPLAN model was developed by the U.S. Forest Service to estimate sectoral and regional impacts of alternative forest management scenarios (Alward et al. 1989). The update and further development of Micro IMPLAN has been conducted by the Minnesota IMPLAN Group, Inc (1997) and is now available as desktop software. However, before using the IMPLAN software and models, data and matrices should be tested for validity and consistency. In a publication by Holland et al. (1997) several steps are provided that can be used to validate the model and linearly adjust sectoral output and income based upon introduced employment figures.

An input-output model is a mathematical representation of the purchase and sales patterns within a given economy at a point in time. The model estimates total regional economic impacts of exogenous "shocks" to an economy in terms of output, personal income (wages and salaries plus proprietor income), and employment (jobs). Figure 1 shows the basic concepts behind the functioning of a regional economy.

A Simplified Regional Economy

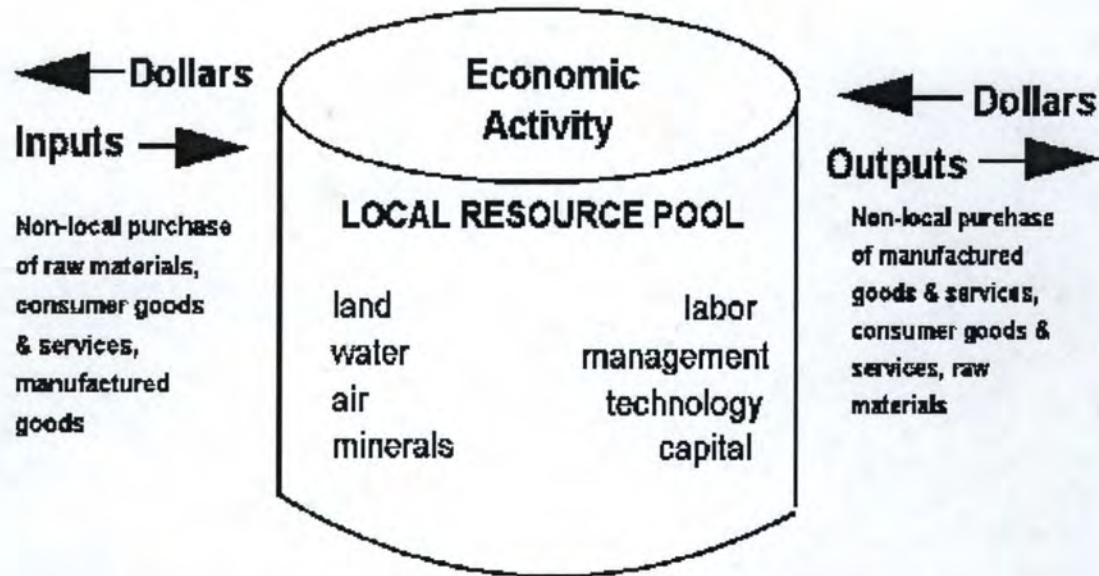


Figure 1. A Simplified Illustration of Flows In and Out of an Economy.

The basic components that make up the input-output model are the employment, output and income generated from each economic sector in the economy. The total employment figures are based on Regional Economic Information System (REIS) data (U.S. Department of Commerce, 2001) and are full or part-time employees of a given sector. The employment values are for jobs not full time equivalents. Sectoral income is derived by the summation of wages and salaries paid to employees plus the proprietors' income, which is also based upon the REIS data. Output is simply the gross sales for non-agricultural industries and gross value of production for agricultural products. The agricultural values of production are based upon a 5-year (1996-2000) average for Owyhee County and each of the four county region's agricultural production from the Idaho Agricultural Statistics Service (IASS, 1993-1997). All output values for non-

agricultural sectors are based upon IMPLAN data adjusted using methods described previously. Tables 1 and 2 list each economic sector of the Owyhee County and 4 County input-output models along with the corresponding employment, output, and income values.

Table 1. Output, Employment and Personal Income, Owyhee County Model 2000.

Sector	Employment	Output	Personal Income
1 Dairy Farm Products	76	\$23,194,383	\$4,010,796
2 Misc. Livestock	28	\$2,784,633	\$458,498
3 Range Cattle	235	\$23,308,481	\$5,429,547
4 Cattle Feedlots	20	\$7,715,005	\$2,210,728
5 Grains	51	\$5,964,599	\$984,891
6 Forage Crops	494	\$26,895,789	\$4,572,562
7 Misc. Crops	151	\$17,511,735	\$5,250,088
8 Sugar Beets	63	\$7,167,485	\$1,250,225
9 Ag Services	227	\$6,501,637	\$2,836,301
10 Mining	4	\$479,972	\$82,029
11 Construction	251	\$28,547,230	\$12,293,300
12 Manufacturing	156	\$45,730,615	\$6,626,364
Transportation and			
13 Communication	120	\$12,261,124	\$2,277,678
14 Gas and Electric Services	15	\$10,485,643	\$1,381,683
Irrigation, Sanitation, and Water			
15 Serv.	72	\$18,896,515	\$3,466,995
16 Wholesale Trade	48	\$3,080,621	\$1,257,856
17 Retail Trade	76	\$1,667,722	\$741,160
18 Food Stores	156	\$7,324,724	\$3,937,894
Automotive Dealers & Service			
19 Stations	69	\$2,877,000	\$1,160,671
20 Eating & Drinking	157	\$4,741,152	\$1,429,231
21 F.I.R.E.	20	\$19,461,151	\$204,198
22 Hotels and Lodging Places	4	\$97,096	\$33,902
23 Health Care	320	\$12,854,758	\$6,736,506
24 Services	392	\$19,464,840	\$9,737,970
Totals	3,205	\$309,013,654	\$78,371,072

Table 2. Output, Employment, and Income, 4 County Model 2000.

Sector	Employment	Output	Personal Income
1 Dairy Farm Products	558	\$118,022,481	\$48,029,970
2 Misc. Livestock	316	\$12,643,561	\$3,148,653
3 Range Cattle	639	\$53,315,925	\$13,126,974
4 Cattle Feedlots	232	\$65,655,011	\$20,266,075
5 Grains	622	\$40,383,168	\$9,368,667
6 Forage Crops	3,098	\$94,443,911	\$24,701,930
7 Misc. Crops	2,868	\$185,071,655	\$68,466,910
8 Sugar Beets	516	\$42,743,144	\$8,931,441
9 Ag Services	4,625	\$120,619,740	\$50,877,700
10 Mining	191	\$18,609,041	\$8,004,885
11 Construction	23,482	\$3,987,598,539	\$1,247,946,500
12 Manufacturing	39,154	\$9,405,260,245	\$2,569,763,900
Transportation and			
13 Communication	13,326	\$1,453,129,735	\$481,456,850
14 Gas and Electric Services	1,182	\$684,569,317	\$122,387,610
Irrigation, Sanitation, and			
15 Water Serv.	299	\$60,750,437	\$17,020,505
16 Wholesale Trade	15,120	\$1,601,741,641	\$667,822,410
17 Retail Trade	22,658	\$790,623,082	\$389,517,690
18 Food Stores	9,585	\$543,728,595	\$323,306,060
Automotive Dealers &			
19 Service Stations	4,703	\$353,404,768	\$157,700,231
20 Eating & Drinking	16,663	\$558,178,895	\$198,838,400
21 F.I.R.E.	24,138	\$3,164,523,827	\$518,125,200
22 Hotels and Lodging Places	2,637	\$124,743,200	\$46,956,984
23 Health Care	20,002	\$1,525,650,193	\$893,373,200
24 Services	64,825	\$ 3,217,042,063	\$1,520,746,600
Totals	271,439	\$25,024,874,951	\$9,409,885,345

Using published cost and return studies for agricultural production practices (Rimbey, et al. 1999) and procedures developed by Darden et al. (1999), agricultural budgets were bridged into input-output sectors for this analysis. The purpose of input-output modeling is to capture impacts to regional economies. With that in mind, the substitution of localized production functions and purging of imports, through margining retail purchases, allows for the true regional interaction of those augmented sectors with

other sectors in the economy as explained by Coupal and Holland (1995) and Willis and Holland (1997).

Finally, models were constructed using general econometric practices to create a Leontief input-output model as explained in Miller and Blair (1985). One subtle difference between this model and the previous model built for Owyhee County is that the adjustment for in-commuter income, done in the previous model, was not attempted in this model. In the previous model, Journey to Work data were available for the counties through the Bureau of Economic Analysis (BEA) (U.S. Dept. of Commerce, 2002) by economic sector. In the earlier study, interviews were conducted with local businesses throughout Owyhee County to arrive at estimates of personal income earned in the county along with that flowing out to another county or even state. However, the 2002 BEA data only reports the number of in-commuters and where they are commuting from. Therefore, to keep the two models consistent we did not make adjustments for this outflow of income. There should not be a problem with overestimation of local household spending due to the fact that the basis for IMPLAN's wage and salary income and proprietor's income are derived from BEA income figures which are adjusted for both in-commuters and out-commuters.

Final Demand and Output Requirements

The final demand and output requirements are the basis for the Input-Output model framework. These figures make up the multipliers used to estimate impacts in the models. Appendix B shows the final demand requirements (final demand multipliers) and output requirements (output multipliers) used for the Owyhee County Economic Impact Model while Appendix C shows the requirements for the 4 County Economic

Impact Model. Great care must be taken when using and interpreting the multipliers generated from this type of analysis. To decide which type of multiplier to use, ask the question of whether the impact causes an export sale, sale to final demand, or causes a change in output from the affected sector. For instance if drought reduces the amount of water available for irrigation and therefore reduces hay production by one ton per acre an output multiplier would be used to calculate impacts. However, the construction of a new golf course would warrant the use of final demand multipliers. The main difference between final demand and output multipliers is that the final demand multipliers let the impacted sectors interact with themselves as well as the other sectors in the economy.

Multipliers are the main force behind input-output modeling and become the mechanism from which all impacts are generated. To better explain multipliers, Figure 2 shows the lifespan of a dollar in the economy. When a dollar enters the economy, part of that dollar stays in the economy and part leaves in the form of savings or as payment for imported goods. By dividing the \$1 worth of output by the output multiplier, in this case 1.42, the first transaction yields \$0.30 staying in the economy and \$0.70 leaving the economy. Dividing the remainder of the dollar in the economy by the same 1.42 gives a value of \$0.09 leaving the economy ($\$0.30 / 1.42 = \0.21) and \$0.09 ($\$0.42 - \$0.24 = \0.18) staying within the economy. Repeat these steps until the amounts staying within the economy have all disappeared. Adding all of the amounts calculated as staying in the economy plus the original dollar yields the multiplier of 1.42.

To use the multipliers without the use of the actual I-O model, find the sector you would like to show the output impacts to and read down the list to find the number in the column total for that sector. This is the output multiplier, for instance the range cattle

sector has an output multiplier of 1.79. This means that for every \$1 of livestock production output there is another \$0.79 in output and income generated throughout the economy in indirect and induced effects. Likewise, for income impacts, use the number in the column corresponding to the household sector only and multiply by the \$1.00 output impact. This yields \$0.35 in household income for every dollar worth of output.

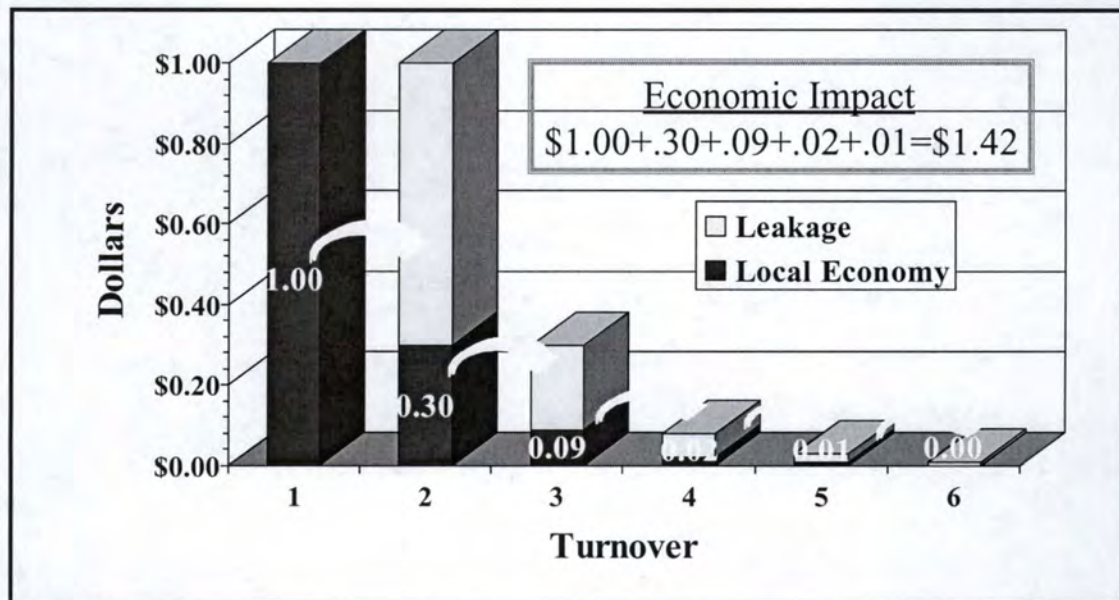


Figure 2. An Example of a Multiplier.

Results

Owyhee County Economic Impact Model

The Owyhee County Economic Impact Model was built specifically for the Bureau of Land Management (BLM) with the analysis of grazing management change impacts specifically in mind. The following are examples of the use of the Owyhee County model for economic impact analysis: 1) Changes in permitted BLM grazing, and 2) Impacts of the dairy industry.

Grazing Impacts

To calculate the direct impacts of public forage losses, a total value of output lost or value of output lost per animal unit month (AUM) must be calculated. Total value of production for the range cattle sector in Owyhee County was based on a five-year average derived from Idaho Agricultural Statistics Service (IASS 1997-2001) estimates for beef cows that have calved from 1996 through 2000. The five-year average value of production was estimated to be \$23,308,634. The second step was to find how many AUMs there are in the county regardless of source. The total number of AUMs in the county was estimated to be 602,640 (including private land). This value was based on Workman's (1986) evaluation that for a 300-cow operation, 4,464 total AUMs are required for all classes of cattle for the year. This results in a factor of 14.88 AUMs for every cow animal unit (AU) ($(4464 / 300) = 14.88$). Multiplying the 14.88 AUMs/cow by NASS' estimate of 40,500 cows yields approximately 602,640 AUMs in Owyhee County. By dividing the value of production by the total estimated AUMs, a value of output of \$38.68 was estimated for each AUM.

Using ranch budgets and linear programming models, Rimbey et al. (2003) were able to determine the loss of AUYS a Bruneau, Idaho ranch might suffer given different reductions in BLM AUMs. Using results from these models an estimate of the economic impacts those grazing losses will have on the Owyhee County economy can be made. For instance, Rimbey et al. (2003) report that their Bruneau Ranch Model suffers an average loss of 230 AUYS with a 50% reduction in cattle numbers from the representative ranch. By multiplying 230 AUYS by 12 months, a total of 2,760 AUMs are lost to the ranch due to the reduction in BLM AUMs over a five-year period. Table 3 shows the

economic impacts if 10 ranches similar to the Bruneau Ranch Model were cut by 50% of their BLM AUMs.

The direct impacts result in an industry output reduction of \$1,067,500 ($26,700 \times \$38.68 = \$1,067,500$). The total industry impacts or output impacts to Owyhee County's economy from the loss of 27,600 AUMs of grazing is a total loss of \$1,534,711 with indirect and induced impacts being \$467,211 ($\$1,067,500 - \$1,534,711 = \$467,211$). The indirect and induced impacts are the impacts to the different sectors in the economy that occur because of the range livestock sector interactions with them and induced impacts of the spending of personal income by households. The impacts to personal income, which include wages and salaries of workers and proprietor's income, amount to a loss of \$380,413. The policy causing the 50% reduction in BLM AUMs also causes a loss of 17 jobs in the economy with 11 of those jobs coming from the range cattle industry.

Table 3. Economic Impacts of a 26,700 Reduction in AUMs Due to 50% BLM Reduction.

Sector		Direct Output Impacts	Indirect/Induced Output Impacts	Total Output Impacts	Total Employment Impacts
Dairy	1	\$0	(\$270)	(\$270)	0
Misc. Livestock	2	\$0	(\$1,200)	(\$1,200)	0
Range Cattle	3	(\$1,067,500)	\$0	(\$1,067,500)	-11
Feedlots	4	\$0	(\$47,967)	(\$47,967)	0
Grains	5	\$0	(\$26,010)	(\$26,010)	0
Forage Crops	6	\$0	(\$30,367)	(\$30,367)	-1
Misc. Crops	7	\$0	(\$5,281)	(\$5,281)	0
Sugar Beets	8	\$0	(\$88)	(\$88)	0
Ag Services	9	\$0	(\$40,854)	(\$40,854)	-1
Mining	10	\$0	(\$1,495)	(\$1,495)	0
Construction	11	\$0	(\$37,121)	(\$37,121)	0
Manufacturing	12	\$0	(\$58,927)	(\$58,927)	0
Transportation and Communication	13	\$0	(\$31,104)	(\$31,104)	0
Gas and Electric Services	14	\$0	(\$6,420)	(\$6,420)	0
Irrigation and Water Serv.	15	\$0	(\$17,780)	(\$17,780)	0
Wholesale Trade	16	\$0	(\$10,675)	(\$10,675)	0
Retail Trade	17	\$0	(\$5,044)	(\$5,044)	0
Food Stores	18	\$0	(\$6,781)	(\$6,781)	0
Auto Dealers & Service Stations	19	\$0	(\$14,306)	(\$14,306)	0
Eating & Drinking	20	\$0	(\$8,760)	(\$8,760)	0
F.I.R.E.	21	\$0	(\$47,968)	(\$47,968)	0
Hotels and Lodging Places	22	\$0	(\$171)	(\$171)	0
Health Care	23	\$0	(\$27,799)	(\$27,799)	-1
Services	24	\$0	(\$40,825)	(\$40,825)	-1
Regional Income	25	\$0	(\$380,413)	(\$380,413)	0
		Direct Impacts	Indirect/Induced Impacts	Total Impacts	
Total Industry Impacts		(\$1,067,500)	(\$467,211)	(\$1,534,711)	
Total Regional Income		\$0	(\$380,413)	(\$380,413)	
Total Employment Impacts					-17
Total Economic Impacts		(\$1,067,500)	(\$847,624)	(\$1,915,124)	

Dairy Impacts

The recent increase in dairy herd size and new dairies coming into Owyhee County might cause concerns to the state and county due to various environmental concerns related to the dairy industry. However, before hastily condemning the opening and expanding of dairy facilities, the county would be smart to look at the economic impacts these dairies have on the county.

By taking the value of dairy production, which includes the sale of milk and cull animals, and dividing that figure by the total number of dairy cows in the county an estimate of value of production per dairy cow can be established. The value of production per dairy cow in Owyhee County is \$1,657 ($\$23,195,356 / 1,400 = \$1,656.81$). Table 4 shows the economic impacts of a 1,500 head dairy operation to Owyhee County's economy.

The total economic impact of one 1,500 head dairy to the Owyhee County economy amounts to \$4,395,081 of which \$1,150,956 are indirect and induced impacts. This dairy also supports 8 jobs in the dairy industry and an additional 17 jobs spread throughout the rest of the industries. A total of \$758,908 in regional income is generated as well.

Table 4. Economic Impacts of a 1,500 head Dairy to Owyhee County's Economy.

		Direct Output Impacts	Indirect/Induced Output Impacts	Total Output Impacts	Total Employment Impacts
Dairy	1	\$2,485,217	\$0	\$2,485,217	8
Misc. Livestock	2	\$0	\$2,732	\$2,732	0
Range Cattle	3	\$0	\$943	\$943	0
Feedlots	4	\$0	\$1,568	\$1,568	0
Grains	5	\$0	\$84,587	\$84,587	1
Forage Crops	6	\$0	\$123,212	\$123,212	2
Misc. Crops	7	\$0	\$12,041	\$12,041	0
Sugar Beets	8	\$0	\$62,759	\$62,759	1
Ag Services	9	\$0	\$99,086	\$99,086	3
Mining	10	\$0	\$3,638	\$3,638	0
Construction	11	\$0	\$52,859	\$52,859	0
Manufacturing	12	\$0	\$133,926	\$133,926	0
Transportation and Communication	13	\$0	\$55,080	\$55,080	1
Gas and Electric Services	14	\$0	\$31,231	\$31,231	0
Irrigation and Water Serv.	15	\$0	\$35,866	\$35,866	0
Wholesale Trade	16	\$0	\$28,347	\$28,347	0
Retail Trade	17	\$0	\$22,603	\$22,603	1
Food Stores	18	\$0	\$13,492	\$13,492	0
Auto Dealers & Service Stations	19	\$0	\$17,080	\$17,080	0
Eating & Drinking	20	\$0	\$18,384	\$18,384	1
F.I.R.E.	21	\$0	\$95,552	\$95,552	0
Hotels and Lodging Places	22	\$0	\$372	\$372	0
Health Care	23	\$0	\$55,436	\$55,436	1
Services	24	\$0	\$200,164	\$200,164	4
Regional Income	25	\$0	\$758,908	\$758,908	0
		Direct Impacts	Indirect/Induced Impacts	Total Impacts	
Total Industry Impacts		\$2,485,217	\$1,150,956	\$3,636,173	
Total Regional Income Impact		\$0	\$758,908	\$758,908	
Total Employment Impacts				25	
Total Economic Impacts		\$2,485,217	\$1,909,864	\$4,395,081	

4 County Economic Impact Model

The 4 County Economic Impact Model was constructed in the same manner as the Owyhee County Economic Impact Model with the expected use of examining the economic impacts of non-residential tourist visitors to the Snake River Birds of Prey (BOP) National Conservation Area and other uses of BLM managed lands in Ada, Canyon, Elmore, and Owyhee Counties.

Estimating the impacts of recreational visitor days (RVDs) can be difficult and caution should be used when evaluating expenditures by visitors and the number of RVDs used to calculate total impacts. Some things to pay close attention to when developing surveys are the fact that in order to have an economic impact on an economy, the recreationist or tourist must visit from outside the study area. In this instance, the recreationist may not live in any of the 4 counties as this represents. This is due to the fact that it is assumed that if the activity, whether it is bird watching, hunting, golfing, or even going to the movies, were not available the local person would find another local activity to spend their disposable income on. Other considerations while surveying recreational/tourist visitors should include whether the visitor is on a day trip, staying overnight at the recreational area, or staying overnight at a local hotel, as well as the number of days visiting the recreational/tourist site. The number of days visiting the specific site is important as to not overestimate average daily spending associated with the recreational area and spending at other recreational/tourist activities.

As there currently are no estimated reports of visitor days or expenditures associated the BOP the following analysis will draw on data from a study by Stynes and Sun (2002) estimating impacts of spending on recreation at Crater Lake National Park in

Oregon. Table 5 shows the non-local day user expenditures and expenditures for those visitors camping in the park (Stynes and Sun, 2002). The retail expenditures included (groceries; gas and oil; and souvenirs), need to be adjusted for leakages outside the local economy due to the fact that most retail goods are not produced in the local economy. This process is called margining the retail trade expenditures.

Table 5. Visitor Spending by Sector at Crater Lake National Park (\$ per day).

Spending category	Non-local	Margined ¹	Margined ¹	
	day user	Non-local	Camp-In	Camp-In
Lodging Fees	\$0.00	\$0.00	\$14.90	\$0.00
Restaurants and Bars	\$10.38	\$10.38	\$4.93	\$4.93
Groceries, take-out food/drinks	\$6.52	\$1.63	\$11.74	\$2.94
Gas and Oil	\$9.42	\$2.36	\$11.97	\$2.99
Local Transportation	\$0.17	\$0.17	\$0.09	\$0.09
Admissions and Fees ²	\$8.18	\$8.18	\$7.82	\$7.82
Souvenirs and other	\$16.11	\$4.03	\$10.50	\$2.63
Totals	\$50.79	\$26.75	\$61.96	\$21.40

¹The margined expenditures assume that retail goods are not produced locally, therefore only the mark-up is considered as a local impact. In this case the margin is 25%. Therefore, for every \$1.00 worth of goods purchased 75% of that purchase is considered an import.

²Admissions/fees are considered services for purposes of this analysis. If any admission charges or user fees are charged and paid to the government, these fees would be subtracted as government is exogenous of this model.

Using the margined figures in Table 5 as surrogates for visitor expenditures to BOP, the impacts of non-local recreational visitors can be estimated. Table 6 shows the impacts of 20,000 non-local recreational visitor days to the BOP recreational area. It is assumed that these visitors are participating in non-consumptive activities such as bird watching or hiking. This example economic activity from recreational visitors to the 4 County Regional economy from 20,000 RVD's totals a direct impact of \$534,900 with regional income totaling \$409,947. The total economic impact amounts to \$1,445,579 and supports 19 jobs.

Table 6. Economic Impacts of 20,000 Recreational Visitor Days at Birds of Prey National Conservation Area.

		Direct Final Demand Impacts	Indirect/Induced Final Demand Impacts	Total Final Demand Impacts	Total Employment Impacts
Dairy	1	\$0	\$283	\$283	0
Misc. Livestock	2	\$0	\$204	\$204	0
Range Cattle	3	\$0	\$474	\$474	0
Feedlots	4	\$0	\$488	\$488	0
Grains	5	\$0	\$31	\$31	0
Forage Crops	6	\$0	\$71	\$71	0
Misc. Crops	7	\$0	\$3,174	\$3,174	0
Sugar Beets	8	\$0	\$49	\$49	0
Ag Services	9	\$0	\$1,340	\$1,340	0
Mining	10	\$0	\$177	\$177	0
Construction	11	\$0	\$12,805	\$12,805	0
Manufacturing	12	\$0	\$115,912	\$115,912	0
Transportation and Communication	13	\$3,400	\$33,457	\$36,857	0
Gas and Electric Services	14	\$0	\$8,121	\$8,121	0
Irrigation and Water Serv.	15	\$0	\$2,242	\$2,242	0
Wholesale Trade	16	\$0	\$29,458	\$29,458	0
Retail Trade	17	\$80,600	\$20,475	\$101,075	3
Food Stores	18	\$32,600	\$6,142	\$38,742	1
Auto Dealers & Service Stations	19	\$47,100	\$7,943	\$55,043	1
Eating & Drinking	20	\$207,600	\$15,861	\$223,461	7
F.I.R.E.	21	\$0	\$88,126	\$88,126	1
Hotels and Lodging Places	22	\$0	\$4,254	\$4,254	0
Health Care	23	\$0	\$38,155	\$38,155	1
Services	24	\$163,600	\$111,490	\$275,090	6
Regional Income	25	\$0	\$409,947	\$409,947	0
		Direct Impacts	Indirect/Induced Impacts	Total Impacts	
Total Industry Impacts		\$534,900	\$500,733	\$1,035,633	
Total Regional Income Impact		\$0	\$409,947	\$409,947	
Total Employment Impacts				19	
Total Economic Impacts		\$534,900	\$910,679	\$1,445,579	

Summary and Conclusions

There is an increasing demand for economic impact studies of agricultural commodity production and tourism in rural communities because of federal, state, and local policy decisions and the quest of these communities to diversify their local economies. Lawmakers, land managers, and concerned citizens need this type of information to make informed decisions that have the possibility of impacting, whether negative or positive, rural economies and residents' livelihoods. Input-output modeling is a quantitative tool used to estimate these types of impacts to local or regional economies. However, oftentimes nationally based models are used without regard to the varying production practices and differing economic linkages that rural communities in the Western United States enjoy. Robison (1997) states that the regional input-output model is valuable in estimating impacts of rural issues. However, the off-the-shelf IMPLAN model needs refinement to include a rural community focus along with local expenditure flows.

As shown previously there are many different applications to input-output models like public land policy analysis, impacts of various industries on a local economy, and the impact of tourism and recreational visitors to a local or regional economy. Great care should be taken as to the direct impacts used for any of these activities. There are many things to consider when estimating the regional economic impacts of these activities.

For example, when estimating the impacts of BLM policy changes to the range cattle sector, the impacts of all affected production should be included. In the example provided, the actual loss of BLM AUMs on the Bruneau ranch model amounted to only 2,490 but affected an additional 270 AUMs from other sources that could no longer be used. The difference in direct impacts to the economy if the value of production from additional AUMs is omitted seems paltry at a mere \$10,400. However, when expanded to include losses on other ranches in the area the underestimation expands to over \$104,000.

Recreational tourism impacts on a regional economy can be problematic to estimate as well. One of the hardest figures to come across in this type of analysis is the expenditure pattern of the non-local visitors. Most times a visitor survey must be administered with careful consideration given to the questions asked and the compilation

of data in a way as to not over- or underestimate impacts. In the same vein, there are many estimates of non-local recreational visitor expenditures available to use as an estimate in a given region, if proper consideration is given to the complexity or simplicity of the rural economy being studied. If the number of recreationists visiting an area is available without expenditure data and there is no time to survey for those expenditures, a policy maker might want to modify existing data for similar recreation activity expenditures to meet the needs of their analysis. As with the example shown, no data for BOP recreational visitor expenditures were available so data from a different, federally managed, recreational area were adjusted to estimate potential impacts of recreation in the BOP National Conservation Area. Some of those adjustments included margining the retail trade, omitting camping fees due to government management of camping areas, and the omission of any user fees for the same reason.

Lastly, when comparing impacts from one activity to another, consideration should always include the preservation of current economic activities when proposing new ones. A job is a job does not necessarily hold true in all cases. Economies are complex, some jobs pay more than others and some industries provide more local impacts than others due to their purchase and sale patterns. These are just some of the things to consider when looking at tradeoffs between industries and impacts decisions and policies have on regional or local economies. As Taylor et al. demonstrated, there are also impacts on the local community that go beyond just the businesses that are directly impacted. As they examined in a case study in Wyoming, when ranching is reduced in favor of recreation, there will be a shift in the effects. Those that lose will not likely be the same as those who gain, nor will the gainers necessarily be better off than they were before. As they showed, the earnings per job in the recreation industry are about two-thirds of what they are in the ranching industry. The results of their study showed that it would be better for the local economy if both industries were maintained or improved rather than casting the argument that it is an either/or decision.

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APPENDIX A

Users' Guide for the Owyhee County and 4 County Economic Impact Models

Owyhee County and 4 County Economic Impact Model Programs

The Owyhee County and Four County Study Area Economic Impact Models are fully functional Windows applications. A computer running under a Windows[®] platform (Windows 3.1, Windows 95[®], Windows 98[®], Windows 2000[®], and Windows XP[®]) and at least five megabytes of hard disk space are needed to install and operate the impact model. The user enters values representing “shocks” to the economy in terms of final demand or industry output. The values entered are then used to derive economic impacts for the study area, changes in household income, and employment. The program has a menu used for entering data, calculating impacts, printing output and saving data. Figure 3 shows the title screen of the impact model.

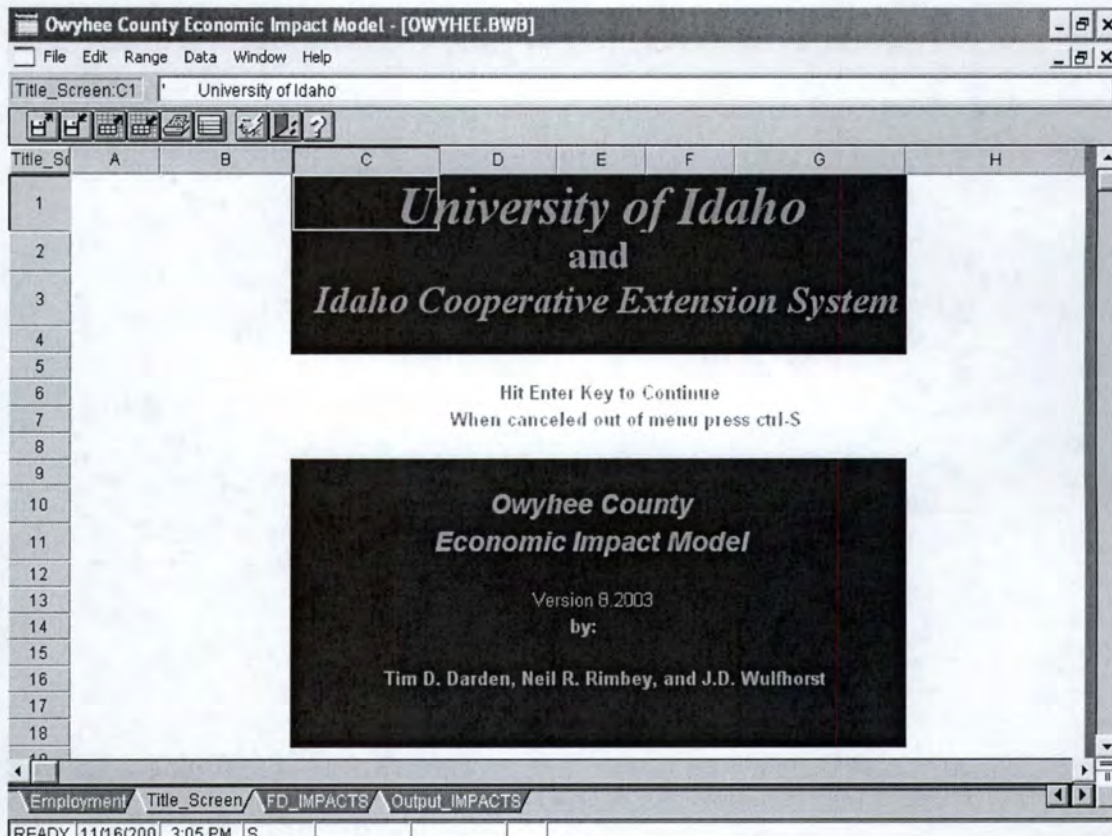


Figure 3. Owyhee County Economic Impact Model Title Screen.

Program Installation

To install the program under the Windows 2000[®] or Windows XP[®] platforms run the setup.exe program. To do this click on “Start” then “Run” from the program window and type “A:\Setup” or follow the instructions for your version of Windows[®]. The install wizard will guide the user through the installation and setup of the program. The installation will create a program group with icons and a copy of this document in Adobe Acrobat[®] format. To uninstall the programs simply go to the “Control Panel”, select “Add/Remove Programs” and find the Owyhee Economic Impact (4 County Economic Impact) software and select remove. For more information please refer to your Windows User’s Guide.

1.1 Program Menu

The primary Owyhee County (4 County) Economic Impact model will automatically open upon starting the program and the title screen will appear. Once the user “clicks” the mouse or strikes a key on the keyboard a menu as seen in Figure 4 will open. The menu contains eight options, an OK, Cancel and Help button. The eight available options consist of:

1. FD Changes – Final demand changes.
2. Calculate FD – Final demand impact calculation.
3. Output Changes – Output changes.
4. Calculate Output – Output impact calculation.
5. Print FD – Print final demand impact table.
6. Print Output – Print output impact table.
7. Quit – Exit the model.

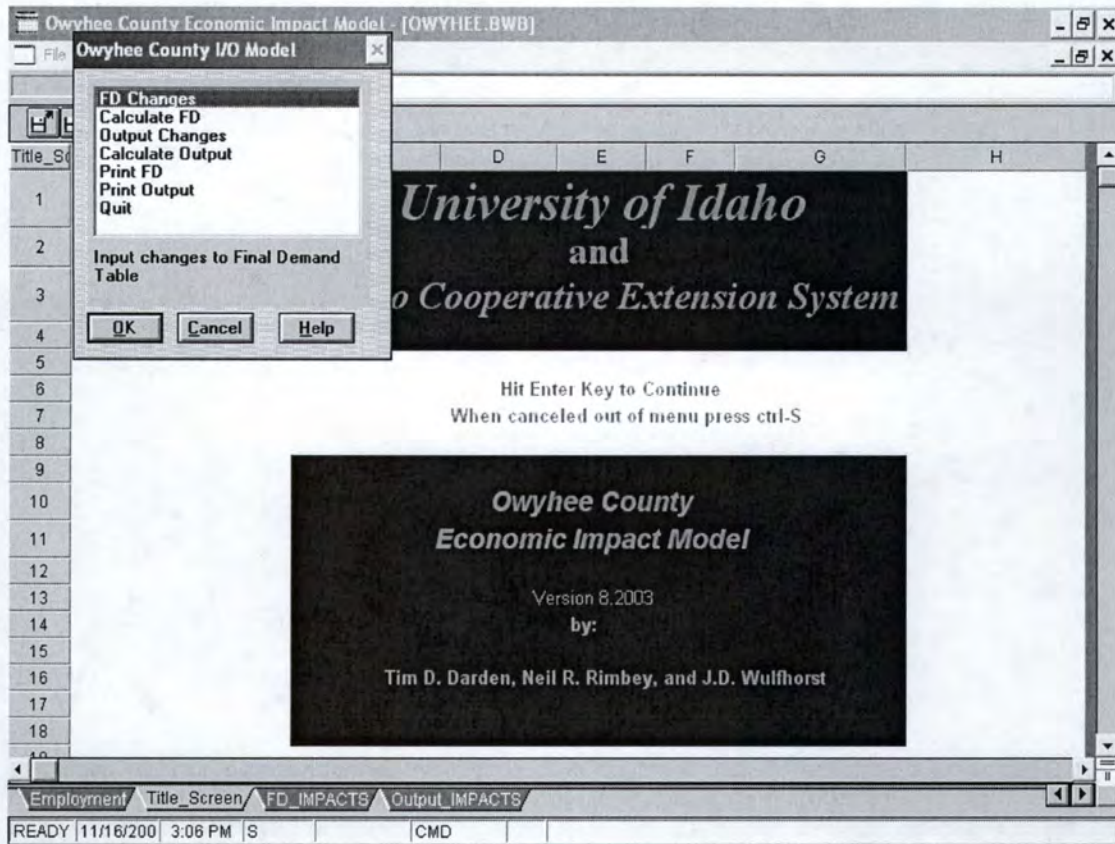


Figure 4. Owyhee County Economic Impact Model Menu.

The OK button works the same as double clicking with the mouse, or pressing enter on the keyboard while trying to execute a menu item. The Cancel button works to allow the user to exit from the menu and move around or look at the tables in the model, however there are limits to changes that can be made. *If the menu is cancelled for any reason it will not reappear until the user presses Ctrl and S on the keyboard simultaneously.*

Finally, the Help button is used to bring up the custom help file for use in operating the program or finding definitions of terms used in the impact model program.

Estimation of Final Demand Changes

To calculate final demand impacts with the Owyhee County (4 County) Economic Impact Model the user clicks on the FD Changes option located at the top of the menu. The screen will now show the final demand impact table and allow the user to enter a

value in the “Direct Final Demand Impacts” column only (Figure 5). In this example the analysis calls for a \$1,000,000 increase in final demand sales for the Mining sector in the Owyhee County area economy. The impacts do not have to occur in only one economic sector. Enter as many values as needed to accurately estimate an impact.

After entering the desired economic “shocks” the user can strike the enter key or click anywhere on the screen to bring the model menu back. The user should then select the “Calculate FD” option and calculate the final demand impacts.

Table 6 shows the impacts calculated by the model for a \$1,000,000 increase in mining final demand in Owyhee County. This change in the economy yields a total economic impact of \$1,671,882. Employment impacts are shown as a total of 13 jobs in Owyhee County supported by this increase in economic activity with approximately 9 jobs created in the mining industry.

Distributional impacts are also shown to give the user an idea of where in the economy the impacts are taking place and to show the interaction between the directly impacted economic sector(s) and the rest of the study area economy. The bottom portion of Table 6 shows a summary of the total impacts by industry, household income, employment, and total economic impacts.

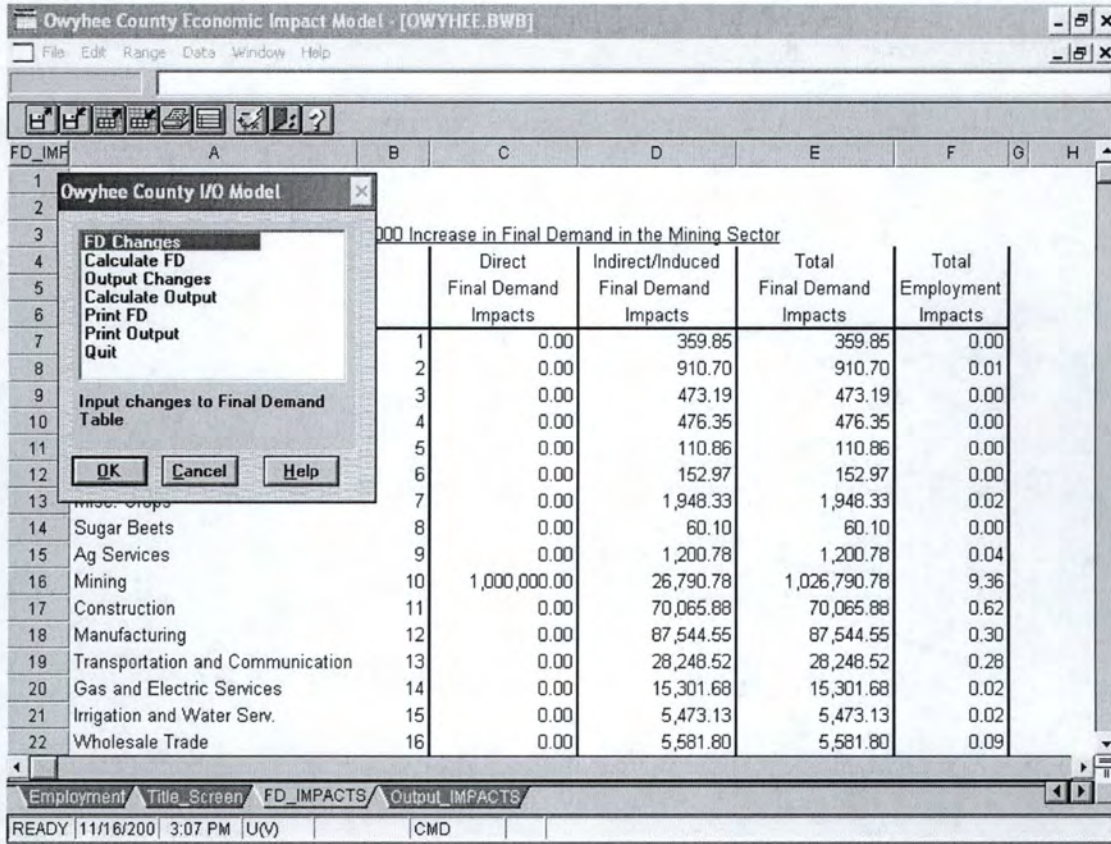


Figure 5. Final Demand Change Analysis Screen (FD Changes Menu Item).

Table 6. Final Demand Impacts Derived from Owyhee County Economic Impact Software.

Table 1. Economic Impact of \$1,000,000 Increase in Final Demand in the Mining Sector					
		Direct Final Demand Impacts	Indirect/Induced Final Demand Impacts	Total Final Demand Impacts	Total Employment Impacts
Dairy	1	0.00	359.85	359.85	0.00
Misc. Livestock	2	0.00	910.70	910.70	0.01
Range Cattle	3	0.00	473.19	473.19	0.00
Feedlots	4	0.00	476.35	476.35	0.00
Grains	5	0.00	110.86	110.86	0.00
Forage Crops	6	0.00	152.97	152.97	0.00
Misc. Crops	7	0.00	1,948.33	1,948.33	0.02
Sugar Beets	8	0.00	60.10	60.10	0.00
Ag Services	9	0.00	1,200.78	1,200.78	0.04
Mining	10	1,000,000.00	26,790.78	1,026,790.78	9.36
Construction	11	0.00	70,065.88	70,065.88	0.62
Manufacturing	12	0.00	87,544.55	87,544.55	0.30
Transportation and Communication	13	0.00	28,248.52	28,248.52	0.28
Gas and Electric Services	14	0.00	15,301.68	15,301.68	0.02
Irrigation and Water Serv.	15	0.00	5,473.13	5,473.13	0.02
Wholesale Trade	16	0.00	5,581.80	5,581.80	0.09
Retail Trade	17	0.00	2,430.45	2,430.45	0.11
Food Stores	18	0.00	5,035.09	5,035.09	0.11
Auto Dealers & Service Stations	19	0.00	4,527.12	4,527.12	0.11
Eating & Drinking	20	0.00	7,523.00	7,523.00	0.25
F.I.R.E	21	0.00	70,392.26	70,392.26	0.07
Hotels and Lodging Places	22	0.00	355.47	355.47	0.01
Health Care	23	0.00	16,978.62	16,978.62	0.42
Services	24	0.00	47,851.15	47,851.15	0.96
Regional Income	25	0.00	272,089.40	272,089.40	0.00
		Direct Impacts	Indirect/Induced Impacts	Total Impacts	
Total Industry Impacts		\$1,000,000.00	\$399,792.61	\$1,399,792.61	
Total Regional Income Impact		\$0.00	\$272,089.40	\$272,089.40	
Total Employment Impacts					13
Total Economic Impacts		\$1,000,000.00	\$671,882.01	\$1,671,882.01	

Estimation of Output Changes

To use the Owyhee County (4 County) Economic Impact Model to derive impacts from output changes the user clicks on the “Output Changes” option (see Figure 3) that will transfer the user to the output impacts screen as shown in Figure 6. For this example the user assumes a decrease of \$1,000,000 in the range cattle sector output of Owyhee County. After inputting the \$1,000,000 decrease in the direct impact column the economic impacts are calculated by striking the enter key and clicking on the “Calculate Output” option from the menu.

Output	A	B	C	D	E	F	G	H
1								
2								
3	Table 2. Economic Impacts of 1 AJM of Grazing in Owyhee County, ID.							
4			Direct	Indirect/Induced	Total	Total		
5			Output	Output	Output	Employment		
6			Impacts	Impacts	Impacts	Impacts		
7	Dairy	1	0.00	0.01	0.01	0.00		
8	Misc. Livestock	2	0.00	0.04	0.04	0.00		
9	Range Cattle	3	38.68	0.00	38.68	0.00		
10	Feedlots	4	0.00	1.74	1.74	0.00		
11	Grains	5	0.00	0.94	0.94	0.00		
12	Forage Crops	6	0.00	1.10	1.10	0.00		
13	Misc. Crops	7	0.00	0.19	0.19	0.00		
14	Sugar Beets	8	0.00	0.00	0.00	0.00		
15	Ag Services	9	0.00	1.48	1.48	0.00		
16	Mining	10	0.00	0.05	0.05	0.00		
17	Construction	11	0.00	1.35	1.35	0.00		
18	Manufacturing	12	0.00	2.14	2.14	0.00		
19	Transportation and Communication	13	0.00	1.13	1.13	0.00		
20	Gas and Electric Services	14	0.00	0.23	0.23	0.00		
21	Irrigation and Water Serv.	15	0.00	0.64	0.64	0.00		
22	Wholesale Trade	16	0.00	0.39	0.39	0.00		

Figure 6. Output Change Analysis Screen (Output Changes Menu Item)

Table 7 shows that with a \$1,000,000 decrease in output from the Owyhee County range cattle sector there will be an extra \$437,669 decrease in industrial economic activity through indirect and induced effects for a total negative industry impact of \$1,437,669. Household income will decrease by \$356,359. Also, total employment is

expected to decrease by 16 jobs. Once again the table shows distributional impacts to industry output, household income, employment, total county revenues, and total county expenditures in a summary at the bottom of the table.

Table 7. Output Impacts Derived from UCED Impact Software.

Table 2. Economic Impact of a \$1,000,000 decrease in the Range Cattle Sector in Owyhee County, ID.					
		Direct Output Impacts	Indirect/Induced Output Impacts	Total Output Impacts	Total Employment Impacts
Dairy	1	0.00	(252.85)	(252.85)	(0.00)
Misc. Livestock	2	0.00	(1,124.24)	(1,124.24)	(0.01)
Range Cattle	3	(1,000,000.00)	0.00	(1,000,000.00)	(10.08)
Feedlots	4	0.00	(44,933.86)	(44,933.86)	(0.12)
Grains	5	0.00	(24,364.95)	(24,364.95)	(0.21)
Forage Crops	6	0.00	(28,446.42)	(28,446.42)	(0.52)
Misc. Crops	7	0.00	(4,946.96)	(4,946.96)	(0.04)
Sugar Beets	8	0.00	(82.40)	(82.40)	(0.00)
Ag Services	9	0.00	(38,270.91)	(38,270.91)	(1.34)
Mining	10	0.00	(1,400.21)	(1,400.21)	(0.01)
Construction	11	0.00	(34,773.53)	(34,773.53)	(0.31)
Manufacturing	12	0.00	(55,200.54)	(55,200.54)	(0.19)
Transportation and Communication	13	0.00	(29,137.35)	(29,137.35)	(0.28)
Gas and Electric Services	14	0.00	(6,014.22)	(6,014.22)	(0.01)
Irrigation and Water Serv.	15	0.00	(16,656.09)	(16,656.09)	(0.06)
Wholesale Trade	16	0.00	(9,999.97)	(9,999.97)	(0.16)
Retail Trade	17	0.00	(4,724.61)	(4,724.61)	(0.22)
Food Stores	18	0.00	(6,352.67)	(6,352.67)	(0.14)
Auto Dealers & Service Stations	19	0.00	(13,401.61)	(13,401.61)	(0.32)
Eating & Drinking	20	0.00	(8,205.86)	(8,205.86)	(0.27)
F.I.R.E	21	0.00	(44,935.08)	(44,935.08)	(0.05)
Hotels and Lodging Places	22	0.00	(159.77)	(159.77)	(0.01)
Health Care	23	0.00	(26,041.58)	(26,041.58)	(0.65)
Services	24	0.00	(38,243.19)	(38,243.19)	(0.77)
Regional Income	25	0.00	(356,358.62)	(356,358.62)	0.00
		Direct Impacts	Indirect/Induced Impacts	Total Impacts	
Total Industry Impacts		(\$1,000,000.00)	(\$437,668.85)	(\$1,437,668.85)	
Total Regional Income Impact		\$0.00	(\$356,358.62)	(\$356,358.62)	
Total Employment Impacts				(16)	
Total Economic Impacts		(\$1,000,000.00)	(\$794,027.46)	(\$1,794,027.46)	

Printing of Software Tables

After final demand and output estimations have been calculated the software allows the user to print the tables by selecting the “Print FD” or “Print Output” option from the menu. Upon selecting one of these options the user will be asked to enter a title for the table as shown in Figure 7. This user may enter any text or not have any text at all by deleting the highlighted text in the title entry box. The table format will look just like tables 1 and 2 when printed.

Output	A	B	C	D	E	F	G	H
1								
2								
3	Table 2. Economic Impacts of 1 AUM of Grazing in Owyhee County, ID							
4		Direct	Indirect/Induced		Total	Total		
5		Output	Output		Output	Employment		
6		Impacts	Impacts		Impacts	Impacts		
7	Dairy				0.01	0.00		
8	Misc. Livestock				0.04	0.00		
9	Range Cattle				38.68	0.00		
10	Feedlots				1.74	0.00		
11	Grains				0.94	0.00		
12	Forage Crops				1.10	0.00		
13	Misc. Crops				0.19	0.00		
14	Sugar Beets	8	0.00	0.00	0.00	0.00		
15	Ag Services	9	0.00	1.48	1.48	0.00		
16	Mining	10	0.00	0.05	0.05	0.00		
17	Construction	11	0.00	1.35	1.35	0.00		
18	Manufacturing	12	0.00	2.14	2.14	0.00		
19	Transportation and Communication	13	0.00	1.13	1.13	0.00		
20	Gas and Electric Services	14	0.00	0.23	0.23	0.00		
21	Irrigation and Water Serv.	15	0.00	0.64	0.64	0.00		
22	Wholesale Trade	16	0.00	0.39	0.39	0.00		

Figure 7. Example Title for Analysis Table Printing

Help Directory

A help directory has been included with the model to assist the user in operation and definition of terms used in the impact modeling software. The help directory consists of four sections. Section one lists definitions of the economic sectors used in the model. Section two shows the definitions of selected economic terms and functions used in the

impact model. Section three provides a step-by-step guide to impact analysis using the Owyhee County (4 County) Economic Impact Model. Lastly, section four provides a description and definition of the Economic Impact software menu items.

Exiting the Program

To exit the impact software program the user must first select "Quit" from the menu and strike enter on the keyboard or click "OK" with the mouse pointer. If any changes were made to the tables in the impact software the program will ask if you would like to save the file. The user can choose to save or not to save the program as entering zeros and recalculating the final demand impacts or output impacts will always reset the program.

APPENDIX B

**Final Demand and Output Requirements (Multipliers)
for the
Owyhee County Economic Impact Model**

Table 1B. Final Demand Requirements (Multipliers) for Owyhee County Economic Impact Model.

Sector		Dairy	Misc. Livestock	Range Cattle	Feedlots	Grains	Forage Crops	Misc. Crops
		1	2	3	4	5	6	7
Dairy	1	1.0812760	0.0007939	0.0002608	0.0007677	0.0004690	0.0004998	0.0005882
Misc. Livestock	2	0.0011886	1.0550475	0.0011598	0.0009271	0.0020642	0.0022628	0.0029157
Range Cattle	3	0.0004101	0.0356059	1.0316180	0.0394039	0.0007841	0.0008572	0.0010082
Feedlots	4	0.0006821	0.0032722	0.0463546	1.0407604	0.0012887	0.0014671	0.0016909
Grains	5	0.0368025	0.0152625	0.0251353	0.0593551	1.0026038	0.0027102	0.0011274
Forage Crops	6	0.0536073	0.0426014	0.0293458	0.0600309	0.0040148	1.0048795	0.0040323
Misc. Crops	7	0.0052388	0.0090713	0.0051034	0.0039158	0.0115880	0.0141426	1.0340015
Sugar Beets	8	0.0273056	0.0156757	0.0000850	0.0000725	0.0001651	0.0001873	0.0002201
Ag Services	9	0.0431107	0.0997055	0.0394810	0.0165536	0.0791721	0.0953036	0.1080722
Mining	10	0.0015828	0.0013532	0.0014445	0.0014622	0.0035686	0.0037645	0.0035066
Construction	11	0.0229979	0.0173302	0.0358730	0.0095288	0.0242198	0.0248432	0.0243325
Manufacturing	12	0.0582690	0.0516499	0.0569459	0.0557887	0.1139399	0.1214097	0.1425341
Transportation and Communication	13	0.0239645	0.0211838	0.0300586	0.0233560	0.0369950	0.0378930	0.0259044
Gas and Electric Services	14	0.0135880	0.0080641	0.0062044	0.0074045	0.0263651	0.0265704	0.0084841
Irrigation and Water Serv.	15	0.0156046	0.0077412	0.0171827	0.0057962	0.0148458	0.0163086	0.0249445
Wholesale Trade	16	0.0123332	0.0107616	0.0103162	0.0079407	0.0156773	0.0158809	0.0138672
Retail Trade	17	0.0098343	0.0508039	0.0048740	0.0043748	0.0025329	0.0080593	0.0038270
Food Stores	18	0.0058699	0.0058612	0.0065535	0.0071181	0.0053449	0.0056874	0.0081747
Auto Dealers & Service Stations	19	0.0074312	0.0048092	0.0138253	0.0115113	0.0040322	0.0095425	0.0060029
Eating & Drinking	20	0.0079984	0.0078432	0.0084653	0.0092009	0.0071561	0.0075711	0.0107185
F.I.R.E.	21	0.0415730	0.0417212	0.0463558	0.0422513	0.0694852	0.0588215	0.0647148
Hotels and Lodging Places	22	0.0001619	0.0001758	0.0001648	0.0001665	0.0001974	0.0001792	0.0002253
Health Care	23	0.0241194	0.0252824	0.0268650	0.0282862	0.0187415	0.0228977	0.0287742
Services	24	0.0870879	0.0378721	0.0394524	0.0338558	0.0586005	0.0533058	0.0523044
Regional Income	25	0.3301880	0.3305177	0.3676260	0.4036162	0.2999901	0.3192843	0.4610068
Final Demand Multiplier		1.9122258	1.9000067	1.8507511	1.8734452	1.8038422	1.8543291	2.0329784
Industry Multiplier		1.5820378	1.5694890	1.4831251	1.4698290	1.5038521	1.5350448	1.5719716

Table 1 B. Continued.

Sector		Sugar Beets	Ag Services	Mining	Construction	Manufacturing	Transportation and Communication	Gas and Electric Services
		8	9	10	11	12	13	14
Dairy	1	0.0003448	0.0005001	0.0003598	0.0008307	0.0051816	0.0005971	0.0002009
Misc. Livestock	2	0.0015907	0.0102487	0.0009107	0.0020709	0.0103789	0.0014345	0.0005475
Range Cattle	3	0.0005830	0.0024882	0.0004732	0.0010945	0.0067601	0.0007829	0.0002645
Feedlots	4	0.0009736	0.0023833	0.0004763	0.0011113	0.0067944	0.0007847	0.0002648
Grains	5	0.0006440	0.0004891	0.0001109	0.0003735	0.0012466	0.0001798	0.0000651
Forage Crops	6	0.0022926	0.0010612	0.0001530	0.0004817	0.0015091	0.0002127	0.0000876
Misc. Crops	7	0.0064064	0.0722068	0.0019483	0.0050597	0.0111305	0.0026961	0.0013242
Sugar Beets	8	1.0167810	0.0002251	0.0000601	0.0001395	0.0008172	0.0000979	0.0000340
Ag Services	9	0.0614294	1.0129351	0.0012008	0.0040315	0.0035843	0.0011443	0.0006388
Mining	10	0.0019917	0.0027880	1.0267908	0.0052673	0.0104689	0.0033721	0.0215483
Construction	11	0.0229568	0.0175741	0.0700659	1.0080972	0.0158444	0.0357833	0.0560304
Manufacturing	12	0.0834346	0.1180796	0.0875445	0.2022855	1.2729915	0.1456213	0.0486829
Transportation and Communication	13	0.0189634	0.0459865	0.0282485	0.0426026	0.0443468	1.1634095	0.0197650
Gas and Electric Services	14	0.0057998	0.0059742	0.0153017	0.0062249	0.0097264	0.0054258	1.0260071
Irrigation and Water Serv.	15	0.0215393	0.0081836	0.0054731	0.0092550	0.0099957	0.0169671	0.0078866
Wholesale Trade	16	0.0207695	0.0105006	0.0055818	0.0114996	0.0152599	0.0072304	0.0027089
Retail Trade	17	0.0397413	0.0050611	0.0024304	0.0069734	0.0028134	0.0030169	0.0017985
Food Stores	18	0.0056759	0.0102647	0.0050351	0.0122830	0.0049646	0.0063425	0.0038032
Auto Dealers & Service Stations	19	0.0043142	0.0074182	0.0045271	0.0179296	0.0040189	0.0053146	0.0032225
Eating & Drinking	20	0.0184112	0.0139700	0.0075230	0.0135101	0.0082149	0.0101465	0.0052170
F.I.R.E.	21	0.0600761	0.0568583	0.0703923	0.0541858	0.0368003	0.0492079	0.0263230
Hotels and Lodging Places	22	0.0001705	0.0003602	0.0003555	0.0003298	0.0004385	0.0004417	0.0001685
Health Care	23	0.0220714	0.0362429	0.0169786	0.0354278	0.0173308	0.0217965	0.0129929
Services	24	0.0641758	0.0768211	0.0478512	0.0871245	0.0720495	0.1279654	0.0362373
Regional Income	25	0.3187100	0.5802644	0.2720894	0.5678030	0.2759690	0.3481888	0.2082451
Final Demand Multiplier		1.7998471	2.0988852	1.6718820	2.0959921	1.8486362	1.9581606	1.4840646
Industry Multiplier		1.4811371	1.5186208	1.3997926	1.5281891	1.5726672	1.6099717	1.2758195

Table 1 B. Continued.

Sector		Irrigation and Water Serv.	Wholesale Trade	Retail Trade	Food Stores	Auto Dealers & Service Stations	Eating & Drinking	F.I.R.E.
		15	16	17	18	19	20	21
Dairy	1	0.0007596	0.0003914	0.0003383	0.0003427	0.0003364	0.0006703	0.0000629
Misc. Livestock	2	0.0017480	0.0011520	0.0010725	0.0011386	0.0010436	0.0027514	0.0002183
Range Cattle	3	0.0009945	0.0005163	0.0004480	0.0004538	0.0004455	0.0009187	0.0000938
Feedlots	4	0.0009975	0.0005152	0.0004484	0.0004512	0.0004473	0.0009032	0.0001276
Grains	5	0.0002111	0.0001167	0.0001075	0.0001072	0.0001077	0.0002154	0.0000675
Forage Crops	6	0.0002641	0.0001676	0.0001678	0.0001637	0.0001696	0.0003592	0.0002115
Misc. Crops	7	0.0030251	0.0030199	0.0030272	0.0033678	0.0028777	0.0187138	0.0007372
Sugar Beets	8	0.0001234	0.0000675	0.0000598	0.0000610	0.0000593	0.0001287	0.0000163
Ag Services	9	0.0012270	0.0013455	0.0017124	0.0015046	0.0018044	0.0035686	0.0053753
Mining	10	0.0045293	0.0022156	0.0019507	0.0019736	0.0019410	0.0038859	0.0003572
Construction	11	0.0916124	0.0097388	0.0132094	0.0102623	0.0145112	0.0170630	0.0185148
Manufacturing	12	0.1855573	0.0944568	0.0812781	0.0820756	0.0809443	0.1629969	0.0152716
Transportation and Communication	13	0.0555741	0.0413315	0.0332233	0.0304238	0.0344644	0.0373999	0.0108071
Gas and Electric Services	14	0.0135015	0.0064735	0.0079913	0.0075791	0.0081748	0.0102487	0.0013732
Irrigation and Water Serv.	15	1.1101633	0.0092843	0.0107058	0.0093152	0.0113211	0.0179835	0.0047638
Wholesale Trade	16	0.0094081	1.0069420	0.0043248	0.0044864	0.0042545	0.0130995	0.0008425
Retail Trade	17	0.0035139	0.0042759	1.0045500	0.0051799	0.0042733	0.0036465	0.0004517
Food Stores	18	0.0067963	0.0093471	0.0099270	1.0114298	0.0092668	0.0077391	0.0008975
Auto Dealers & Service Stations	19	0.0074653	0.0070402	0.0075850	0.0083800	1.0072362	0.0059605	0.0009050
Eating & Drinking	20	0.0092531	0.0130110	0.0136461	0.0152494	0.0129423	1.0156830	0.0015844
F.I.R.E.	21	0.0408805	0.0560475	0.0679423	0.0655254	0.0690223	0.0616796	1.0521947
Hotels and Lodging Places	22	0.0003669	0.0004159	0.0003856	0.0003544	0.0003994	0.0004587	0.0001152
Health Care	23	0.0217558	0.0326970	0.0346216	0.0401547	0.0321903	0.0269814	0.0029540
Services	24	0.0725019	0.1014394	0.0922125	0.0779317	0.0985271	0.0918410	0.0332184
Regional Income	25	0.3484677	0.5240223	0.5550037	0.6439281	0.5159294	0.4321638	0.0471478
Final Demand Multiplier		1.9906977	1.9260308	1.9459390	2.0218401	1.9126898	1.9370604	1.1983094
Industry Multiplier		1.6422300	1.4020086	1.3909353	1.3779120	1.3967604	1.5048966	1.1511616

Table 1 B. Continued.

Sector		Hotels and Lodging Places	Health Care	Services	Regional Income
		22	23	24	25
Dairy	1	0.0003609	0.0005476	0.0005209	0.0004980
Misc. Livestock	2	0.0010974	0.0016202	0.0015929	0.0017847
Range Cattle	3	0.0004831	0.0007243	0.0006903	0.0006593
Feedlots	4	0.0005033	0.0007249	0.0006896	0.0006476
Grains	5	0.0001418	0.0001638	0.0001605	0.0001514
Forage Crops	6	0.0002735	0.0002465	0.0002401	0.0002220
Misc. Crops	7	0.0030698	0.0040627	0.0039381	0.0056469
Sugar Beets	8	0.0000658	0.0000949	0.0000911	0.0000898
Ag Services	9	0.0045203	0.0022261	0.0021657	0.0016089
Mining	10	0.0021400	0.0031084	0.0029500	0.0028607
Construction	11	0.0295728	0.0118809	0.0278860	0.0070926
Manufacturing	12	0.0870943	0.1323651	0.1258009	0.1185738
Transportation and Communication	13	0.0533000	0.0410027	0.0478610	0.0360971
Gas and Electric Services	14	0.0108940	0.0075928	0.0083101	0.0097161
Irrigation and Water Serv.	15	0.0253121	0.0118366	0.0129613	0.0096982
Wholesale Trade	16	0.0047591	0.0068937	0.0067663	0.0067811
Retail Trade	17	0.0039553	0.0052884	0.0053523	0.0089544
Food Stores	18	0.0085851	0.0116806	0.0117080	0.0200451
Auto Dealers & Service Stations	19	0.0066337	0.0083793	0.0087473	0.0139178
Eating & Drinking	20	0.0124915	0.0171217	0.0164272	0.0257244
F.I.R.E.	21	0.0815924	0.0735776	0.0760826	0.0869135
Hotels and Lodging Places	22	1.0004303	0.0004744	0.0005043	0.0004241
Health Care	23	0.0298935	1.0473957	0.0410284	0.0710651
Services	24	0.1063772	0.1044533	1.1372784	0.0744172
Regional Income	25	0.4789806	0.6606948	0.6573800	1.1401078
Final Demand Multiplier		1.9525277	2.1541573	2.1971329	1.6436970
Industry Multiplier		1.4735472	1.4934625	1.5397530	0.5035897

Table 2 B. Output Requirements (Multipliers) for Owyhee County Economic Impact Model.

Sector		Dairy	Misc. Livestock	Range Cattle	Feedlots	Grains	Forage Crops	Misc. Crops
		1	2	3	4	5	6	7
Dairy	1	1.0000000	0.0007525	0.0002528	0.0007376	0.0004677	0.0004974	0.0005688
Misc. Livestock	2	0.0010992	1.0000000	0.0011242	0.0008908	0.0020588	0.0022518	0.0028198
Range Cattle	3	0.0003793	0.0337481	1.0000000	0.0378607	0.0007821	0.0008531	0.0009751
Feedlots	4	0.0006308	0.0031014	0.0449339	1.0000000	0.0012853	0.0014600	0.0016353
Grains	5	0.0340362	0.0144662	0.0243650	0.0570305	1.0000000	0.0026970	0.0010904
Forage Crops	6	0.0495778	0.0403786	0.0284464	0.0576799	0.0040044	1.0000000	0.0038997
Misc. Crops	7	0.0048450	0.0085980	0.0049470	0.0037624	0.0115579	0.0140739	1.0000000
Sugar Beets	8	0.0252531	0.0148578	0.0000824	0.0000697	0.0001647	0.0001864	0.0002128
Ag Services	9	0.0398702	0.0945033	0.0382709	0.0159053	0.0789665	0.0948408	0.1045184
Mining	10	0.0014639	0.0012826	0.0014002	0.0014049	0.0035594	0.0037462	0.0033913
Construction	11	0.0212692	0.0164260	0.0347735	0.0091556	0.0241569	0.0247226	0.0235323
Manufacturing	12	0.0538891	0.0489550	0.0552005	0.0536038	0.1136440	0.1208201	0.1378471
Transportation and Communication	13	0.0221631	0.0200785	0.0291373	0.0224413	0.0368989	0.0377090	0.0250526
Gas and Electric Services	14	0.0125667	0.0076434	0.0060142	0.0071145	0.0262966	0.0264413	0.0082051
Irrigation and Water Serv.	15	0.0144316	0.0073373	0.0166561	0.0055692	0.0148072	0.0162294	0.0241242
Wholesale Trade	16	0.0114062	0.0102001	0.0100000	0.0076297	0.0156366	0.0158038	0.0134112
Retail Trade	17	0.0090951	0.0481532	0.0047246	0.0042035	0.0025263	0.0080201	0.0037012
Food Stores	18	0.0054287	0.0055554	0.0063527	0.0068393	0.0053310	0.0056597	0.0079059
Auto Dealers & Service Stations	19	0.0068726	0.0045583	0.0134016	0.0110604	0.0040218	0.0094962	0.0058055
Eating & Drinking	20	0.0073972	0.0074340	0.0082059	0.0088405	0.0071375	0.0075343	0.0103660
F.I.R.E.	21	0.0384481	0.0395444	0.0449351	0.0405965	0.0693047	0.0585359	0.0625868
Hotels and Lodging Places	22	0.0001497	0.0001666	0.0001598	0.0001600	0.0001969	0.0001784	0.0002179
Health Care	23	0.0223065	0.0239633	0.0260416	0.0271784	0.0186929	0.0227865	0.0278280
Services	24	0.0805418	0.0358962	0.0382432	0.0325298	0.0584483	0.0530470	0.0505844
Regional Income	25	0.3053689	0.3132728	0.3563586	0.3878089	0.2992110	0.3177339	0.4458473
Final Demand Multiplier		1.7684900	1.8008732	1.7940275	1.8000734	1.7991575	1.8453249	1.9661271
Industry Output Multiplier		1.4631211	1.4876003	1.4376688	1.4122645	1.4999465	1.5275910	1.5202798

Table 2 B. Continued.

Sector		Sugar Beets	Ag Services	Mining	Construction	Manufacturing	Transportation and Communication	Gas and Electric Services
		8	9	10	11	12	13	14
Dairy	1	0.0003391	0.0004937	0.0003505	0.0008240	0.0040704	0.0005133	0.0001958
Misc. Livestock	2	0.0015645	0.0101178	0.0008869	0.0020543	0.0081531	0.0012330	0.0005336
Range Cattle	3	0.0005734	0.0024565	0.0004608	0.0010857	0.0053104	0.0006729	0.0002578
Feedlots	4	0.0009575	0.0023529	0.0004639	0.0011024	0.0053373	0.0006745	0.0002581
Grains	5	0.0006333	0.0004828	0.0001080	0.0003705	0.0009793	0.0001545	0.0000634
Forage Crops	6	0.0022548	0.0010477	0.0001490	0.0004778	0.0011855	0.0001829	0.0000854
Misc. Crops	7	0.0063007	0.0712847	0.0018975	0.0050190	0.0087436	0.0023174	0.0012906
Sugar Beets	8	1.0000000	0.0002222	0.0000585	0.0001384	0.0006420	0.0000842	0.0000332
Ag Services	9	0.0604156	1.0000000	0.0011694	0.0039991	0.0028157	0.0009836	0.0006226
Mining	10	0.0019588	0.0027524	1.0000000	0.0052249	0.0082239	0.0028985	0.0210021
Construction	11	0.0225779	0.0173497	0.0682377	1.0000000	0.0124466	0.0307573	0.0546101
Manufacturing	12	0.0820576	0.1165717	0.0852604	0.2006607	1.0000000	0.1251677	0.0474489
Transportation and Communication	13	0.0186504	0.0453993	0.0275115	0.0422604	0.0348367	1.0000000	0.0192640
Gas and Electric Services	14	0.0057040	0.0058979	0.0149024	0.0061749	0.0076406	0.0046637	1.0000000
Irrigation and Water Serv.	15	0.0211838	0.0080791	0.0053303	0.0091807	0.0078521	0.0145840	0.0076867
Wholesale Trade	16	0.0204268	0.0103666	0.0054362	0.0114073	0.0119874	0.0062148	0.0026403
Retail Trade	17	0.0390854	0.0049965	0.0023670	0.0069174	0.0022101	0.0025931	0.0017529
Food Stores	18	0.0055822	0.0101336	0.0049037	0.0121843	0.0038999	0.0054516	0.0037068
Auto Dealers & Service Stations	19	0.0042430	0.0073235	0.0044090	0.0177855	0.0031571	0.0045681	0.0031408
Eating & Drinking	20	0.0181073	0.0137916	0.0073267	0.0134016	0.0064532	0.0087214	0.0050848
F.I.R.E.	21	0.0590846	0.0561322	0.0685556	0.0537506	0.0289085	0.0422963	0.0256558
Hotels and Lodging Places	22	0.0001677	0.0003556	0.0003462	0.0003271	0.0003444	0.0003797	0.0001643
Health Care	23	0.0217072	0.0357801	0.0165356	0.0351432	0.0136142	0.0187350	0.0126636
Services	24	0.0631166	0.0758401	0.0466026	0.0864247	0.0565986	0.1099917	0.0353188
Regional Income	25	0.3134500	0.5728544	0.2649901	0.5632423	0.2167878	0.2992831	0.2029666
Final Demand Multiplier		1.7701423	2.0720825	1.6282597	2.0791567	1.4521985	1.6831224	1.4464468
Industry Output Multiplier		1.4566924	1.4992281	1.3632696	1.5159144	1.2354107	1.3838393	1.2434802

Table 2 B. Continued.

Sector		Irrigation and Water Serv.	Wholesale Trade	Retail Trade	Food Stores	Auto Dealers & Service Stations	Eating & Drinking	F.I.R.E.
		15	16	17	18	19	20	21
Dairy	1	0.0006842	0.0003887	0.0003367	0.0003389	0.0003340	0.0006600	0.0000597
Misc. Livestock	2	0.0015745	0.0011441	0.0010677	0.0011258	0.0010361	0.0027089	0.0002075
Range Cattle	3	0.0008958	0.0005127	0.0004460	0.0004487	0.0004423	0.0009045	0.0000891
Feedlots	4	0.0008985	0.0005116	0.0004464	0.0004461	0.0004441	0.0008893	0.0001213
Grains	5	0.0001902	0.0001159	0.0001070	0.0001060	0.0001069	0.0002121	0.0000641
Forage Crops	6	0.0002379	0.0001665	0.0001670	0.0001618	0.0001684	0.0003537	0.0002011
Misc. Crops	7	0.0027249	0.0029990	0.0030135	0.0033297	0.0028570	0.0184248	0.0007006
Sugar Beets	8	0.0001111	0.0000670	0.0000595	0.0000603	0.0000589	0.0001267	0.0000155
Ag Services	9	0.0011053	0.0013362	0.0017047	0.0014876	0.0017915	0.0035134	0.0051086
Mining	10	0.0040799	0.0022004	0.0019419	0.0019513	0.0019271	0.0038259	0.0003395
Construction	11	0.0825216	0.0096716	0.0131495	0.0101464	0.0144069	0.0167996	0.0175964
Manufacturing	12	0.1671442	0.0938056	0.0809100	0.0811481	0.0803628	0.1604801	0.0145140
Transportation and Communication	13	0.0500594	0.0410466	0.0330728	0.0300800	0.0342168	0.0368224	0.0102710
Gas and Electric Services	14	0.0121617	0.0064289	0.0079551	0.0074934	0.0081160	0.0100905	0.0013051
Irrigation and Water Serv.	15	1.0000000	0.0092202	0.0106573	0.0092099	0.0112397	0.0177058	0.0045275
Wholesale Trade	16	0.0084745	1.0000000	0.0043052	0.0044357	0.0042239	0.0128972	0.0008007
Retail Trade	17	0.0031652	0.0042464	1.0000000	0.0051213	0.0042426	0.0035902	0.0004293
Food Stores	18	0.0061219	0.0092827	0.0098820	1.0000000	0.0092002	0.0076196	0.0008529
Auto Dealers & Service Stations	19	0.0067245	0.0069917	0.0075506	0.0082853	1.0000000	0.0058685	0.0008602
Eating & Drinking	20	0.0083349	0.0129213	0.0135843	0.0150771	0.0128493	1.0000000	0.0015058
F.I.R.E.	21	0.0368239	0.0556611	0.0676346	0.0647850	0.0685264	0.0607272	1.0000000
Hotels and Lodging Places	22	0.0003305	0.0004130	0.0003839	0.0003504	0.0003966	0.0004516	0.0001095
Health Care	23	0.0195970	0.0324716	0.0344647	0.0397009	0.0319590	0.0265647	0.0028075
Services	24	0.0653074	0.1007401	0.0917949	0.0770511	0.0978192	0.0904229	0.0315706
Regional Income	25	0.3138887	0.5204096	0.5524899	0.6366514	0.5122228	0.4254908	0.0448090
Final Demand Multiplier		1.7931576	1.9127525	1.9371251	1.9989921	1.8989487	1.9071505	1.1388666
Industry Output Multiplier		1.4792689	1.3923429	1.3846352	1.3623407	1.3867258	1.4816596	1.0940576

Table 2 B. Continued.

Sector		Hotels and Lodging Places	Health Care	Services	Regional Income
		22	23	24	25
Dairy	1	0.0003608	0.0005228	0.0004580	0.0004368
Misc. Livestock	2	0.0010969	0.0015469	0.0014006	0.0015654
Range Cattle	3	0.0004829	0.0006915	0.0006069	0.0005783
Feedlots	4	0.0005031	0.0006921	0.0006064	0.0005680
Grains	5	0.0001417	0.0001564	0.0001411	0.0001328
Forage Crops	6	0.0002734	0.0002354	0.0002111	0.0001948
Misc. Crops	7	0.0030684	0.0038789	0.0034627	0.0049529
Sugar Beets	8	0.0000658	0.0000906	0.0000801	0.0000787
Ag Services	9	0.0045184	0.0021254	0.0019043	0.0014112
Mining	10	0.0021391	0.0029677	0.0025939	0.0025092
Construction	11	0.0295601	0.0113433	0.0245199	0.0062210
Manufacturing	12	0.0870568	0.1263754	0.1106157	0.1040023
Transportation and Communication	13	0.0532770	0.0391473	0.0420838	0.0316611
Gas and Electric Services	14	0.0108893	0.0072492	0.0073070	0.0085221
Irrigation and Water Serv.	15	0.0253012	0.0113010	0.0113967	0.0085063
Wholesale Trade	16	0.0047570	0.0065817	0.0059495	0.0059477
Retail Trade	17	0.0039536	0.0050491	0.0047062	0.0078540
Food Stores	18	0.0085814	0.0111521	0.0102947	0.0175817
Auto Dealers & Service Stations	19	0.0066309	0.0080002	0.0076914	0.0122075
Eating & Drinking	20	0.0124861	0.0163470	0.0144443	0.0225631
F.I.R.E.	21	0.0815573	0.0702482	0.0668989	0.0762327
Hotels and Lodging Places	22	1.0000000	0.0004530	0.0004435	0.0003720
Health Care	23	0.0298807	1.0000000	0.0360759	0.0623319
Services	24	0.1063314	0.0997267	1.0000000	0.0652721
Regional Income	25	0.4787745	0.6307977	0.5780290	1.0000000
Final Demand Multiplier		1.9516879	2.0566795	1.9319218	1.4417036
Industry Output Multiplier		1.4729134	1.4258818	1.3538927	0.4417036

APPENDIX C

Final Demand and Output Requirements (Multipliers) for the 4 County Economic Impact Model

Table 1C. Final Demand Requirements (Multipliers) for 4 County Economic Impact Model.

Sector		Dairy	Misc. Livestock	Range Cattle	Feedlots	Grains	Forage Crops	Misc. Crops
		1	2	3	4	5	6	7
Dairy	1	1.0005468	0.0012739	0.0013703	0.0012560	0.0007493	0.0008005	0.0008136
Misc. Livestock	2	0.0003281	1.0080944	0.0002937	0.0002919	0.0004175	0.0004436	0.0004912
Range Cattle	3	0.0008893	0.0016544	1.1831857	0.0008198	0.0011928	0.0012596	0.0012356
Feedlots	4	0.0009269	0.0017297	0.0008761	1.1157870	0.0012498	0.0013220	0.0013027
Grains	5	0.0083590	0.0037675	0.0088397	0.0078309	1.0006767	0.0007161	0.0003031
Forage Crops	6	0.0201541	0.0090182	0.0213174	0.0188839	0.0015587	1.0016742	0.0006670
Misc. Crops	7	0.0039381	0.0064328	0.0032115	0.0031888	0.0069927	0.0080897	1.0179396
Sugar Beets	8	0.0001775	0.0003755	0.0001396	0.0001308	0.0002915	0.0003263	0.0003675
Ag Services	9	0.0299102	0.0706013	0.0199294	0.0178234	0.0565045	0.0651160	0.0776124
Mining	10	0.0002945	0.0004578	0.0002765	0.0002725	0.0004493	0.0004568	0.0003478
Construction	11	0.0161330	0.0192177	0.0208548	0.0195784	0.0236834	0.0237782	0.0246048
Manufacturing	12	0.1870345	0.3317228	0.1876180	0.1839501	0.2320107	0.2385462	0.2174085
Transportation and Communication	13	0.0583042	0.0634948	0.0590932	0.0573633	0.0541479	0.0553614	0.0554150
Gas and Electric Services	14	0.0129581	0.0131916	0.0101742	0.0104017	0.0107080	0.0110312	0.0137034
Irrigation and Water Serv.	15	0.0023176	0.0025651	0.0022772	0.0022934	0.0042814	0.0046221	0.0042192
Wholesale Trade	16	0.0697155	0.0678233	0.0719834	0.0677509	0.0844811	0.0834915	0.0754328
Retail Trade	17	0.0334008	0.0282645	0.0272124	0.0298256	0.0258558	0.0279256	0.0340720
Food Stores	18	0.0101315	0.0085388	0.0082196	0.0090250	0.0077875	0.0084199	0.0102985
Auto Dealers & Service Stations	19	0.0124867	0.0107129	0.0103196	0.0112429	0.0098994	0.0106540	0.0128921
Eating & Drinking	20	0.0228728	0.0196883	0.0186786	0.0204308	0.0178695	0.0192649	0.0234327
F.I.R.E.	21	0.1227115	0.1132932	0.1300336	0.1326649	0.1545420	0.1549592	0.1527018
Hotels and Lodging Places	22	0.0047456	0.0047556	0.0042776	0.0044849	0.0044277	0.0046711	0.0053781
Health Care	23	0.0654643	0.0594925	0.0586987	0.0629621	0.0485301	0.0525151	0.0643524
Services	24	0.1041411	0.1057669	0.0961344	0.0995425	0.1068708	0.1120460	0.1234952
Regional Income	25	0.6823556	0.5731878	0.5516906	0.6066314	0.5214618	0.5643006	0.6915949
Final Demand Multiplier		2.4702971	2.5251210	2.4967059	2.4844329	2.3766399	2.4517917	2.6100817
Industry Multiplier		1.7879416	1.9519333	1.9450152	1.8778015	1.8551781	1.8874912	1.9184868

Table 1C. Continued.

Sector		Sugar Beets	Ag Services	Mining	Construction	Manufacturing	Transportation and Communication	Gas and Electric Services
		8	9	10	11	12	13	14
Dairy	1	0.0006082	0.0005031	0.0003497	0.0008852	0.0026581	0.0005280	0.0001879
Misc. Livestock	2	0.0003348	0.0017558	0.0002296	0.0004842	0.0014532	0.0003055	0.0001177
Range Cattle	3	0.0009580	0.0023973	0.0005993	0.0015654	0.0053971	0.0008877	0.0003185
Feedlots	4	0.0010050	0.0024634	0.0006172	0.0016117	0.0055362	0.0009144	0.0003281
Grains	5	0.0001975	0.0000985	0.0000385	0.0001476	0.0002216	0.0000556	0.0000219
Forage Crops	6	0.0004358	0.0002266	0.0000885	0.0003463	0.0005226	0.0001260	0.0000503
Misc. Crops	7	0.0043354	0.0443444	0.0022035	0.0040455	0.0064489	0.0025102	0.0010923
Sugar Beets	8	1.0132188	0.0001036	0.0000591	0.0001517	0.0004453	0.0000878	0.0000317
Ag Services	9	0.0485124	1.0082060	0.0015621	0.0047693	0.0022578	0.0015612	0.0007683
Mining	10	0.0003436	0.0002893	1.0042340	0.0007518	0.0015618	0.0003171	0.0048309
Construction	11	0.0221568	0.0219884	0.0414831	1.0144392	0.0178120	0.0314122	0.0421986
Manufacturing	12	0.1825535	0.1989350	0.1474218	0.3856625	1.3738193	0.2184323	0.0782809
Transportation and Communication	13	0.0418841	0.0696202	0.0422722	0.0755011	0.0651280	1.1643424	0.0263231
Gas and Electric Services	14	0.0108949	0.0102754	0.0175475	0.0116869	0.0161662	0.0108751	1.0292025
Irrigation and Water Serv.	15	0.0058104	0.0022111	0.0020404	0.0031785	0.0031115	0.0042349	0.0020466
Wholesale Trade	16	0.0602132	0.0654344	0.0349112	0.0874955	0.0835203	0.0450397	0.0173227
Retail Trade	17	0.0222089	0.0364363	0.0336870	0.0561658	0.0304550	0.0341625	0.0162630
Food Stores	18	0.0066851	0.0110096	0.0100856	0.0134979	0.0091562	0.0102015	0.0048038
Auto Dealers & Service Stations	19	0.0085198	0.0138014	0.0131530	0.0359058	0.0117300	0.0134502	0.0066244
Eating & Drinking	20	0.0152310	0.0258352	0.0232273	0.0252185	0.0226981	0.0248657	0.0110034
F.I.R.E.	21	0.1243599	0.1361044	0.1493192	0.1395416	0.1185122	0.1350486	0.0615995
Hotels and Lodging Places	22	0.0039738	0.0066542	0.0058098	0.0068182	0.0075920	0.0072468	0.0028040
Health Care	23	0.0416378	0.0688087	0.0625170	0.0666305	0.0570427	0.0631777	0.0294475
Services	24	0.0903360	0.1613824	0.1109711	0.2071871	0.1541991	0.2092149	0.0679420
Regional Income	25	0.4474263	0.7391594	0.6720086	0.7157501	0.6121985	0.6782656	0.3164763
Final Demand Multiplier		2.1538409	2.6280441	2.3764365	2.8594379	2.6096435	2.6572636	1.7200860
Industry Multiplier		1.7064146	1.8888847	1.7044279	2.1436878	1.9974451	1.9789980	1.4036097

Table 1C. Continued.

Sector		Irrigation and Water Serv.	Wholesale Trade	Retail Trade	Food Stores	Auto Dealers & Service Stations	Eating & Drinking	F.I.R.E.
		15	16	17	18	19	20	21
Dairy	1	0.0005209	0.0004333	0.0003619	0.0003494	0.0003715	0.0006225	0.0002258
Misc. Livestock	2	0.0003004	0.0002637	0.0002383	0.0002455	0.0002369	0.0005148	0.0001331
Range Cattle	3	0.0009204	0.0007068	0.0005907	0.0005814	0.0006008	0.0010759	0.0003453
Feedlots	4	0.0009470	0.0007286	0.0006091	0.0005992	0.0006196	0.0011080	0.0003587
Grains	5	0.0000523	0.0000476	0.0000413	0.0000384	0.0000431	0.0000648	0.0000447
Forage Crops	6	0.0001209	0.0001086	0.0000942	0.0000879	0.0000981	0.0001491	0.0000998
Misc. Crops	7	0.0022813	0.0024439	0.0024035	0.0025787	0.0023378	0.0109508	0.0015036
Sugar Beets	8	0.0000847	0.0000741	0.0000629	0.0000596	0.0000652	0.0001057	0.0000577
Ag Services	9	0.0013629	0.0017706	0.0019118	0.0016445	0.0020629	0.0028470	0.0069845
Mining	10	0.0003639	0.0002614	0.0002315	0.0002247	0.0002370	0.0003978	0.0001256
Construction	11	0.0638175	0.0148056	0.0155355	0.0119303	0.0174788	0.0210898	0.0295225
Manufacturing	12	0.2283252	0.1725960	0.1438704	0.1423254	0.1459556	0.2647213	0.0768320
Transportation and Communication	13	0.0718823	0.0640291	0.0485101	0.0438780	0.0512676	0.0613963	0.0323136
Gas and Electric Services	14	0.0173490	0.0117550	0.0127230	0.0118080	0.0132963	0.0174850	0.0061446
Irrigation and Water Serv.	15	1.0243781	0.0027888	0.0029393	0.0025384	0.0031665	0.0054451	0.0024526
Wholesale Trade	16	0.0477706	1.0473749	0.0308740	0.0313523	0.0309168	0.0792075	0.0168255
Retail Trade	17	0.0310530	0.0357498	1.0377555	0.0417997	0.0360792	0.0348910	0.0172708
Food Stores	18	0.0089062	0.0107212	0.0113485	1.0126680	0.0107927	0.0104603	0.0051250
Auto Dealers & Service Stations	19	0.0137710	0.0138825	0.0145525	0.0156737	1.0141251	0.0135632	0.0069360
Eating & Drinking	20	0.0203166	0.0254899	0.0263153	0.0287009	0.0253635	1.0311665	0.0123148
F.I.R.E.	21	0.1061171	0.1412481	0.1519129	0.1447778	0.1568650	0.1588605	1.1776104
Hotels and Lodging Places	22	0.0057077	0.0075165	0.0064434	0.0059450	0.0067513	0.0081854	0.0039838
Health Care	23	0.0532129	0.0665796	0.0705880	0.0793112	0.0668733	0.0649456	0.0315521
Services	24	0.1449009	0.2033259	0.1639955	0.1372205	0.1788717	0.1912647	0.1130964
Regional Income	25	0.5717921	0.7153562	0.7586411	0.8525769	0.7186266	0.6977613	0.3389500
Final Demand Multiplier		2.4162547	2.5400574	2.5025502	2.5689155	2.4831030	2.6782796	1.8808089
Industry Multiplier		1.8444627	1.8247013	1.7439091	1.7163386	1.7644764	1.9805184	1.5418589

Table 1C. Continued.

Sector		Hotels and	Health Care	Services	Regional
		Lodging Places			Income
		22	23	24	25
Dairy	1	0.0004251	0.0005830	0.0005729	0.0004956
Misc. Livestock	2	0.0002568	0.0003698	0.0003521	0.0003686
Range Cattle	3	0.0006794	0.0009796	0.0009309	0.0008396
Feedlots	4	0.0007017	0.0010093	0.0009598	0.0008647
Grains	5	0.0000569	0.0000628	0.0000651	0.0000526
Forage Crops	6	0.0001286	0.0001437	0.0001485	0.0001208
Misc. Crops	7	0.0025473	0.0033701	0.0030823	0.0039982
Sugar Beets	8	0.0000818	0.0000997	0.0000992	0.0000831
Ag Services	9	0.0045912	0.0027198	0.0026826	0.0020688
Mining	10	0.0002828	0.0003533	0.0003440	0.0003205
Construction	11	0.0337235	0.0182182	0.0357905	0.0128959
Manufacturing	12	0.1622682	0.2400080	0.2267916	0.2064464
Transportation and Communication	13	0.0793034	0.0681674	0.0757795	0.0583740
Gas and Electric Services	14	0.0181325	0.0144608	0.0147786	0.0161297
Irrigation and Water Serv.	15	0.0077026	0.0038299	0.0038422	0.0032084
Wholesale Trade	16	0.0351160	0.0504003	0.0482579	0.0465158
Retail Trade	17	0.0348221	0.0469541	0.0428531	0.0663375
Food Stores	18	0.0104007	0.0142211	0.0128370	0.0202236
Auto Dealers & Service Stations	19	0.0137005	0.0176444	0.0167018	0.0243731
Eating & Drinking	20	0.0253293	0.0348865	0.0308999	0.0450529
F.I.R.E.	21	0.1910015	0.1900087	0.1854224	0.2029458
Hotels and Lodging Places	22	1.0076496	0.0089728	0.0091594	0.0080729
Health Care	23	0.0643760	1.0989585	0.0796648	0.1272013
Services	24	0.2115173	0.2214453	1.2747918	0.1669647
Regional Income	25	0.6916335	0.9566107	0.8557298	1.3675896
Final Demand Multiplier		2.5964284	2.9944779	2.9225377	2.3815440
Industry Multiplier		1.9047949	2.0378672	2.0668079	1.0139547

Table 2C. Output Requirements (Multipliers) for 4 County Economic Impact Model.

Sector		Dairy	Misc. Livestock	Range Cattle	Feedlots	Grains	Forage Crops	Misc. Crops
		1	2	3	4	5	6	7
Dairy	1	1.0000000	0.0012637	0.0011581	0.0011257	0.0007488	0.0007991	0.0007992
Misc. Livestock	2	0.0003279	1.0000000	0.0002483	0.0002616	0.0004172	0.0004429	0.0004826
Range Cattle	3	0.0008888	0.0016411	1.0000000	0.0007348	0.0011920	0.0012575	0.0012138
Feedlots	4	0.0009264	0.0017158	0.0007405	1.0000000	0.0012489	0.0013198	0.0012797
Grains	5	0.0083544	0.0037373	0.0074711	0.0070183	1.0000000	0.0007149	0.0002977
Forage Crops	6	0.0201431	0.0089458	0.0180170	0.0169243	0.0015577	1.0000000	0.0006552
Misc. Crops	7	0.0039360	0.0063811	0.0027143	0.0028579	0.0069879	0.0080762	1.0000000
Sugar Beets	8	0.0001774	0.0003725	0.0001180	0.0001172	0.0002913	0.0003257	0.0003610
Ag Services	9	0.0298938	0.0700344	0.0168439	0.0159739	0.0564663	0.0650072	0.0762446
Mining	10	0.0002943	0.0004541	0.0002337	0.0002442	0.0004490	0.0004560	0.0003416
Construction	11	0.0161242	0.0190634	0.0176260	0.0175467	0.0236673	0.0237385	0.0241712
Manufacturing	12	0.1869323	0.3290593	0.1585702	0.1648613	0.2318538	0.2381475	0.2135770
Transportation and Communication	13	0.0582723	0.0629849	0.0499441	0.0514106	0.0541113	0.0552688	0.0544384
Gas and Electric Services	14	0.0129510	0.0130857	0.0085989	0.0093223	0.0107008	0.0110127	0.0134619
Irrigation and Water Serv.	15	0.0023163	0.0025445	0.0019246	0.0020554	0.0042785	0.0046144	0.0041448
Wholesale Trade	16	0.0696774	0.0672787	0.0608386	0.0607203	0.0844239	0.0833520	0.0741034
Retail Trade	17	0.0333825	0.0280375	0.0229992	0.0267306	0.0258383	0.0278790	0.0334715
Food Stores	18	0.0101260	0.0084702	0.0069470	0.0080885	0.0077823	0.0084058	0.0101170
Auto Dealers & Service Stations	19	0.0124799	0.0106268	0.0087219	0.0100762	0.0098927	0.0106362	0.0126649
Eating & Drinking	20	0.0228603	0.0195302	0.0157867	0.0183106	0.0178574	0.0192327	0.0230197
F.I.R.E.	21	0.1226444	0.1123835	0.1099013	0.1188980	0.1544375	0.1547002	0.1500107
Hotels and Lodging Places	22	0.0047430	0.0047175	0.0036153	0.0040195	0.0044247	0.0046633	0.0052833
Health Care	23	0.0654285	0.0590148	0.0496107	0.0564284	0.0484972	0.0524274	0.0632183
Services	24	0.1040842	0.1049176	0.0812505	0.0892128	0.1067985	0.1118587	0.1213188
Regional Income	25	0.6819826	0.5685854	0.4662756	0.5436803	0.5211092	0.5633574	0.6794066
Final Demand Multiplier		2.4702971	2.5251210	2.4967059	2.4844329	2.3766399	2.4517917	2.6100817
Industry Output Multiplier		1.7869644	1.9362605	1.6438800	1.6829391	1.8539236	1.8843364	1.8846765

Table 2C. Continued.

Sector		Sugar Beets	Ag Services	Mining	Construction	Manufacturing	Transportation and Communication	Gas and Electric Services
		8	9	10	11	12	13	14
Dairy	1	0.0006002	0.0004990	0.0003482	0.0008726	0.0019349	0.0004534	0.0001825
Misc. Livestock	2	0.0003304	0.0017415	0.0002287	0.0004773	0.0010578	0.0002624	0.0001143
Range Cattle	3	0.0009455	0.0023778	0.0005968	0.0015432	0.0039285	0.0007624	0.0003095
Feedlots	4	0.0009919	0.0024434	0.0006146	0.0015888	0.0040298	0.0007853	0.0003188
Grains	5	0.0001949	0.0000977	0.0000383	0.0001455	0.0001613	0.0000478	0.0000212
Forage Crops	6	0.0004301	0.0002248	0.0000882	0.0003413	0.0003804	0.0001082	0.0000489
Misc. Crops	7	0.0042789	0.0439835	0.0021942	0.0039879	0.0046941	0.0021559	0.0010613
Sugar Beets	8	1.0000000	0.0001027	0.0000589	0.0001495	0.0003242	0.0000754	0.0000308
Ag Services	9	0.0478795	1.0000000	0.0015555	0.0047014	0.0016435	0.0013409	0.0007465
Mining	10	0.0003391	0.0002869	1.0000000	0.0007411	0.0011368	0.0002723	0.0046939
Construction	11	0.0218677	0.0218094	0.0413082	1.0000000	0.0129654	0.0269785	0.0410013
Manufacturing	12	0.1801718	0.1973158	0.1468002	0.3801731	1.0000000	0.1876015	0.0760598
Transportation and Communication	13	0.0413377	0.0690536	0.0420940	0.0744264	0.0474065	1.0000000	0.0255762
Gas and Electric Services	14	0.0107528	0.0101918	0.0174735	0.0115205	0.0117674	0.0093401	1.0000000
Irrigation and Water Serv.	15	0.0057346	0.0021931	0.0020318	0.0031332	0.0022648	0.0036372	0.0019886
Wholesale Trade	16	0.0594276	0.0649019	0.0347640	0.0862501	0.0607943	0.0386825	0.0168312
Retail Trade	17	0.0219192	0.0361397	0.0335450	0.0553664	0.0221681	0.0293406	0.0158016
Food Stores	18	0.0065979	0.0109200	0.0100431	0.0133058	0.0066648	0.0087616	0.0046675
Auto Dealers & Service Stations	19	0.0084087	0.0136891	0.0130976	0.0353948	0.0085382	0.0115517	0.0064364
Eating & Drinking	20	0.0150323	0.0256249	0.0231294	0.0248596	0.0165219	0.0213560	0.0106912
F.I.R.E.	21	0.1227374	0.1349966	0.1486896	0.1375554	0.0862647	0.1159870	0.0598517
Hotels and Lodging Places	22	0.0039219	0.0066000	0.0057853	0.0067212	0.0055262	0.0062239	0.0027244
Health Care	23	0.0410946	0.0682486	0.0622534	0.0656821	0.0415213	0.0542604	0.0286120
Services	24	0.0891575	0.1600688	0.1105033	0.2042381	0.1122412	0.1796850	0.0660143
Regional Income	25	0.4415890	0.7331432	0.6691753	0.7055623	0.4456179	0.5825310	0.3074966
Final Demand Multiplier		2.1538409	2.6280441	2.3764365	2.8594379	2.6096435	2.6572636	1.7200860
Industry Output Multiplier		1.6841521	1.8735106	1.6972418	2.1131752	1.4539358	1.6996701	1.3637838

Table 2C. Continued.

Sector		Irrigation and Water Serv.	Wholesale Trade	Retail Trade	Food Stores	Auto Dealers & Service Stations	Eating & Drinking	F.I.R.E.
		15	16	17	18	19	20	21
Dairy	1	0.0005085	0.0004137	0.0003487	0.0003450	0.0003663	0.0006037	0.0001917
Misc. Livestock	2	0.0002932	0.0002518	0.0002297	0.0002424	0.0002336	0.0004992	0.0001130
Range Cattle	3	0.0008984	0.0006748	0.0005692	0.0005742	0.0005924	0.0010434	0.0002932
Feedlots	4	0.0009245	0.0006956	0.0005869	0.0005917	0.0006110	0.0010745	0.0003046
Grains	5	0.0000510	0.0000455	0.0000398	0.0000379	0.0000425	0.0000629	0.0000379
Forage Crops	6	0.0001180	0.0001037	0.0000907	0.0000868	0.0000968	0.0001446	0.0000847
Misc. Crops	7	0.0022270	0.0023334	0.0023160	0.0025464	0.0023053	0.0106198	0.0012768
Sugar Beets	8	0.0000827	0.0000707	0.0000607	0.0000589	0.0000643	0.0001025	0.0000490
Ag Services	9	0.0013305	0.0016905	0.0018423	0.0016239	0.0020342	0.0027609	0.0059311
Mining	10	0.0003552	0.0002495	0.0002231	0.0002219	0.0002337	0.0003858	0.0001066
Construction	11	0.0622988	0.0141359	0.0149703	0.0117811	0.0172354	0.0204523	0.0250699
Manufacturing	12	0.2228915	0.1647892	0.1386361	0.1405450	0.1439227	0.2567202	0.0652440
Transportation and Communication	13	0.0701717	0.0611329	0.0467452	0.0433291	0.0505535	0.0595407	0.0274400
Gas and Electric Services	14	0.0169362	0.0112233	0.0122601	0.0116603	0.0131111	0.0169565	0.0052178
Irrigation and Water Serv.	15	1.0000000	0.0026626	0.0028324	0.0025067	0.0031224	0.0052805	0.0020827
Wholesale Trade	16	0.0466337	1.0000000	0.0297507	0.0309601	0.0304862	0.0768135	0.0142878
Retail Trade	17	0.0303140	0.0341327	1.0000000	0.0412768	0.0355767	0.0338364	0.0146660
Food Stores	18	0.0086942	0.0102362	0.0109356	1.0000000	0.0106424	0.0101441	0.0043520
Auto Dealers & Service Stations	19	0.0134433	0.0132545	0.0140231	0.0154776	1.0000000	0.0131532	0.0058899
Eating & Drinking	20	0.0198331	0.0243369	0.0253579	0.0283419	0.0250102	1.0000000	0.0104575
F.I.R.E.	21	0.1035917	0.1348592	0.1463861	0.1429667	0.1546801	0.1540590	1.0000000
Hotels and Lodging Places	22	0.0055718	0.0071766	0.0062090	0.0058706	0.0066573	0.0079380	0.0033829
Health Care	23	0.0519465	0.0635680	0.0680199	0.0783191	0.0659419	0.0629827	0.0267933
Services	24	0.1414526	0.1941290	0.1580290	0.1355039	0.1763803	0.1854838	0.0960389
Regional Income	25	0.5581846	0.6829991	0.7310403	0.8419115	0.7086173	0.6766718	0.2878286
Final Demand Multiplier		2.4162547	2.5400574	2.5025502	2.5689155	2.4831030	2.6782796	1.8808089
Industry Output Multiplier		1.8005683	1.7421662	1.6804625	1.6948680	1.7399000	1.9206582	1.3093116

Table 2C. Continued.

Sector		Hotels and	Health Care	Services	Regional
		Lodging Places			Income
		22	23	24	25
Dairy	1	0.0004218	0.0005305	0.0004494	0.0003624
Misc. Livestock	2	0.0002548	0.0003365	0.0002762	0.0002695
Range Cattle	3	0.0006743	0.0008914	0.0007303	0.0006139
Feedlots	4	0.0006964	0.0009184	0.0007529	0.0006323
Grains	5	0.0000565	0.0000571	0.0000510	0.0000385
Forage Crops	6	0.0001276	0.0001307	0.0001165	0.0000884
Misc. Crops	7	0.0025280	0.0030666	0.0024179	0.0029235
Sugar Beets	8	0.0000811	0.0000907	0.0000778	0.0000608
Ag Services	9	0.0045563	0.0024749	0.0021044	0.0015128
Mining	10	0.0002807	0.0003215	0.0002699	0.0002344
Construction	11	0.0334675	0.0165777	0.0280756	0.0094297
Manufacturing	12	0.1610364	0.2183958	0.1779048	0.1509564
Transportation and Communication	13	0.0787014	0.0620291	0.0594446	0.0426839
Gas and Electric Services	14	0.0179948	0.0131587	0.0115929	0.0117943
Irrigation and Water Serv.	15	0.0076441	0.0034850	0.0030139	0.0023460
Wholesale Trade	16	0.0348495	0.0458619	0.0378555	0.0340130
Retail Trade	17	0.0345578	0.0427260	0.0336158	0.0485069
Food Stores	18	0.0103217	0.0129406	0.0100699	0.0147878
Auto Dealers & Service Stations	19	0.0135965	0.0160556	0.0131016	0.0178219
Eating & Drinking	20	0.0251370	0.0317451	0.0242392	0.0329433
F.I.R.E.	21	0.1895515	0.1728989	0.1454531	0.1483967
Hotels and Lodging Places	22	1.0000000	0.0081648	0.0071850	0.0059030
Health Care	23	0.0638872	1.0000000	0.0624924	0.0930113
Services	24	0.2099116	0.2015047	1.0000000	0.1220868
Regional Income	25	0.6863829	0.8704702	0.6712702	1.0000000
Final Demand Multiplier		2.5964284	2.9944779	2.9225377	2.3815440
Industry Output Multiplier		1.8903345	1.8543622	1.6212905	0.7414174