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A Working Model of the Clatsop County Economy



Oregon State University Extension Service
Special Report 540
April 1979

A Working Model
of
The Clatsop County Economy

by

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Acknowledgments

This report is prepared and published by the Oregon State University Extension Service as a community development educational project. It draws on information developed through a study of the county's economy financed through Title V funds of the 1972 Rural Development Act and a cooperative research contract funded by the Clatsop County Commissioners, Pacific Marine Fisheries Council, and the OSU Agricultural Experiment Station.

Tom Carroll, OSU research assistant, developed the economic model under the supervision of Dr. Herbert Stoevener, professor of agricultural and resource economics at OSU. Dr. Frederick Smith, OSU marine economist, assisted with providing information on marine economic activities. Jim Bergeron, Chairman agent, and other members of the Clatsop County Extension office also assisted with the project.

Clatsop County officials Orvo Nikula, Don Corkill, Curt Snieder, Bill Zelenka, and Bill Street also took an enthusiastic role in this effort. Members from the Clatsop County Economic Development Committee, Margret Forbes, Bud Forrester, Judhi Chopping, Mike Naab, Walt Ackley, and Jim Platt contributed time and valuable ideas. Estimates for the salmon aquaculture development example were supplied by Norm Kujala and Mary Barnes of the Governor's Grant Youngs Bay Salmon Propagation Program.

The three hundred local firms in Clatsop County that cooperated on this study through interviews and by supplying economic information about their businesses are acknowledged along with Dr. Ed Schmisser, Dr. Fred Smith, and Dr. Herb Stoevener for their manuscript reviews.

Introduction^{1/}

In Oregon, many rural communities have taken an active interest in the economy of their area. Rural people are concerned about having the same job and business opportunities, standards of living, and incomes that are available in many urban communities.

Clatsop County, located on the northern Pacific coast of Oregon, is one such rural community. People there have taken steps to maintain or expand existing industries or businesses and to attract new firms to their community in order to strengthen the local economy.

"What can we do to stimulate our local economy or help improve conditions here?" This question is asked frequently by people in Clatsop County. However, when an economic opportunity arises, another important question is, "What impact will it have on our community?"

For example what if a new industry would want to locate in the community. Would local businessmen gain from increased economic activity? How much money would they gain? How would local households be affected? Would unemployed people in the community be hired at the new industry or would others be drawn into the community to work at the new firm? And what about local governments? Would increased revenues from the new development pay for new services the industry would require such as sewer and water lines, roads and solid waste disposal? Would the population increase and schools need expanding or would new schools need to be built?

These are complex economic questions and people everywhere have a difficult time with them. Recently, a working model of the Clatsop County

^{1/}Although the data in this study are based on economic interrelationships in 1977, they can usually be used for the next 5 to 10 years for planning purposes. Although the dollar figures change over time, the basic business relationships among sectors will remain roughly the same for relatively short periods of time (5-10 years) or until a major economic comes to the community.

economy was developed by researchers from the Department of Agricultural and Resource Economics at Oregon State University.

About 300 local businesses and industries in Clatsop County were interviewed and asked questions about their sales and purchases. The information they supplied from this survey was used to develop the economic model. This publication describes some of the findings of the study and how the model can be used to evaluate future economic changes in Clatsop County.

The input-output model has several applications. It can describe basic business relationships that existed in 1977; the base year when the data creating the model was collected. The model can help to evaluate economic losses or gains to communities within Clatsop County. With the primary data on the Clatsop County economy already collected, the input-output model can also assist the community in qualifying for assistance grants and provides an excellent opportunity to make informed community decisions.

Questions about the study and use of the computerized model can be directed to the local County Extension office in the Astoria Post Office, the County Commissioners or Planning Department in the Clatsop County Courthouse in Astoria or the Oregon State University Extension Service in Corvallis.

Measuring Economic Activity

Defining a sector

Economic activity within a region is often discussed in terms of relationships between or among sectors. What is a sector?

Because of the difficulties in dealing with each firm in the county individually, similar businesses or industries are grouped together and called sectors. In the Clatsop County study 26 business sectors are

identified. All firms in a sector either produce or sell similar goods or services or have somewhat comparable business patterns. For example, in Clatsop County all restaurants, cafes, bars, taverns, and fast food establishments were combined into one sector called "restaurants" and studied as a whole. For a complete listing and definition of all 26 sectors in the Clatsop County economic model see Appendix A.

Measuring the total economic activity within an area like Clatsop County is a difficult and time consuming task. It involves estimating all the buying and selling activities of business firms, industries, households, and governments within the county for one year.

Economists and other social scientists have, for some time, been attempting to develop survey methods and techniques that can adequately estimate regional economic activity in an area such as Clatsop County.^{2/} Four of the most commonly used measures of an area's economic activity are total sales, employment (jobs), exports (base industries) and imports. Each of these measures of the Clatsop County economy will be discussed and should provide some indication of the relative importance of various economic activities within the area.

Total sales

One relative important measure of economic activity in a region is total sales. This measure shows which business sectors sell large amounts of goods or services. Table 1 shows total sales by business firms and governments for Clatsop County in 1977.

^{2/} A more detailed report of the 1977 Clatsop County Input-Output study is available in A 1977 Input-Output Model for Clatsop County, Oregon, Special Report 525, Agricultural Experiment Station, Oregon State University, Corvallis, Oregon 97331, December, 1978. This report contains the technical coefficients for the 1977 model.

Table 1. Total Sales, Clatsop County, 1977

Product group	Sectors included from 1977 model*	Sales (\$1,000's)
1. Timber & wood products.....	(1, 2)	208,380
2. Retail & wholesale products & services.....	(20, 21)	130,988
3. Seafood industry.....	(3, 4, 5, 6, 7, 8)	83,253
4. Transportation.....	(13, 14, 15)	72,007
5. Government.....	(22, 23, 24, 26)	59,115
6. Downtown business.....	(11, 12, 16, 17, 18)	57,242
7. Construction.....	(19)	29,136
8. Manufacturing.....	(10)	16,784
9. Agriculture.....	(9)	4,372
Total.....		661,277

*See Appendix A for sector definitions.

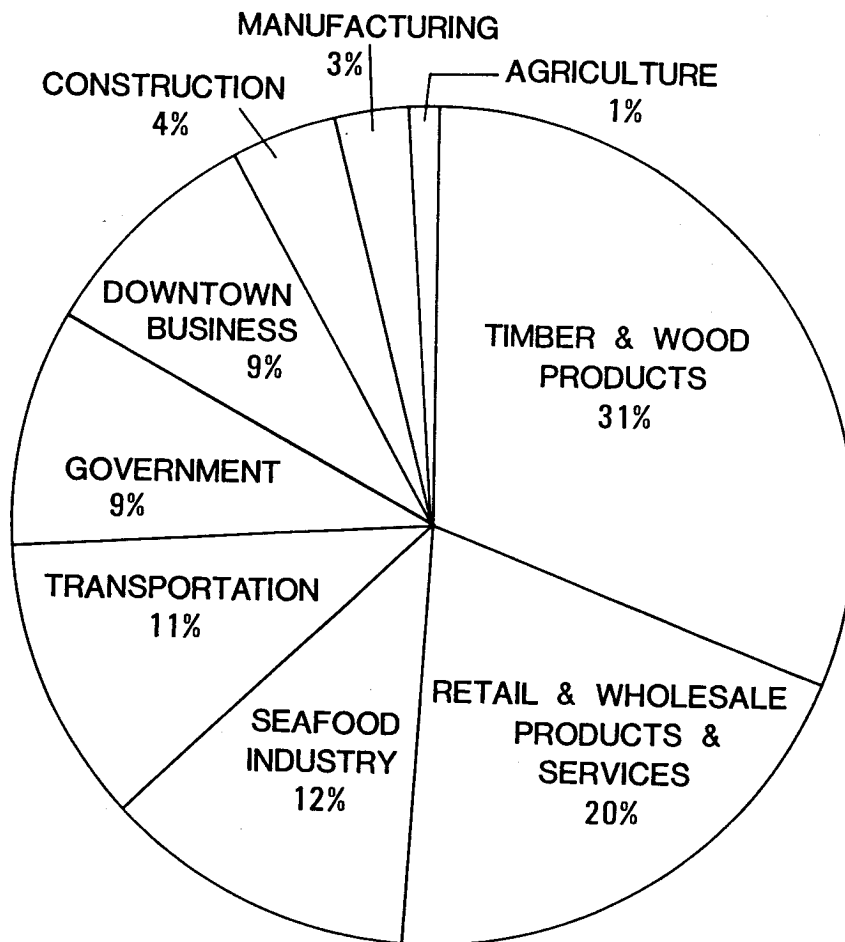


Figure 1. Total Sales, Clatsop County, 1977.

Table 1 was compiled from Appendix B. For ease in presentation, the original 26 sectors were combined into 9 product groups as indicated in the table.

The timber and wood products industry far outranks other sectors, accounting for nearly one-third of Clatsop County's total sales in 1977. In contrast, the agricultural sector accounted for only 1 percent.

Employment

The number of jobs or employment created in each sector of a region is also an important measure of economic activity. Table 2 provides an indication of the employment distribution in Clatsop County for 1977.

As indicated by Figure 2, a large share of jobs in Clatsop County for 1977 were found in the "service type" industries like retail and wholesale trade and services, other downtown businesses and government services. In fact, these three groups alone account for more than half the total county employment. Timber and wood products, with 18 percent, and the seafood industry, with 15 percent of total employment, are also major employers.

Business exports (Base industries)

The basic industries of Clatsop County are timber and wood processing, commercial fisheries, recreation/tourism, marine transportation, some limited manufacturing activities, and agriculture. Basic industries are those that export (sell) a majority of their goods or services to individuals, businesses, or governments outside the local area.

Money received in Clatsop County for exports is used to purchase such imports as automobiles, petroleum, clothing, food, chain saws, etc. These

Table 2. Employment by Sector, Clatsop County, 1977

Product group	Sectors included from original 1977 model*	Jobs
1. Downtown business.....	(11, 12, 16, 17, 18)	2,153
2. Retail & wholesale products & services.....	(20, 21)	2,132
3. Timber & wood products.....	(1, 2)	2,092
4. Government.....	(22, 23, 24, 26)	2,054
5. Seafood industry.....	(3, 4, 5, 6, 7, 8)	1,721
6. Transportation.....	(13, 14, 15)	792
7. Construction.....	(19)	350
8. Manufacturing.....	(10)	257
9. Agriculture.....	(9)	182
Total.....		11,733

*See Appendix A for sector definitions.

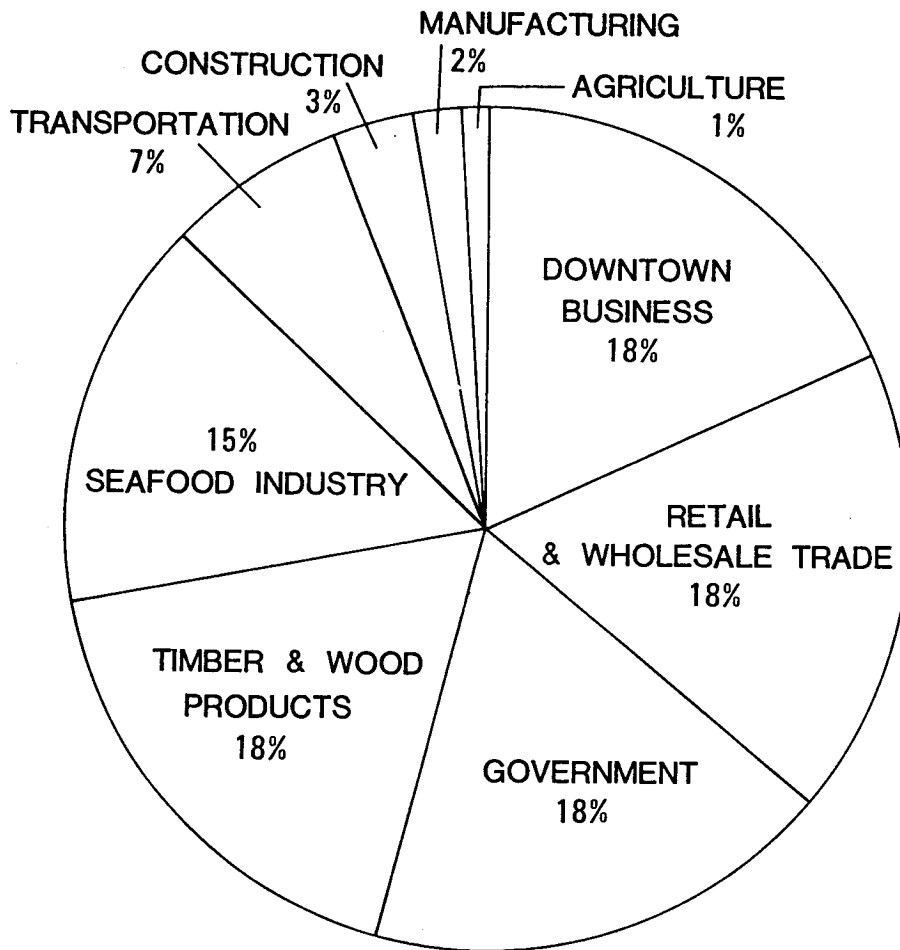


Figure 2. Employment, Clatsop County, 1977.

imported products are either not produced in large enough quantity in Clatsop County to satisfy local people's desires or not produced at all.

Major export sectors for Clatsop County in 1977 are listed in Table 3. It shows that timber and wood products account for 54 percent of Clatsop County's export base. The seafood industry is also substantial, with 19 percent of basic economic activity.

Business imports

In addition to total sales, employment, and export patterns for a community, imports are also an important measure of economic activity. Knowing the relationship between import and export patterns is vital in determining a community's "balance of payments." A community that exports more than it imports should, over time, gain in wealth.

Table 4 describes the business import pattern for Clatsop County in 1977. An examination of Tables 3 and 4 shows a close relationship between exports and imports for Clatsop County. However, it is also evident that the county imported more than \$12 million dollars in goods and services than it exported.

Tourism

Both Table 3 and Figure 3 indicate that tourist activities are important to the county economy. They are considered a basic or export economic activity. While tourists physically spend their dollars in Clatsop County, the money they bring into the community actually comes from outside. Some difficulties with measuring tourist economic activities are noted, however.

There is a problem of simply defining tourism in an economic sense. Common knowledge dictates that people visiting a Clatsop County recreation

Table 3. Business Exports, Clatsop County, 1977*

Product group	Sectors included from 1977 model	Export amount (\$1,000's)
1. Timber & wood products.....	(1, 2)	185,950
2. Seafood industry.....	(3, 4, 5, 6, 7, 8)	66,558
3. Tourism.....	(a portion of 16 sectors are impacted by tourist activity)	35,826
4. Transportation.....	(13, 14, 15)	20,580
5. Downtown business.....	(11, 12, 16, 17, 18, 19, 20, 21)	18,841
6. Manufacturing.....	(10)	13,251
7. Agriculture.....	(9)	2,071
Total.....		343,007

*Table 3 is purely a business description of Clatsop County's export base and does not include payments to households such as social security or government retirement, nor payments to local, state, or federal governments.

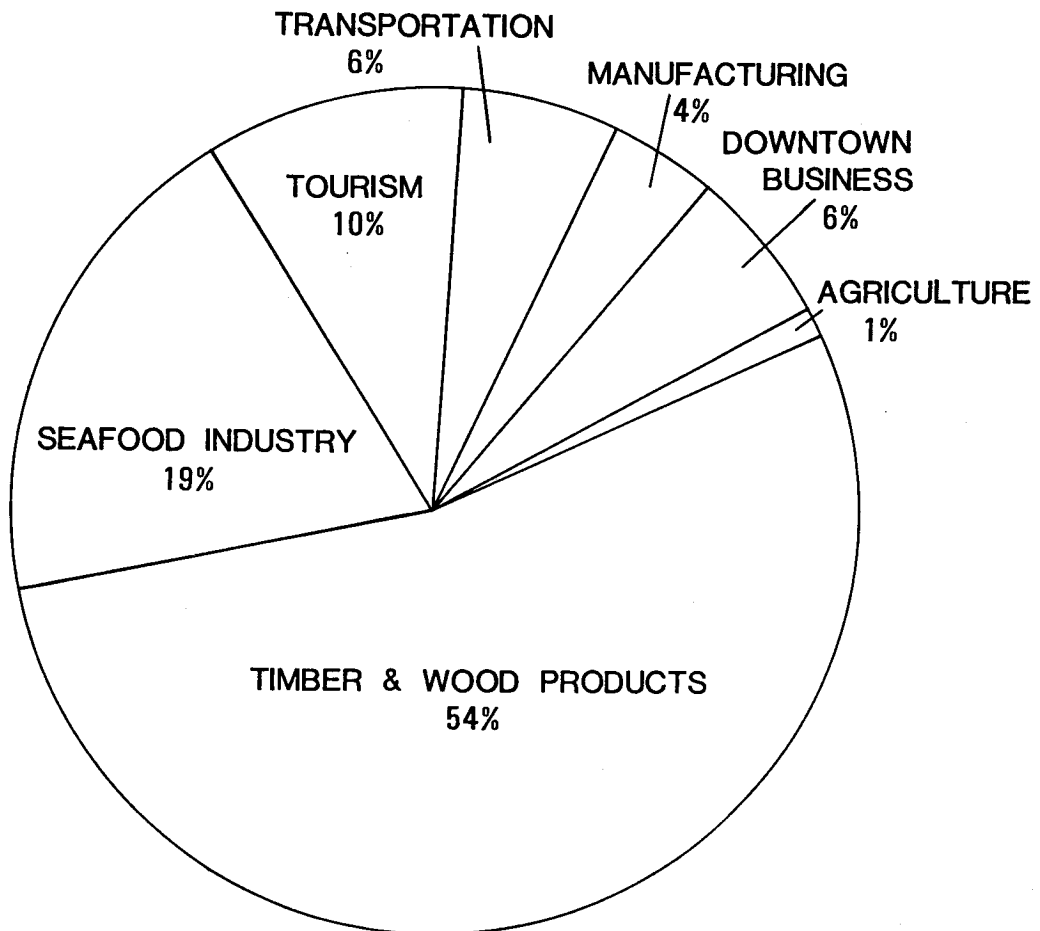


Figure 3. Exports, Clatsop County, 1977.

area to fish, swim and sightsee would be considered tourists. Any money these people spend in the community comes from the outside and is considered an export or basic economic activity.

But what about someone that lives across the Columbia River in Washington state and visits to shop in a local market? Although they are not classified as tourists in the formal sense, the economic impact they create is the same; money flowing from outside into Clatsop County.

Tourists also spend their dollars in a variety of ways. Data collected during this study indicate that tourists do business or spend money in 16 sectors of the Clatsop County economy. It is difficult for local firms who originally supplied the data to create the economic model of the county to exactly differentiate a tourist from a non-tourist. This may be an easier task for some firms, such as hotels and motels, where registration forms listing home addresses are obtained. But what about a supermarket? How would the store manager know the difference between tourists, local residents, and others?

For these reasons, "tourism" or "tourists" in this study were defined as people living outside Clatsop County but coming into the community to spend money. As stated previously, some of these people are not tourists in the formal sense but their economic impact is the same. Therefore, estimates presented here represent maximum limits of tourism on Clatsop County's economy.

Table 4. Business Imports, Clatsop County, 1977*

Product group	Sectors included from 1977 model	Import amount (\$1,000's)
1. Timber & wood products.....	(1, 2)	139,109
2. Downtown business.....	(11, 12, 16, 17, 18, 19, 20, 21)	123,749
3. Transportation.....	(13, 14, 15)	44,163
4. Seafood industry.....	(3, 4, 5, 6, 7, 8)	37,069
5. Manufacturing.....	(10)	10,578
6. Agriculture.....	(9)	855
Total.....		355,523

*Table 4 is purely a business description of Clatsop County's import base and does not include payments made by households nor purchases made by local, state, or federal governments.

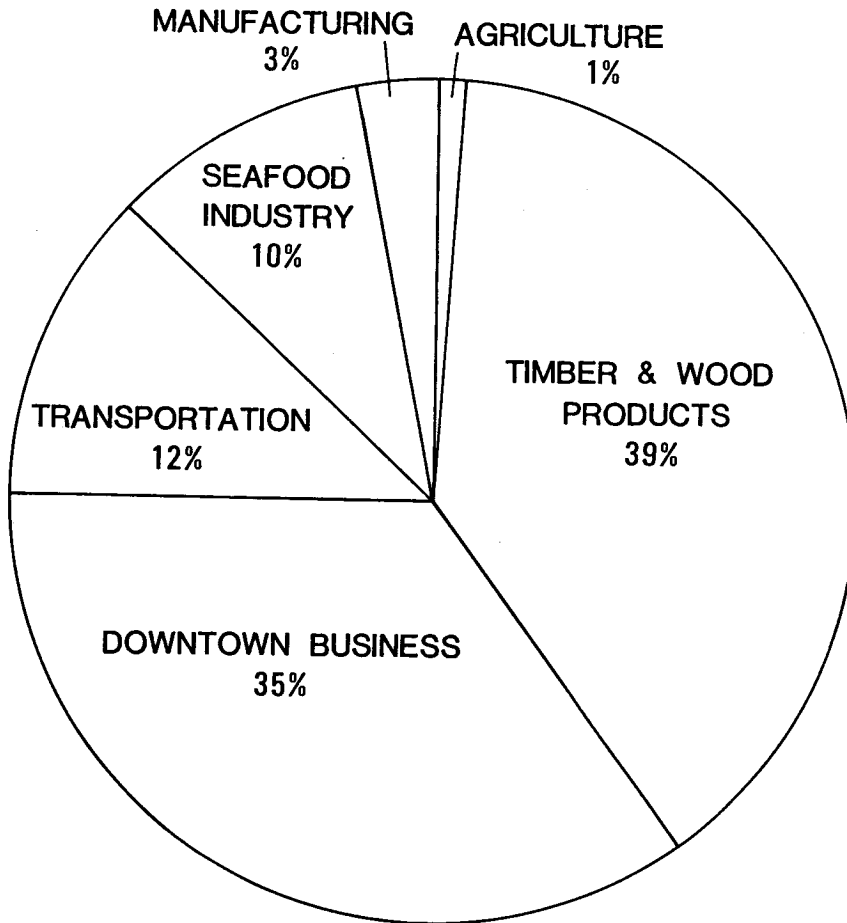


Figure 4. Imports, Clatsop County, 1977.

Measuring Economic Developments

Young's Bay Salmon Propagation Program^{3/}

The input-output model of the Clatsop County economy provides much detailed economic information. One of the most useful applications is providing estimates of the effects of new economic development opportunities in the community. With the economic model already in the computer, all that is needed to complete an analysis are accurate estimates of how the new firm will do its business within the community. These estimates can be recorded on the tear-out form on page 23. From these figures, realistic estimates of the economic impact the new firm will have on the community can be obtained.

The Clatsop County input-output model has already been used to estimate the economic impact of a number of potential development opportunities within the community. One such activity, reported here, entails increased economic benefits to the community from a salmon rearing program on Youngs Bay.

A large number of fingerling salmon are to be raised in ponds and released as juveniles. After a 3- to 5-year life cycle in the ocean, some of these salmon will return to Clatsop County as mature adults, to be harvested by local fishers and processed by seafood firms in Clatsop County. Local officials wanted to know what economic impacts these returning salmon would have on the local economy.

^{3/}A more detailed report of this analysis is available from the author or personnel at the Youngs Bay Salmon Propagation Program office at the Oregon State University Seafoods Laboratory in Astoria.

While this particular development is a more complicated problem than most applications of the economic model, it can serve as an example of how the working model can be utilized. Before the model could be applied in this case, the following questions had to be answered:

1. How many and what type of fingerling salmon would be raised and released?
2. Survival rate - what is the total number and individual weight of mature fish available for harvest?
3. How many of these fish would be harvested and processed in Clatsop County by local residents and firms?
4. What is the expected price (value) of these fish after they are locally processed and sold (exported) as a final product outside the county?

After the answers and estimates to these and other questions were obtained, the economic impact of this development opportunity was estimated. A summary of the results appears in Table 5.

As indicated in the table, Clatsop County would gain over \$5 million in economic activity as a result of the salmon propagation program. This would be a substantial impact when considering the analysis also concluded that the annual operation and maintenance costs of the salmon rearing program were estimated at less than \$100,000.

Table 5. Youngs Bay Salmon Program Economic Impact Summary

Product group	Sectors included from original model	Amount (\$1,000's)
1. Seafood processors.....	(7, 8)	1,833
2. Downtown business.....	(11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21)	1,154
3. Fishers.....	(3, 4, 5, 6)	1,086
4. Households.....	(25)	763
5. Government.....	(22, 23, 24, 26)	176
6. Manufacturing.....	(10)	59
7. Agriculture.....	(9)	7
8. Timber & wood products.....	(1, 2)	1
Total.....		5,083

Multipliers

Another use of the input-output model of Clatsop County's economy is the application of multipliers. Multipliers represent the total impact of additional money spent in an economy. The concept can be illustrated through an example.

Say \$1,000 is spent in Clatsop County for an exported good such as local seafood. A multiplier of 2.7 indicates that the total impact of the original expenditure would be \$2,700; the initial \$1,000 in sales of seafood plus an additional \$1,700 in business activity occurring throughout the community, generated by the original \$1,000 sale.

Multipliers for various sectors of an economy differ because of spending patterns and the size of the community from which they were obtained. A local seafood processor will spend a \$1,000 increase in sales differently than a local banker receiving a \$1,000 interest payment on a loan or a used auto dealer receiving a \$1,000 payment on a car. As a rule, the more local business that the firms in a sector engage, the higher a multiplier will become. Large multipliers indicate that money is staying in the community longer before it "leaks" outside in the form of payments to governments,

businesses, or individuals located outside the community. Multipliers obtained for the working model of the Clatsop County economy in 1977 are contained in Appendix C.

The size of a multiplier is obviously not the only information useful in evaluating changes in an economic sector. Increases to total sales, employment, and exports of a community are also important measures of economic activity. A hot dog stand may have a larger multiplier than a lumber mill, but it could not compare with the sales, employment and additions to exports generated at the mill.

Unfortunately, the multiplier concept is an elusive economic term and consequently has received its share of abuse and misuse. A common problem has been to confuse "multipliers" with "turnover rates," the average number of times a dollar changes hands as it is spent.

"Value added" is another economic term usually associated with multipliers and turnovers. All three concepts are illustrated in Figure 5, the following graph.

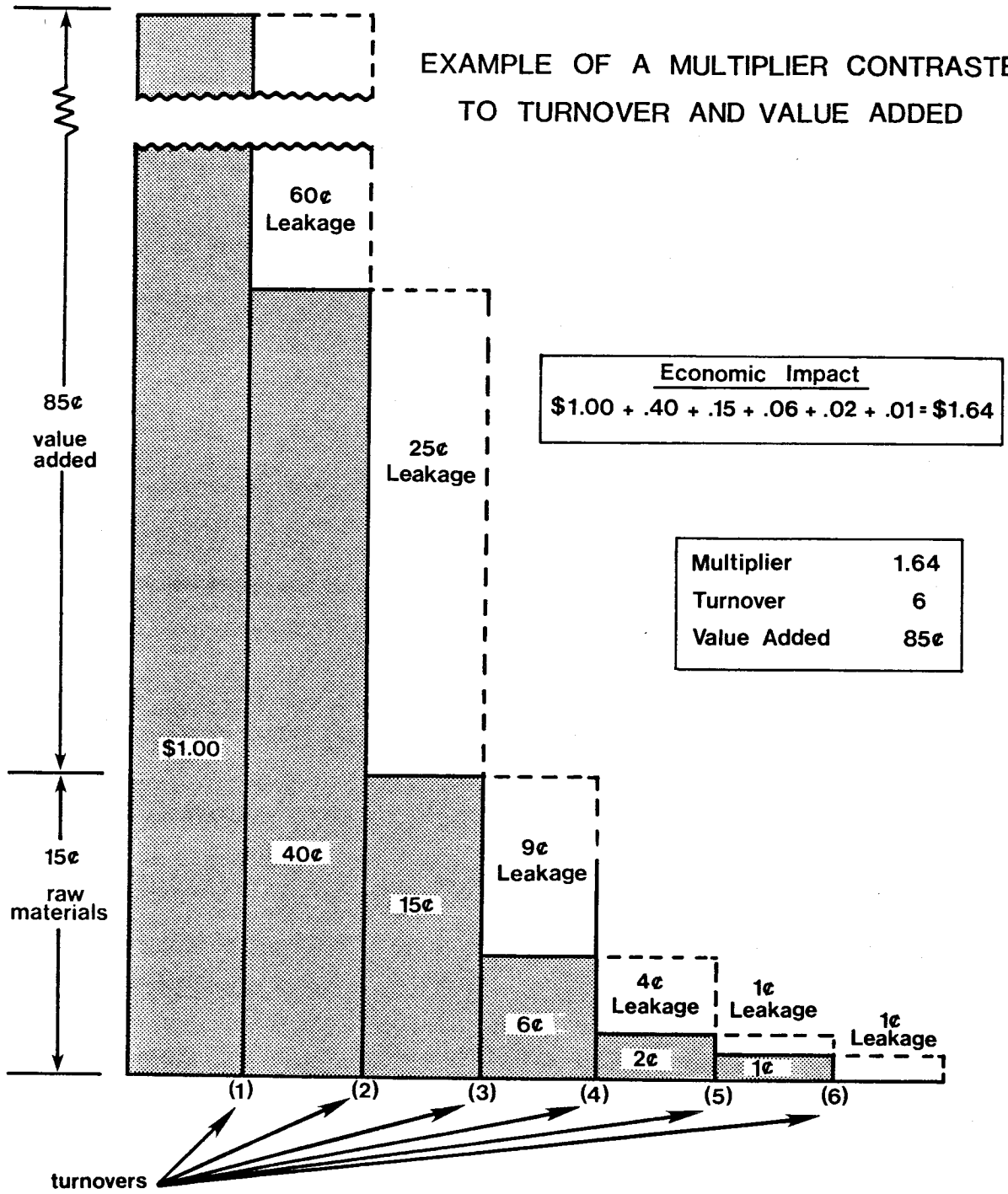


Figure 5. Multiplier Turnover and Valued Added.

Value added is the increased amount of worth that raw materials receive through processing, manufacturing, or distribution. In the Figure 5 example, if some amount of wood products were sold in Clatsop County for \$1.00, the value of raw materials would have been \$.15 and the value added to the product through processing, manufacturing, or distribution would have been \$.85.

As Figure 5 indicates, this same \$1.00 of wood product sales would generate an additional \$.64 in economic activity before all of the original dollar leaks from the community. The multiplier then would be 1.64 and it would have taken six rounds of spending (six turnovers) before the impact of the original dollar in sales could no longer be traced.

At each step or round of spending some of the money still left in the community will "leak" in the form of outside payments. These can include taxes paid to the state or federal government, savings or investments made outside the local community or purchases for goods or services in other cities, counties, states or nations outside the local area. The multiplier is essentially an economic measure of the speed in which money flows from an area. The longer money continues to stay in a community, the larger a multiplier will become.

Future Use of the Economic Model

The input-output model discussed in this publication is primarily intended for use in evaluating economic change in Clatsop County. The information required to analyze a specific economic development usually is available from any firm or business expanding or moving into the community or one that is planning to leave or close down. Whether it be a furniture factory, electronics plant, local hospital, or aquaculture industry, generally the developers are interested in illustrating the economic impact their business

has in the community. Given this situation, businesses are usually willing to provide the information necessary to run an input-output analysis of its economic impact.

The sheet on the last page of this publication provides a form that can be used for collecting information from a business for estimating the impact of an economic change in Clatsop County. While the form may look complicated at first glance, it is simply a listing of purchases the business makes in the Clatsop economy. Business representatives should be able to provide the information with little difficulty and at very low expense.

The benefits of using the economic study will only be as good as the quality of the information used in the analysis. As previously stated, the existing model is based upon personal interviews with managers of about 300 Clatsop County businesses. The Oregon State University Extension Service is willing to assist in continued use of this model. Contact the Clatsop County office of the Extension Service, Department of Agricultural and Resource Economists at Oregon State University, or planning officials in the Clatsop County Courthouse for more information.

Appendix A

Sector Definitions for the Clatsop County Input-Output Model

<u>Sector No.</u>	<u>Sector name and definition</u>
1	<u>Logging</u> : Firms involved with the growing, harvesting and hauling of timber in Clatsop County.
2	<u>Wood processing</u> : Lumber, plywood, shingle, pulp and paper mills and processors in Clatsop County.
3	<u>Commercial gillnet salmon fishers</u> : Licensed commercial gillnet salmon fishers who reside in Clatsop County.
4	<u>Commercial troll salmon fishers</u> : Licensed commercial salmon trolling fishers who reside in Clatsop County.
5	<u>Commercial combination troll salmon fishers</u> : Licensed commercial fishers who troll for salmon in addition to harvesting other fish (tuna, crab, etc.) and who reside in Clatsop County.
6	<u>All other commercial fishers</u> : Includes all other licensed commercial fishers who reside in Clatsop County that do not fit into sectors 3, 4, or 5.
7	<u>Salmon processing</u> : Relates strictly to the processing of salmon in Clatsop County.
8	<u>All other fish processing</u> : Includes the processing of all fish in Clatsop County other than salmon.
9	<u>Agriculture</u> : Commercial farms, ranches, nurseries or other agricultural businesses in Clatsop County that obtain at least one half of their annual gross income from agriculture.
10	<u>Manufacturing</u> : All manufacturing in Clatsop County except fish and timber processing but including gravel and rock businesses.
11	<u>Lodging</u> : Includes hotels, motels, trailer parks, apartments, and campgrounds in Clatsop County.
12	<u>Restaurants</u> : Cafes, taverns, bars, and fast-food establishments in Clatsop County.
13	<u>Service stations</u> : Retail and wholesale fuel businesses in Clatsop County.
14	<u>Automotive sales and service</u> : New and used auto sales; auto, boat, farm equipment, trailers, parts and accessories, towing, repair, motorcycle sales and repair businesses in Clatsop County.

<u>Sector No.</u>	<u>Sector name and definition</u>
15	<u>Transportation:</u> Trucking, bus line, railroad, and port authority firms in Clatsop County.
16	<u>Communication:</u> Telephone, telegraph, newspaper, and radio stations in Clatsop County.
17	<u>Professional services:</u> Includes doctors, dentists, lawyers, engineers, consultants, accounts, business and tax consultants, surveyors, veterinarians, hospital and medical services in Clatsop County.
18	<u>Financial services:</u> Banks, savings and loan associations, credit bureaus, finance companies and credit unions in Clatsop County.
19	<u>Construction:</u> Building contractors and developers, plumbing, heating, painting, roofing, electrical and floor covering contractors, cabinet makers, excavating, landscaping, and forest road building companies in Clatsop County.
20	<u>Retail and wholesale sales:</u> Grocery, bakeries, retail beer and wine stores, gift shops, hardware, sporting goods, appliance, clothing, yardage, variety, music, catalogue, pet, office equipment and supply, book, carpet, paint, bicycle, gun shops, jewelry, and furniture stores, florists, nurseries, art galleries, building materials, antique, second hand stores, rock, candle and ceramic shops, feed and seed and other agricultural supply stores, loggers and welders supply, beer, wine and soft drink distributors, hotel and motel suppliers, petroleum, bottle gas, natural gas, and electricity distributors and wholesale suppliers of firms listed above in Clatsop County.
21	<u>Retail services:</u> Barber and beauty shops, cleaners and recreation places, appliance repair shops, breeding services, private day care centers and kindergartens, janitorial services, auctions, real estate, pet grooming shops, septic tank cleaners, garbage collection services, dispatching companies, photographers, insurance, industrial parks, churches and public water systems not operated by incorporated cities in Clatsop County.
22	<u>Public or private schools:</u> Either public or private schools in Clatsop County including community colleges.
23	<u>Taxes and fees to Clatsop County government:</u> Includes formal payments paid to the recognized Clatsop County government which includes special districts except school districts.

<u>Sector No.</u>	<u>Sector name and definition</u>
24	<u>Taxes and fees to cities in Clatsop County:</u> Includes formal payments paid to incorporated cities in Clatsop County which include payments for sewer and water service plus taxes distributed by the county government as with special districts.
25	<u>Households:</u> Payments for wages, salaries, rents, profits and dividends to private individuals (including oneself) other owners, stockholders and employees residing in Clatsop County.
26	<u>Taxes and fees paid to all other governments not located in Clatsop County:</u> Includes payments to cities or counties not located in Clatsop County or to the state or federal government.

Appendix B

Total Sales, Employment and Exports, Clatsop County, Oregon, 1977

Sector	Total sales (\$1,000's)	Employment (jobs)	Exports 1/ (\$1,000's)
1. Logging.....	39,451	609	29,392
2. Wood processing.....	168,929	1,483	156,558
3. Commercial gillnet salmon fishing.....	1,116	} =1,000	15
4. Commercial troll salmon fishing.....	1,234		255
5. Commercial combination troll salmon fishing.....	8,091		2,379
6. All other commercial fishing...	6,173		81
7. Salmon processing.....	6,909		6,691
8. All other fish processing.....	59,730	721	57,487
9. Agriculture.....	4,372	182	2,416
10. Manufacturing.....	16,784	257	13,434
11. Lodging.....	6,115	253	4,953
12. Restaurants.....	16,042	870	6,986
13. Service stations.....	28,611	128	4,823
14. Automotive sales and service...	21,697	221	4,255
15. Transportation.....	21,699	443	19,542
16. Communication.....	13,460	217	2,134
17. Professional services.....	12,997	644	5,954
18. Financial services.....	8,628	169	2,434
19. Construction.....	29,136	350	4,340
20. Retail and wholesale goods.....	110,776	1,258	7,878
21. Retail services.....	20,212	874	6,408
22. Public and private schools.....	22,402	1,075	7,808
23. Taxes and fees to Clatsop County government.....	4,996	170	1,534
24. City government.....	11,659	243	670
25. State and federal governments..	20,058	566	NA
Total.....	661,277	11,733	348,427

1/Sales to business, government and households outside Clatsop County.

Appendix C

Clatsop County Multipliers by Sector
in Descending Order

<u>Sector</u>	<u>Multiplier</u>
Other commercial fishing	3.2
Financial services	3.1
Public and private schools	3.0
County government	2.9
Federal and state government	2.9
Professional services	2.8
Retail services	2.8
Salmon processing	2.7
Households	2.7
Restaurants	2.6
Agriculture	2.6
Commercial troll salmon fishing	2.6
Construction	2.6
Commercial gillnet salmon fishing	2.4
Lodging	2.4
Logging	2.4
City government	2.3
Transportation	2.3
Other fish processing	2.1
Commercial combination fishing	2.0
Manufacturing	1.9
Automotive sales and service	1.6
Service stations	1.6
Wood processing	1.5
Retail and wholesale goods	1.5

TEAR-OUT FORM

Information Needed to Evaluate the Economic Impact from a Proposed Change in Clatsop County

What is the new or total annual business created by the proposed change? \$ _____

NOTE: Review sector definitions before filling out form.

Table with 3 columns: Item description, Purchased in Clatsop County, and Purchased outside Clatsop County. Rows include Logging, Wood processing, Commercial fishing, Manufacturing, etc.

MAIL COMPLETED FORM TO: Department of Agricultural and Resource Economics Oregon State University Corvallis, Oregon 97331 (phone: 754-2942)

RETURN RESULTS TO:

NAME : _____ ADDRESS: _____ PHONE : _____