

OK (circled)
Score 250

**Economic Impact of Public Investments in
Small-Boat Facilities and State Parks in
the Lower Umpqua River Area of
Douglas County, Oregon**

by
**Wilson E. Schmisser
Russell C. Youmans
William Boodt**

**Water Resources Research Institute
Oregon State University
Corvallis, Oregon**

WRR-30

March 1975

ECONOMIC IMPACT OF PUBLIC INVESTMENTS
IN SMALL-BOAT FACILITIES
AND COUNTY AND STATE PARKS
IN THE LOWER UMPQUA RIVER AREA
OF DOUGLAS COUNTY, OREGON

Wilson E. Schmisser
Russell C. Youmans
William Boodt

This research was supported jointly by the Portland District, U.S. Army Corps of Engineers and the Oregon Agricultural Experiment Station. It was done for the Coordinated Program of the Pacific Northwest River Basins Commission with the Oregon State Water Resources Board's Economic Task Force and cooperating Federal, State, and Local Agencies. The authors are Research Associate and Associate Professor of Agricultural Economics, Oregon Agricultural Experiment Station, Corvallis, Oregon, and Regional Economist, Portland District, U.S. Army Corps of Engineers, respectively.

TABLE OF CONTENTS

List of Tables 1

List of Figures 11

Summary 1

Introduction 3

Study Objectives 6

Study Procedure 7

Direct Economic Impact of Visitors to
the Lower Umpqua River Area 9

Characteristics and Expenditures of
Lower Umpqua River Area Visitors 11

Direct Economic Impact Attributed to Public
Investments in Small-Boat Facilities and in
County and State Parks in the Lower Umpqua
River Area 14

Economic Impact on the Douglas County Economy
of Visitor Expenditures Attributed to Public
Investment in Small-Boat Facilities and in
County and State Parks in the Lower Umpqua
River Area 21

Study Implications 29

Appendix AA-1

Appendix BB-1

Appendix CC-1

LIST OF TABLES

Table 1.	Total Sales and Sales to Visitors of Recreation Related Businesses Located in the Lower Umpqua River Area, 1972	10
Table 2.	Itemized Average Per-Visitor-Day Expenditures of Visitors Engaged in Fishing and Nonfishing Activities in the Lower Umpqua River Area, 1973	13
Table 3.	Salmon Harbor Angling Effort, 1963-72	16
Table 4.	Umpqua Lighthouse State Park Camper Nights, 1968-72	18
Table 5.	Type of Visitor, Visitor-Days, Average Per-Visitor-Day Expenditures, and Direct Economic Impact via the Expenditure of Visitors Attributed to Public Investments in Fishing, Launching, Moorage, and Camping Facilities in the Lower Umpqua River Area	20
Table 6.	Total Output and County Exports by Economic Sectors for Douglas County, Oregon, 1970	23
Table 7.	Direct and Indirect Business Coefficient Matrix, Showing Effects of One Dollar Change in Business Within Douglas County, Oregon, 1970	24
Table 8.	Sector and Total Output and Deviation of Output by Sector and Total Output of the Douglas County Economy With and Without Public Investments in Small-Boat Facilities and in County and State Parks in the Lower Umpqua River Area, 1970	28

LIST OF FIGURES

- Figure 1. The Lower Umpqua River Area, Douglas County, Oregon 4
- Figure 2. Peak Fishing Seasons of the Lower Umpqua River Area 5

Summary

Business and visitor-survey data provide a basis for estimating the dollar value of sales made to visitors by individual businesses and firms of the Lower Umpqua River area and the dollar value of sales to visitors who are attracted to the area by public investments in port and harbor facilities by the U.S. Army Corps of Engineers and by county and state parks. The dollar value of these sales to visitors is referred to as the direct economic impact of visitors. The latter impact estimate in association with an input-output model of Douglas County provides a basis for estimating the economic impact on the Douglas County economy of visitor expenditures attributed to these investments. Impact estimates are limited to those resulting from visitor expenditures. Those estimates are only a part of the impact resulting from the investments since water transportation and commercial fishing impacts are not included. Neither are impacts from the construction, operation, and maintenance of these facilities included. Public investments of particular concern in this study include a boat turning basin and small boat moorages at Salmon Harbor, a river channel to Reedsport with side channels serving Salmon Harbor at Winchester Bay, Scholfield Creek in Reedsport, and Gardiner, entrance jetties and channel at the Umpqua River mouth, Windy Cove County Park, Umpqua Lighthouse State Park, and Ziolkowski Beach. It was concluded that recreation and tourism is an important basic industry of the Lower Umpqua River area. Approximately 32 percent of the gross sales of the area's recreation related businesses were derived from visitors who include both tourists and recreationists. Approximately 52 percent of the 254 individual businesses and firms located in the Lower Umpqua River area reported significant sales to visitors during 1972. Total visitor expenditures during the year were estimated at about \$6.7 million. Grocery stores, automotive sales and service, and gasoline service stations were major recipients of visitor expenditures. They directly received about \$4.9 million, or 73 percent of the area's total visitor expenditure.

Visitor survey data revealed that there are major differences in total expenditures and expenditure patterns of the area's fishermen and nonfishermen

visitors. Fishermen spend about \$8.00 in the area per-visitor-day as contrasted to a nonfisherman's expenditure of about \$4.60 per-visitor-day. Fishermen also remained in the area longer than nonfishermen; 3.72 days per visit versus only 1.11 days per visit. Nonfishermen spend more money for overnight accommodations in the motel and hotel sector than they do in the trailer park and campgrounds sector while the converse was true of fishermen. Fishermen patronize cafes and taverns, charter operations, grocery stores, and sporting goods and tackle shops to a greater extent than do nonfishermen, while nonfishermen patronize fish processing (primarily to purchase fresh or processed fish), clothing and department stores, and miscellaneous retail stores to a greater extent than do fishermen. Both spend about the same amount of money in the service station sector.

Approximately 28 percent of the area's total visitor sales, or \$1.9 million, was identified as being attributed to public investments in the area for small-boat facilities and for county and state parks. This estimate is considered an approximate measure of the amount of visitor expenditure which would be lost to the study area if these public investments had not been made.

The economic impact on the Douglas County economy of visitor expenditures attributable to public investments in the Lower Umpqua River area for small-boat facilities and for county and state parks is estimated at \$5.4 million annually. These impacts accrue, but not equally, to most businesses of the county economy. The activities most affected include retail and wholesale trade, retail services and organizations, households, service stations, and automotive sales and services. Probably one of the most important impacts occur in households where approximately \$570,000 of gross wages and salaries are directly attributable to small-boat facilities and county and state park investments in the Lower Umpqua River area.

Introduction

One of the more popular recreational areas in Oregon is the Lower Umpqua River region. The area is depicted in Figure 1. The region offers a variety of recreational opportunities during all seasons including fishing, camping, picnicking, beachcombing, boating and sightseeing.

The primary recreation resource of the region is fishing. Every day of the year at least one type, and more often several types, of fishing can be pursued. Offshore fishing for chinook and silver (Coho) salmon is the most popular of the fishing activities. Salmon Harbor at Winchester Bay is the focal point of that activity. Peak seasons for some of the more important fisheries in the area are illustrated in Figure 2. Crabs, clams, and other species of sea life also are abundant in the area and supplement the fisheries for additional sport activities.

Camping and picnicking activities also are fundamental to the area. Windy Cove Park, a Douglas County park adjacent to Salmon Harbor, is the most widely used public park in the area primarily because of its proximity to the harbor and the offshore salmon angling. The park has 25 picnic and 70 camping units. Camping and picnicking facilities are also available at Umpqua Lighthouse State Park and Umpqua Wayside. Umpqua Wayside has 4 picnic sites. The state park has 36 picnic and 63 camping units. In addition to these public overnight facilities, several private overnight trailer parks are located in the area with a total of about 50 short-term camping spaces.

The area's ocean beach also provides recreational activity. Beach access is available at Ziolkowski Beach south of the Umpqua River. The north beach area, as part of the Oregon Dunes National Recreation Area, presently has only a limited public access. Modes of access into the area include boat, dune buggy, and hiking.

The development of this popular recreational area is attributed to many factors such as year-around fisheries, proximity to Oregon Dunes,

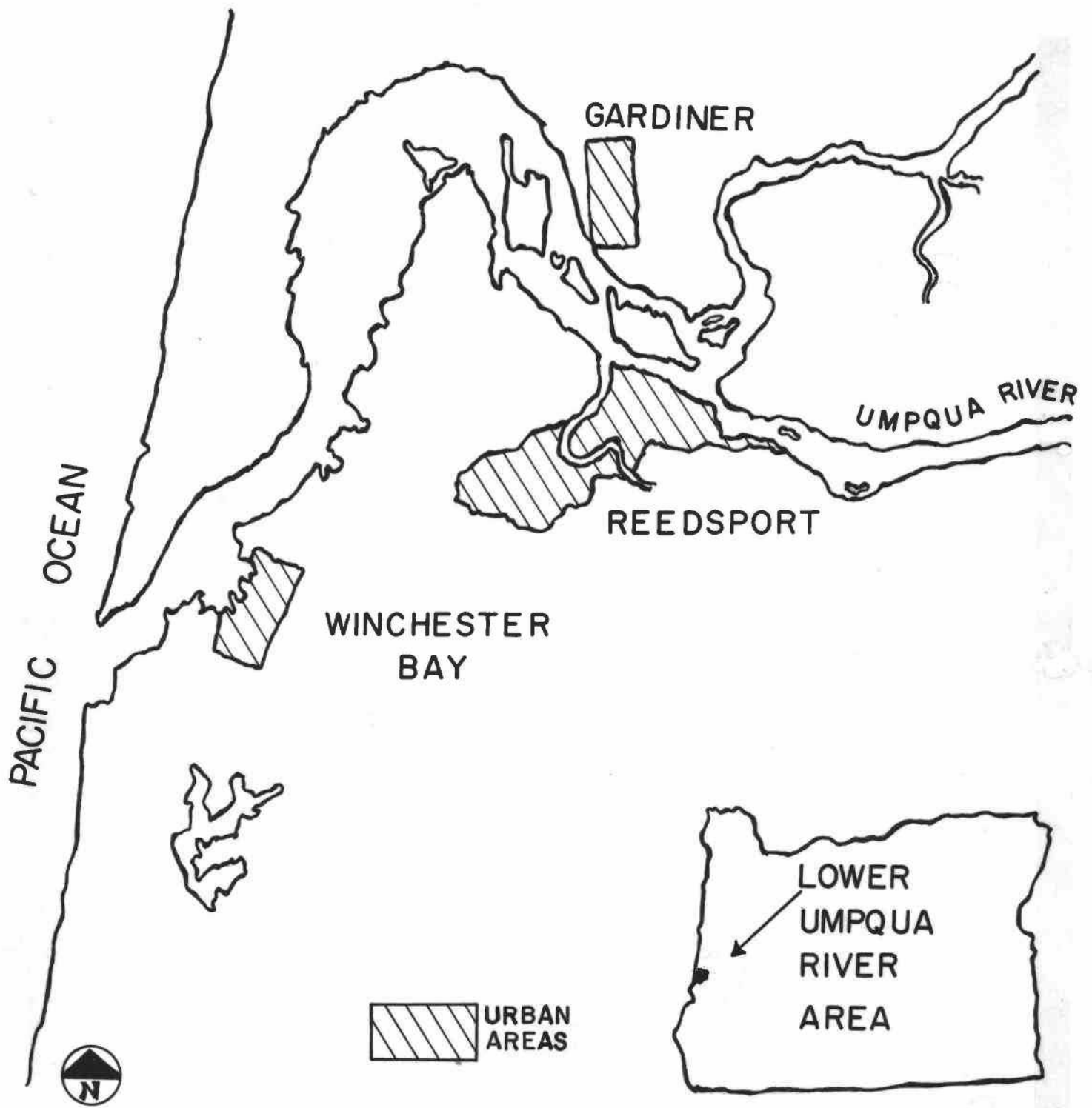


FIGURE 1. THE LOWER UMPQUA RIVER AREA, DOUGLAS COUNTY, OREGON

FISHERY	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Winter Steelhead												
Summer Steelhead												
Striped Bass												
Spring Chinook												
Shad												
Sturgeon												
Salt Water Perch, Flounder, etc.												
Searun Cutthroat												
Offshore Chinook & Silver Salmon												
Fall Chinook in River												
Silver Salmon in River												
Smelt												

SOURCE: Oregon State Game Commission

Figure 2. Peak Fishing Seasons of the Lower Umpqua River Area

proximity and access to Willamette Valley and southern Oregon population centers, location on U.S. Route 101, its natural scenic qualities, and the abundance of public facilities which directly or indirectly support recreational activities. It is generally believed that this recreational area's popularity and economic activity is in part attributable to these public investments.

Study Objectives

The objectives of the study are to:

- (1) Estimate the dollar value of sales made to visitors by individual businesses and firms of the Lower Umpqua River area. The value of these sales to visitors is referred to as the direct economic impact of visitors.
- (2) Determine selected characteristics and expenditure patterns of the area's visitors who include both tourists and recreationalists.
- (3) Estimate the direct economic impact, via the expenditure of visitors, attributable to public investments for small-boat facilities and for county and state parks in the Lower Umpqua River area.
- (4) Derive from the direct economic impact estimate of objective 3, the magnitude and distribution of the impact on the economy of Douglas County.

Public investments of particular concern in this study include a boat turning basin and small boat moorages at Salmon Harbor, a river channel to Reedsport with side channels serving Salmon Harbor at Winchester Bay, Scholfield Creek in Reedsport, and Gardiner, entrance jetties and

channel at the Umpqua River mouth, Windy Cove County Park, Umpqua Lighthouse State Park, and Ziolkowski Beach.

Study Procedure

Business survey data were used to estimate the dollar value of sales made to visitors by individual businesses and firms in the Lower Umpqua River area. Visitors were individuals not identified by the business operation as a resident of the study area.

The ideal was to identify the impact of non-resident tourist and recreationist expenditures in the Lower Umpqua River area and subsequently in Douglas County. This identification would permit estimation of business generated by tourists and recreationists, similar to estimates of business generated by timber, agriculture, commercial fishing, etc. However, the ability of the business community to accurately distinguish between resident and non-resident customers is questionable. For example, some individuals clearly can be identified by service station operators as being from outside the area as out-of-state licenses are a good indicator. Individuals with Oregon licenses would be more difficult to identify, and the occasional resident customer could be mis-identified as a non-resident tourist or recreationist. Other businesses would have even more difficulty identifying non-resident tourists and recreationists. Because of this identification problem a less rigorous criterion of area visitors was accepted. That is, the visitor could be a resident of the study area but not identified by the business as an area resident. This creates some overestimation of non-resident tourist and recreation expenditure; but the loss of accuracy seemed justified to begin acquiring more information on the magnitude and distribution of economic impacts generated by tourists and recreationists.

The business survey was conducted in the area during the summer of 1973. Data were collected by personal interview. Only business sectors which were

known, based on information from a prior business survey in the area, to make sales to visitors were surveyed. A stratified sample, rather than a complete enumeration of businesses, was accomplished. The sector sampling rates varied with subjective estimates of size, importance, and variance of the amount of business in each of the sectors of the local economy. A panel of business people knowledgeable about the area's businesses assisted in selecting the sample. All businesses subjectively judged by the local panel as large were included in the sample. The sampling rate of the medium-sized businesses ranged from 40 to 50 percent, and the sampling rate of the smaller businesses ranged from 20 to 30 percent.

The basic information obtained in the business survey pertained to how much, to whom, and from whom individual businesses sold and bought their goods and services. In other words, information on all business transactions during a calendar year was collected. The complete business survey questionnaire is reproduced in Appendix A.

Visitor survey data were used to determine selected characteristics and expenditures of visitors to the Lower Umpqua River area. This survey was also conducted in the area during the summer of 1973. Again, the information was obtained by personal interview. Visitors were randomly contacted at harbor areas, the Umpqua Lighthouse State Park and the Windy Cove County Park, and the day-use and beach areas immediately surrounding the Umpqua River mouth. The basic information obtained in the visitor survey pertained to the purpose of their visit and their expenditures during the visit. The complete visitor survey questionnaire is reproduced in Appendix B.

Visitor survey data in association with Salmon Harbor angler effort and Umpqua Lighthouse State Park camper-night and day-use visitor data were used to estimate the direct economic impact, via the expenditure of visitors, attributable to public investments in small-boat facilities and in county and state parks in the Lower Umpqua River area. Visitor survey data were collected in this study using sampling procedures. Angler effort data

were obtained from the Oregon State Game Commission. The Commission collected the data using sampling procedures. Camper-night and day-use visitor data were obtained from the Oregon State Parks and Recreation Division. The Division collected camper-night data using actual counts of campers and day-use visitor data using vehicle counts corrected to reflect day-use visitors.

An input-output model of the Douglas County economy coupled with an estimate of the direct economic impact attributable to public investments in small-boat facilities and county and state parks in the Lower Umpqua River area were used to derive the magnitude and distribution of the impact on the economy of Douglas County. Impact estimates were determined by simulating the county economy with and without public investments in the Lower Umpqua River area. The input-output model was developed prior to this study. For those not familiar with input-output techniques, a general description of the procedure used to develop this model and the information it provides about the basic structure of an economy is briefly discussed.

Direct Economic Impact of Visitors to the Lower Umpqua River Area

Approximately 52 percent of the 254 individual businesses and firms located in the Lower Umpqua River area reported sales to visitors during 1972. Again, visitors were individuals identified by study area businesses as non-residents of the study area. Total sales, sales to visitors, and the percentage of total sales to visitors associated with various business classifications or sectors are illustrated in Table 1. This information was obtained through the business survey which was described earlier. Seventy-seven individual firms were contacted for business data; 53 firms provided useful information.

The direct economic impact or sales to visitors in the Lower Umpqua River area in 1972 is estimated at about \$6.7 million. Grocery stores, automotive sales and service, and gasoline service stations are major recipients of visitor expenditures. Those three business sectors directly received

Table 1. Total Sales and Sales to Visitors of Recreation Related Businesses Located in the Lower Umpqua River Area, 1972

Businesses	Number of Firms	Total Sales	Visitor Sales	Percentage of Visitor Sales
Motels and Hotels	12	\$ 575,200	\$ 385,384	67
Trailer Parks	4	57,420	54,549	95
Cafes and Taverns	16	1,008,000	374,600	37
Service Stations	17	2,052,346	1,067,220	52
Auto Sales and Services	13	6,406,417	1,818,350	28
Auto Parts and Supply	4	778,400	38,920	5
Charter Operations	20	260,587	234,528	90
Camper Sales ^{a/}	1			
Fish Processing	5	2,459,300	68,712	3
Clothing and Department Stores	7	1,179,000	183,850	16
Grocery Stores	8	3,640,000	1,976,000	54
Sporting Goods and Tackle Shops	7	905,369	315,054	35
Other Stores and Services ^{b/}	15	1,448,914	111,118	8
Public Parks ^{c/}	2	50,556	50,556	100
Salmon Harbor ^{c/}	1	72,096	65,096	90
Totals	132	\$20,893,605	\$6,743,937	32

^{a/} Included in Auto Sales and Services to avoid disclosure of confidential information.

^{b/} Sales from several individual stores and businesses providing services to visitors was aggregated to avoid disclosure of confidential information. Businesses in this grouping included gift and flower shops, cleaners, drug and photography stores, boat repair and lift establishments and the local country club.

^{c/} Sales reported during FY 72-73.

about 73 percent, or \$4.9 million, of the estimated total visitor expenditure. Although other business sectors received a smaller amount of the total visitor expenditure, several did a high proportion of their business with visitors. Motels and hotels, public campgrounds, trailer parks, charter operations, and Salmon Harbor made more than 50 percent of their sales to visitors. Cafes and taverns and sporting goods and tackle shops derived about 36 percent of their gross sales from visitors. Automotive parts and supply, fish processing firms, and other miscellaneous stores derived only a small percentage of their gross sales from visitors. Those sectors are relatively less directly dependent on the visitor industry.

It is difficult to judge the quality of the estimate of total visitor expenditures in the area because secondary sources of information about visitor expenditures in the area are not well developed. Also, it is expected that there was some unintentional identification of residents as "visitors" in the area. These problems with visitor identification were judged acceptable in the attempt to acquire information on the recreation and tourism industry.

Based on estimated visitor expenditures in the Lower Umpqua River area, it is concluded that recreation and tourism is an important basic industry of the area. The industry's relative importance, however, was not estimated. The economic activity of many of the area's businesses depends on the recreation and tourism industry. Approximately 32 percent of the gross sales of recreation related businesses were derived from visitors. Consequently, the area has a vested interest in planning and investment decisions which influence the number of visitors in the area.

Characteristics and Expenditures of Lower Umpqua River Area Visitors

A visitor survey was used to supplement information obtained in the business survey and to reveal other general characteristics of visitors. Information was collected by sampling 300 visitor-days. A visitor-day is defined as one person stopping or staying in the study area during any or

all of one calendar day. The survey, although not extensive, provides useful and indicative information.

Approximately 82 percent of the visitor-days surveyed were spent in fishery related activities. The remaining 18 percent of the visitor-days were expended in nonfishing activities such as camping, sightseeing, picnicking, etc. Out-of-state visitors accounted for about 36 percent of the visitor days expended in both fishing and nonfishing activity. Visitors who engaged in fishing activity remained in the area about 3.72 days per trip; whereas, visitors who were nonfishermen averaged only 1.11 days per visit. About 38 percent of the nonfishing visitors spent less than 24 hours in the area; only 14 percent of the fishing visitors spent less than 24 hours in the area.

Itemized expenditures of visitors engaged in fishing and nonfishing activities are presented in Table 2. Expenditures are on a per visitor-day basis. A weighted average expenditure also is given. In 1973, fishermen spent about \$8.00 per visitor-day in the area as contrasted to a nonfisherman's expenditure of about \$4.60. A weighted average expenditure was estimated at \$7.33 per visitor-day. That weighted total is more useful for some estimating purposes since it reflects the composition of the area's visitor population. The data also indicates there are major differences in the expenditure pattern of the two types of visitors. Nonfishermen expended more money for overnight accommodations in the motel and hotel sector than they did in the trailer park and campgrounds sector while the converse was true of fishermen. Both types of visitors, however, appear to be primarily tent, truck, and trailer campers, because the costs of overnight motel and hotel accommodations are appreciably greater than overnight campground charges. Fishermen patronize cafes and taverns, charter operations, grocery stores, and sporting goods and tackle shops to a greater extent than do nonfishermen, while nonfishermen patronize fish processing (primarily to purchase fresh and processed fish), clothing and department stores, and miscellaneous retail stores to a greater extent than do fishermen. Both spend about the same amount of money in the service station sector.

Table 2. Itemized Average Per-Visitor-Day Expenditures of Visitors Engaged in Fishing and Nonfishing Activities in the Lower Umpqua River Area, 1973

Business	Type of Visitor	
	Sport Fisherman	Non-fisherman
Motels and Hotels	\$0.58	\$0.88
Trailer Parks and Camps	1.24	0.60
Cafes and Taverns	1.08	0.65
Service Stations	0.79	0.75
Auto Sales and Service	-	-
Auto Parts	-	-
Charter Operations	1.74	-
Fish Processing	-	0.48
Clothing and Department Stores	0.01	0.12
Grocery Stores	1.48	0.88
Sporting Goods and Tackle Shops	0.99	0.02
Other Stores and Services	0.03	0.19
Total Expenditure Per Visitor-Day	\$7.94	\$4.57
Weighted Average Expenditure Per Visitor-Day ^{a/}	\$7.33	

^{a/} The weighted average expenditure is the sum of the total expenditure per-visitor-day of visitors engaged in fishing activity weighted by the percentage of visitors fishing (82 percent) plus the total expenditure per-visitor-day of visitors engaged in nonfishing activities weighted by the percentage of visitors engaged in this activity (18 percent).

Direct Economic Impact Attributed to
Public Investments in Small-Boat Facilities
and in County and State Parks in the
Lower Umpqua River Area

Ideally, an estimate of the direct economic impact, via the expenditure of visitors, attributable to public investment of interest in the study area would be obtained by identifying visitors who are attracted to the study area by these investments and then identifying their total expenditure while in the area. Needless to say, that type of data is unavailable and it was beyond the means of this study to collect that data. Instead, the impact estimate advanced in this study is derived by: (1) estimating the number of fishermen using public fishing, launching, and moorage facilities and the number of nonfishermen using other public facilities in the area, (2) converting, where appropriate, fishermen and nonfishermen numbers to visitor-day estimates, and (3) multiplying fishermen and nonfishermen visitor-day estimates by their respective average per-visitor-day expenditure. Because of this rather imprecise procedure, the economic impact estimate is an order of magnitude rather than a precise estimate. It is influenced by the present inventory of both public and private tourist and recreation related facilities in the area, but it is more closely associated with the public investments in small-boat facilities and in county and state parks. Consequently, impacts attributed to incremental investments in the area's public facilities or specific facilities are beyond the scope of the study. The estimate does not include water transportation and commercial fishing impacts of these investments; neither are impacts from the construction, operation, and maintenance of these facilities estimated. Rather, the estimate is limited to impacts originating as expenditures of visitors who include both tourists and recreationists.

The number of fishermen using public fishing, launching, and moorage facilities is estimated from Oregon State Game Commission Salmon Harbor angling effort and catch data as this is the only data available in the study area on this type of activity. That information was collected by sampling procedures. The data reflect only the number of angler trips terminating in Salmon Harbor at Winchester Bay; it does not include angler trips terminating at public boat

ramps at Reedsport or Gardiner. The Game Commission defines an angler trip as one person on one fishing expedition. For purposes of this study, the Game Commission's estimate of the number of fishermen using Salmon Harbor is an approximate estimate of the number of fishermen using public fishing, launching, and moorage facilities in the area, because angler trip estimates which double count fishermen who take more than one angler trip from Salmon Harbor during a visit to the area were assumed to offset fishermen numbers not recorded.

Game Commission estimates of Salmon Harbor angler trips show considerable variation during the period 1963-72 (Table 3). The largest total of angler trips, 60,510, was recorded in 1969; the smallest number, 38,664, was recorded in 1972. Because of that variation, a 10-year average of angler trips was considered a more representative estimate of the number of fishermen using public fishing, launching, and moorage facilities in the area. During the 10-year period, approximately 48,000 fishermen used the area's public facilities annually.

The number of nonfishermen using public park and day-use facilities in the area is estimated from Oregon State Parks and Recreation Division camper-night and day-use visitor data for the Umpqua Lighthouse State Park. Only state park data are used in this estimating procedure since Windy Cove County Park is used predominantly by fishermen due to its proximity to the harbor and the offshore salmon angling and day-use visitor data are not recorded at the other public facilities. For purposes of the study, Umpqua Lighthouse State Park camper-night and day-use visitor data are approximate estimates of the number of nonfishermen using public overnight camping facilities and the number of day-use visitors using public day-use facilities in the area. It is recognized, however, that these estimates include some fishermen users of public facilities, such an overestimate of nonfishermen users is not considered a serious problem.

State park camper-night data were obtained by the park attendant who counted each person in the camping party. A camper-night is defined as one person using the parks' camping facilities for one night during the camping

Table 3. Salmon Harbor Angling Effort, 1963-72^{a/}

Year	Angler Trips ^{b/}		Total
	Pleasure Craft	Charter	
1963	28,044	18,767	46,811
1964	33,142	19,142	52,284
1965	25,949	16,949	42,898
1966	27,300	25,685	52,985
1967	28,200	15,423	43,623
1968	34,888	22,567	57,455
1969	40,043	20,467	60,510
1970 ^{c/}	22,152	20,132	42,284
1971	26,421	15,080	41,501
1972	21,299	17,365	38,664
1963-72 average	28,744	19,158	47,902

^{a/} Data source: Oregon State Game Commission.

^{b/} An angler trip is defined as one person on one fishing expedition.

^{c/} Data collected only during June 15-September 15.

season. Camper-night data shows some annual variation during the 1968-1973 period. The greatest number of camper nights, 25,478, was recorded in 1969; the smallest number, 23,936, was recorded in 1968. See Table 4. Because of that variation, a five-year average was considered a more representative number of annual user days. During the five year period from 1968 to 1972 approximately 24,650 person days were consumed in the area's state park camping facilities annually.

State park day-use visitor estimates were obtained directly from the Oregon State Parks and Recreation Division. Day-use visitor data are derived from traffic counts. During the past several years, day-use visitor numbers at the state park have shown wide fluctuations. The most recent, and probably the most accurate, count indicated that 87,486 day-use visitors used the state park's day-use facilities annually (compiled by fiscal year). A day-use visitor is defined as one person visiting the area for any part or all of a calendar day.

Because fishermen numbers do not adequately reflect the length of their visit in the area, it was necessary to convert these numbers to visitor-day estimates. The conversion is based on visitor survey data which indicated that fishermen remained in the area about 3.72 days per visit. Consequently, visitor-day estimates for fishermen are derived by multiplying fishermen numbers by 3.72 days per visit. On that basis, it is estimated that approximately 178,560 fishermen visitor-days annually are attributed to public investments in fishing, launching, and moorage facilities and about 24,650 nonfishermen camper visitor-days annually are attributed to public investments in camping facilities in the Lower Umpqua River area. An additional 87,486 day-use visitors annually are attributed to public investments in day-use facilities in the area. Day-use and camper night estimates, by definition, reflect the length of the user visit in the area.

The estimated direct economic impact, via the expenditure of visitors, attributed to public investments in fishing, launching, moorage, and camping

Table 4. Umpqua Lighthouse State Park Camper Nights, 1968-72^{a/}

Year	Camper Nights ^{b/}
1968	23,936
1969	25,478
1970	24,690
1971	24,811
1972	24,311
1968-72 average	24,645

^{a/} Data source: Oregon State Parks and Recreation Division. Data compiled on a fiscal year basis.

^{b/} A camper night is defined as one person using the park's camping facilities for one night during the camping season.

facilities in the Lower Umpqua River area is about \$1.9 million annually. This estimate is derived by multiplying fishermen and nonfishermen visitor-day estimates attributed to these investments by their respective average per-visitor-day expenditure in the area; refer to Table 5. Visitor-day expenditure data were obtained from visitor survey information.

This estimate indicates that a significant portion of total visitor expenditures in the area are related to these public investments. Approximately 28 percent of the area's total visitor sales were derived from people who utilized the area's public fishing, launching, moorage, camping, and day-use facilities.

At this juncture, the interpretation given the direct economic impact estimate must be carefully explained. The estimate reflects the impact currently attributed to public investments of interest in this study. It does not necessarily reflect the amount of visitor expenditure which would be lost to the study area if these public investments had not been made as it is likely that several types of private developments would probably have taken place instead. The issue is not clear-cut, however, because of the unique recreational character of the Oregon coast and its abundance of public facilities which tend to directly substitute for public facilities in the study area. Also complicating the issue is the nature and the magnitude of some of the public investments (i.e., entrance jetties and channel at the Umpqua River mouth, Ziolkowski Beach, etc.) of interest in this study. It is highly unlikely that these types of investments would be duplicated by private individuals.

Because economic impact analysis is not capable of isolating out the positive and negative economic effects of these issues, the impact estimate is considered an approximate measure of the amount of visitor expenditure which would be lost to the study area if these public investments had not been made.

Table 5. Type of Visitor, Visitor-Days, Average Per-Visitor-Day Expenditure, and Direct Economic Impact via the Expenditure of Visitors Attributed to Public Investment in Fishing, Launching, Moorage, and Camping Facilities in the Lower Umpqua River Area

Type of Visitor	Visitor-Days in the Area ^{a/}	Average Per Visitor-Day ^{b/} Expenditures	Direct Economic Impact
Fishermen using public fishing, launching, and moorage facilities	178,560	\$7.94	\$1,417,766
Nonfishermen using public camping facilities	24,650	4.57	112,651
Nonfishermen using public day use areas	87,486	4.57	399,811
Total Annual Use	290,696		
Total Annual Direct Impact			\$1,930,228

^{a/} Data sources for fishermen and nonfishermen campers and day-use visitors were obtained from the Oregon State Game Commission and the Oregon State Parks and Recreation Division respectively.

^{b/} Average per-visitor-day expenditures were obtained from a visitor survey.

Economic Impact on the Douglas County Economy
of Visitor Expenditures Attributed to Public
Investments in Small-Boat Facilities and in County
and State Parks in the Lower Umpqua River Area

A 1970 Douglas County input-output economic model developed by Youmans and others^{3/} is used to estimate the economic impact on the Douglas County economy of visitor expenditures attributed to selected public investments in the Lower Umpqua River area. Public investments of particular concern in the study area include a boat turning basin and small boat moorages at Salmon Harbor, a river channel to Reedsport with side channels serving Salmon Harbor at Winchester Bay, Scholfield Creek in Reedsport, and Gardiner, entrance jetties and channel at the Umpqua River mouth, Windy Cove County Park, Umpqua Lighthouse State Park, and Ziolkowski Beach. The general procedure used to develop the working model, and the basic structure and economic interrelationships of businesses in the county economy, are presented before the economic impact on the Douglas County economy is estimated.

The model of the county economy is developed by grouping similar firms or organizations together and then accounting for the economic transactions within and among those businesses. Transaction data were developed from a business survey questionnaire similar to the business questionnaire illustrated in Appendix A. A more detailed description of the survey procedure is referenced in Youmans, et al. The data describes the flow of goods and services in the county economy as well as between the county and the outside economy. Those latter flows are called "leakages" from local business activity since subsequent effects of expenditures occur outside the county economy.

The basic economic activities of the Douglas County economy include timber, manufacturing, and county visitors, who are largely recreationists and tourists. Collectively, these three economic activities account for

^{3/} Youmans, R. C., D. R. Darr, R. Fight, and D. L. Schweitzer, Douglas County, Oregon: Structure of a Timber County Economy, Oregon State Agricultural Experiment Station Circular of Information 645, December 1973.

38 percent, or \$320 million, of the economy's 1970 \$849 million output; refer to Table 6. The timber industry alone contributed about 30 percent of the total output. Visitors contributed about 2 percent of the total output. Based on visitor sales estimates in the Lower Umpqua River area, refer to Table 1, about 36 percent of the county's total visitor sales were generated in the Lower Umpqua River area. Economic activity generated by the supporting businesses of the economy (i.e., retail and wholesale trade, communications, transportation, etc.) contributed most of the remaining output.

The Douglas County economy is primarily an export economy relying on sales to purchasers outside its boundary to maintain its economic viability. About 42 percent, or \$359 million, of the county's output is derived from sales or revenue from outside the county. More than \$224 million of those exports, or 63 percent, came from its timber industry. This is expected, as Douglas County is the largest timber producing county in the United States. Excluding transfers from state or federal government to local government units, other major export activities are manufacturing and visitors.

The interrelationship of businesses within the county economy is best illustrated in Table 7. In that table, all the economic activity generated from an additional dollar of business in any business classification or sector is recorded. It shows the effects of a one-dollar change (i.e., either an increase or a decrease in sales) in business within the economy in 1970. The table is read from top to bottom; the information in the table is derived from a survey of businesses. A detailed definition of each of the business classifications in the table is presented in Appendix C. To illustrate some of the business interrelationship information contained in the table, the effect of a change in visitor expenditures (recorded in column 32) is followed through the economy.

Assume visitor expenditures in the economy increase by one dollar. A very small impact is identified in timber, commercial fishing, agricultural,

Table 6. Total Output and County Exports by Economic Sectors for Douglas County, Oregon, 1970

Sector ^{a/}	County Exports ^{b/}	Total Output
	(\$1,000)	
Timber harvesting, hauling, & products	\$224,656	\$254,985
Commercial fishing	0	4,033
Agriculture	7,334	8,781
Manufacturing	40,640	46,159
Lodging	992	3,742
Cafes & taverns	23	8,865
Service stations	214	19,284
Automotive sales & service	2,676	43,189
Communications & transportation	5,655	25,040
Professional services	722	11,505
Financial services	2,815	25,315
Construction	4,437	24,610
Retail & wholesale trade	4,197	83,021
Retail services & organizations	5,214	28,312
U. S. Forest Service	14,786	25,357
Bureau of Land Management	3,412	25,003
Local government services	10,842	30,710
Incorporated cities	807	3,977
Households	10,334	158,105
Visitors	18,851	18,851
Total	\$358,607	\$848,844

^{a/} Several sectors are aggregated for convenience of presentation. Economic sector definitions appear in Appendix C.

^{b/} County exports represent sales or revenue from outside the economy from sales of goods and services outside the county or transfer from state or federal government to local government units.

Table 7. Direct and Indirect Business Coefficients Matrix, Showing Effects of One Dollar Change in Business Within Douglas County, Oregon, 1970

Sector	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
[1] Timber harvesting & hauling.....	1.02854	0.34525	0.05452	0.00891	0.00091	0.00100	0.00115	0.00156	0.00101	0.00091	0.00030
[2] Sawmills.....	.00444	1.01134	.00649	.00646	.00164	.00229	.00238	.00407	.00202	.00182	.00055
[3] Plywood & veneer mills.....	.01033	.02635	1.02542	.00116	.00319	.00174	.00274	.00157	.00242	.00242	.00090
[4] Pulp, paper, particle board plants.....	*	*	*	1.00000	*	*	*	.00009	*	*	*
[5] Commercial fishing.....	.00275	.00185	.00113	.00051	1.01394	.00154	.00184	.08187	.00159	.00491	.00076
[6] Horticulture.....	.00054	.00062	.00052	.00023	.00083	1.00054	.00514	.00038	.00049	.00060	.00021
[7] Livestock.....	.00129	.00242	.00104	.00045	.00213	.00915	1.09885	.00579	.00303	.00160	.00092
[8] Manufacturing.....	.03214	.02075	.01215	.00554	.0212	.01695	.02014	1.01300	.01791	.05855	.00864
[9] Lodging.....	.00418	.00465	.00403	.00169	.00544	.00264	.00332	.00362	1.00333	.00425	.00165
[10] Cafes & taverns.....	.02261	.02523	.02196	.00916	.03091	.01436	.01809	.01456	.01814	1.02407	.00902
[11] Service stations.....	.06289	.05356	.03670	.01509	.04772	.22324	.03407	.02290	.03059	.03750	1.05093
[12] Automotive sales & service.....	.19981	.15608	.10124	.04149	.12926	.07413	.08632	.06421	.08589	.10348	.06598
[13] Communications & transportation.....	.08038	.07805	.04895	.02274	.07146	.12921	.05777	.03438	.16260	.08847	.03098
[14] Professional services.....	.03344	.03440	.02805	.01234	.03889	.02009	.03495	.01870	.03078	.03650	.01313
[15] Financial services.....	.07325	.17489	.04736	.01351	.03693	.24161	.24097	.03325	.26336	.08148	.03374
[16] Construction.....	.03829	.04794	.06014	.02756	.03494	.03885	.04261	.01950	.06319	.06105	.01241
[17] Retail & wholesale trade.....	.22218	.27052	.20686	.10653	.48155	.38253	.47533	.16636	.24789	.30545	.08180
[18] Retail services & organizations.....	.06110	.06229	.04850	.02106	.14807	.14072	.16228	.04312	.30094	.07799	.02512
[19] U.S. Forest Service.....	.01148	.04414	.06695	.00048	.00050	.00035	.00470	.00040	.00464	.00041	.00015
[19a] U.S. Forest Service appropriations.....	0	0	0	0	0	0	0	0	0	0	0
[20] Bureau of Land Management.....	.05879	.10710	.07405	.00138	.00046	.00040	.00116	.00057	.00044	.00042	.00014
[20a] Bureau of Land Management appropriations.....	0	0	0	0	0	0	0	0	0	0	0
[21] Education.....	.03686	.05212	.05051	.02656	.03423	.02176	.02930	.02045	.03008	.02766	.00999
[22] Law enforcement.....	.00125	.00158	.00133	.00073	.00164	.00087	.00110	.00095	.00156	.00148	.00059
[23] County roads.....	.01943	.02708	.01160	.01777	.00055	.00036	.00067	.00040	.00067	.00047	.00017
[24] Social services.....	.00059	.00067	.00065	.00034	.00075	.00042	.00054	.00041	.00118	.00094	.00022
[25] Administration.....	.00117	.00146	.00081	.00102	.00192	.00038	.00049	.00052	.00054	.00053	.00018
[26] City of Roseburg.....	.00377	.00477	.00528	.00336	.00500	.00372	.00481	.00331	.00676	.00504	.00181
[27] City of Sutherlin.....	.00091	.00113	.00114	.00063	.00120	.00080	.00099	.00069	.00246	.00159	.00058
[28] City of Myrtle Creek.....	.00098	.00114	.00117	.00061	.00124	.00082	.00100	.00085	.00310	.00158	.00064
[29] City of Reedsport.....	.00075	.00092	.00090	.00051	.00103	.00066	.00083	.00056	.00177	.00122	.00043
[30] Other incorporated cities.....	.00108	.00160	.00146	.00084	.00156	.00116	.00148	.00108	.00633	.00344	.00049
[31] Households.....	.47833	.53360	.46469	.19349	.62857	.30402	.38306	.30655	.38405	.48689	.19091
[32] Visitors.....	0	0	0	0	0	0	0	0	0	0	0
TOTAL.....	2.49352	3.09350	2.38762	1.54218	2.74858	2.63632	2.71810	1.86766	2.67875	2.42265	1.54333

* Positive value, but less than .00001

(Continued)

Table 7. (Continued)

Sector	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[19a]	[20]	[20a]
[1] Timber harvesting & hauling.....	0.00048	0.00058	0.00103	0.00115	0.00486	0.00058	0.00051	0.02024	0.01827	0.05326	0.03595
[2] Sawmills.....	.00045	.00107	.00187	.00273	.01183	.00113	.00091	.02463	.00392	.04822	.00271
[3] Plywood & veneer mills.....	.00078	.00184	.00337	.00070	.00205	.00227	.00169	.11785	.00583	.11966	.00666
[4] Pulp, paper, particle board plants.....	* .00001	* .00001	* .00199	* .00030	* .00001	* .00380	* .00001	* .00056	* .00202	* .00051	* .00213
[5] Commercial fishing.....	.00035	.00083	.00199	.00030	.00092	.00380	.00094	.00056	.00202	.00051	.00213
[6] Horticulture.....	.00018	.00042	.00079	.00017	.00042	.00095	.00042	.00023	.00085	.00019	.00109
[7] Livestock.....	.00046	.00085	.00190	.00140	.00096	.00148	.00095	.00051	.00170	.00046	.00213
[8] Manufacturing.....	.00367	.00878	.02151	.00323	.00989	.04225	.01023	.00612	.02209	.00564	.02263
[9] Lodging.....	.00143	.00338	.00617	.00117	.00314	.00220	.00307	.00185	.00209	.00152	.00870
[10] Cafes & taverns.....	.00782	.01845	.03368	.00636	.01714	.01184	.01677	.00988	.03598	.00817	.04770
[11] Service stations.....	.01515	.02898	.05283	.01073	.05658	.01976	.02973	.01722	.07031	.01511	.08452
[12] Automotive sales & service.....	1.04930	.09902	.14458	.02827	.12612	.05187	.08655	.04836	.16411	.04316	.20714
[13] Communications & transportation.....	.02943	1.04776	.08191	.02302	.05126	.05295	.04170	.02359	.07787	.02064	.08904
[14] Professional services.....	.01081	.02396	1.05952	.00927	.02418	.01630	.02350	.01282	.06151	.01075	.05987
[15] Financial services.....	.02131	.02549	.07306	1.01215	.03894	.02224	.02682	.01805	.04656	.02044	.05674
[16] Construction.....	.00961	.02310	.04392	.03516	1.16306	.01545	.02106	.04054	.23013	.02872	.05793
[17] Retail & wholesale trade.....	.06606	.15814	.30543	.06018	.19264	1.14171	.15217	.09392	.33778	.07881	.39869
[18] Retail services & organizations.....	.02999	.04314	.11723	.02698	.05248	.03055	1.04358	.02485	.08128	.02029	.10254
[19] U.S. Forest Service.....	.00013	.00030	.00055	.00022	.00091	.00029	.00030	1.00881	.00010	.01015	.00125
[19a] U.S. Forest Service appropriations.....	0	0	0	0	0	0	0	0	1.00000	0	0
[20] Bureau of Land Management.....	.00013	.00028	.00051	.00036	.00156	.00030	.00028	.01134	.00184	1.01531	.00278
[20a] Bureau of Land Management appropriations.....	0	0	0	0	0	0	0	0	0	0	1.00000
[21] Education.....	.00916	.04555	.03754	.00750	.02062	.02348	.01822	.14293	.03792	.08665	.04886
[22] Law enforcement.....	.00043	.00126	.00282	.00036	.00096	.00077	.00098	.00055	.00196	.00047	.00256
[23] County roads.....	.00015	.00059	.00063	.00019	.00082	.00034	.00030	.04610	.00103	.02826	.00146
[24] Social services.....	.00020	.00073	.00084	.00016	.00044	.00040	.00041	.00025	.00087	.00021	.00114
[25] Administration.....	.00016	.00062	.00098	.00015	.00095	.00039	.00046	.00027	.00080	.00028	.00092
[26] City of Roseburg.....	.00141	.00842	.00587	.00113	.00342	.00459	.00306	.00174	.00546	.00151	.00683
[27] City of Sutherlin.....	.00039	.00143	.00132	.00026	.00073	.00087	.00075	.00044	.00136	.00037	.00174
[28] City of Myrtle Creek.....	.00038	.00141	.00151	.00026	.00080	.00093	.00075	.00044	.00137	.00037	.00174
[29] City of Reedsport.....	.00030	.00117	.00140	.00022	.00063	.00076	.00067	.00035	.00113	.00030	.00144
[30] Other incorporated cities.....	.00039	.00193	.00159	.00033	.00088	.00145	.00205	.00057	.00156	.00048	.00197
[31] Households.....	.16554	.39067	.71314	.13464	.36291	.25055	.35517	.20822	.76169	.17245	1.00693
[32] Visitors.....	0	0	0	0	0	0	0	0	0	0	0
TOTAL.....	1.42605	1.94016	2.71988	1.36878	2.15211	1.70244	1.85099	1.88324	2.98504	1.79237	3.26577

(Continued)

* Positive value, but less than .00001

Table 7. (Continued)

Sector	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]	[32]
[1] Timber harvesting & hauling.....	0.00145	0.00150	0.00232	0.00174	0.00132	0.00076	0.00088	0.00086	0.00199	0.00105	0.00176	0.00076
[2] Sawmills.....	.00274	.00267	.00526	.00353	.00265	.00143	.00192	.00192	.00455	.00215	.00312	.00148
[3] Plywood & veneer mills.....	.00434	.00507	.00263	.00408	.00317	.00226	.00150	.00126	.00218	.00232	.00617	.00176
[4] Pulp, paper, particle board plants.....	*	*	*	*	*	*	.00001	.00001	*	*	*	*
[5] Commercial fishing.....	.00250	.00237	.00118	.00190	.00143	.00116	.00085	.00070	.00113	.00116	.00267	.01560
[6] Horticulture.....	.00108	.00118	.00059	.00095	.00073	.00054	.00036	.00030	.00051	.00055	.00142	.01252
[7] Livestock.....	.00213	.00236	.00130	.00202	.00173	.00118	.00080	.00068	.00106	.00124	.00271	.00730
[8] Manufacturing.....	.02746	.02527	.01262	.02026	.01524	.01238	.00918	.00758	.01211	.01242	.02828	.02463
[9] Lodging.....	.00788	.00949	.00571	.00823	.00645	.00404	.00259	.00216	.00370	.00413	.01139	.07317
[10] Cafes & taverns.....	.04306	.05859	.02627	.04603	.03414	.02209	.01412	.01179	.02023	.02255	.06226	.08530
[11] Service stations.....	.07119	.09314	.05298	.06837	.05235	.03772	.02889	.02568	.04126	.04118	.09684	.29114
[12] Automotive sales & service.....	.18718	.26136	.18464	.18848	.14627	.09727	.06719	.03948	.11655	.12093	.25728	.19225
[13] Communications & transportation.....	.10438	.10451	.05421	.10063	.06386	.04534	.03107	.02767	.04678	.04981	.11166	.06164
[14] Professional services.....	.03603	.08386	.03333	.05976	.04140	.02962	.06030	.03991	.02766	.04309	.07733	.05754
[15] Financial services.....	.05135	.06089	.03721	.05049	.03901	.02670	.02036	.01724	.03014	.02913	.07147	.08183
[16] Construction.....	.10093	.06474	.44249	.19726	.14406	.05406	.13774	.14804	.38713	.12709	.06638	.06436
[17] Retail & wholesale trade.....	.41006	.46513	.23471	.37490	.27801	.24568	.18056	.14710	.23934	.24153	.51182	.31791
[18] Retail services & organizations.....	.11164	.11744	.07358	.11314	.11174	.06784	.04556	.04005	.05541	.07346	.12703	.24953
[19] U.S. Forest Service.....	.00072	.00082	.00064	.00073	.00057	.00037	.00030	.00027	.00053	.00042	.00099	.00129
[19a] U.S. Forest Service appropriations.....	0	0	0	0	0	0	0	0	0	0	0	0
[20] Bureau of Land Management.....	.00069	.00074	.00084	.00076	.00058	.00360	.00035	.00033	.00072	.00045	.00089	.00049
[20a] Bureau of Land Management appropriations.....	0	0	0	0	0	0	0	0	0	0	0	0
[21] Education.....	1.04896	.05228	.02690	.04242	.03273	.02616	.04817	.05550	.06195	.02591	.06310	.01857
[22] Law enforcement.....	.00233	1.00577	.00137	.00219	.00171	.00120	.00081	.00067	.00111	.00124	.00334	.00092
[23] County roads.....	.00076	.02310	1.00062	.02157	.00545	.00049	.00034	.00027	.00052	.00045	.00104	.00036
[24] Social services.....	.00104	.00122	.00062	1.00098	.00076	.00517	.00035	.00029	.00050	.00055	.00149	.00045
[25] Administration.....	.00086	.00097	.00070	.00086	1.00066	.00076	.00791	.00117	.00060	.00314	.00116	.00040
[26] City of Roseburg.....	.00649	.00746	.00400	.00615	.00471	1.00338	.00233	.00196	.00337	.00351	.00886	.00335
[27] City of Sutherlin.....	.00180	.00189	.00097	.00153	.00118	.00084	1.00056	.00048	.00081	.00086	.00227	.00088
[28] City of Myrtle Creek.....	.00180	.00189	.00099	.00154	.00119	.00084	.00058	1.01091	.00083	.00087	.00226	.00096
[29] City of Reedsport.....	.00145	.00156	.00081	.00127	.00098	.00070	.00048	.00040	1.00067	.00072	.00187	.00072
[30] Other incorporated cities.....	.00243	.00217	.00114	.00179	.00140	.00100	.00070	.00059	.00098	1.03370	.00255	.00164
[31] Households.....	.91192	1.07161	.53305	.85417	.66758	.46728	.29850	.24969	.42840	.47744	1.31860	.29632
[31] Visitors.....	0	0	0	0	0	0	0	0	0	0	0	1.00000
TOTAL.....	3.16666	3.53108	2.74369	3.17773	2.66808	2.15862	1.96538	1.85495	2.49268	2.32605	2.84806	2.84386

* Positive value, but less than .00001.

and manufacturing receipts as a result of increased visitor expenditures. This is a result of the limited ties between those businesses and visitors. A significant impact is identified in lodging, cafes and taverns, service stations, automotive sales and services, communications and transportation, professional services, financial services, construction, retail and wholesale trade, retail services and organizations, and household receipts as a result of increased visitor expenditure. Those businesses either include recreational businesses or have a business relationship with them. For example, a significant relationship exists between householders and visitors, as employee wages represent an appreciable expense of recreational and service businesses. Additional information about the interrelationship of visitors with other businesses is revealed by continuing down the column. At the bottom of the column is the sum of the identified economic impacts from a dollar of additional visitor expenditure. After all impacts are accumulated, the additional dollar of visitor expenditure has a combined effect of increasing economic activity in the county by \$2.84. Such an analysis can be repeated for each business sector to appraise the different economic effects of changes in its business.

The economic impact on the Douglas County economy of visitor expenditures attributed to public investments in small-boat facilities and in county and state parks in the Lower Umpqua River area are presented in Table 8. Total economic impact estimates are determined by simulating the county economy with and without these investments in the study area. To approximate the without-public-investment situation, visitor expenditures in the study area (and consequently the county economy) are reduced by the estimated direct economic impact attributed to the area's public investments. The direct economic impact, via the expenditure of visitors, of those investments is estimated at approximately \$1.9 million annually (refer to Table 5). Economic impacts reported in Table 8 are measured as a change in total county and business classification or sector output recorded as total gross sales. It should be remembered that these estimates are only a part of the impact resulting from these investments since water transportation and commercial fishing impacts attributed to harbor and channel investment

Table 8. Sector and Total Output and Deviation of Output by Sector and Total Output of the Douglas County Economy With and Without Public Investments in Small-Boat Facilities and in County and State Parks in the Lower Umpqua River Area, 1970

Sector ^{a/}	County Output With	County Output Without	Deviation
	(\$1,000,000)		
Timber harvesting, hauling & products	\$254.99	\$254.99	-
Commercial fishing	4.03	4.03	-
Agriculture	8.78	8.78	-
Manufacturing	46.16	46.11	.05
Lodging	3.74	3.60	.14
Cafes & taverns	8.87	8.70	.17
Service stations	19.28	18.75	.53
Automotive sales & service	43.19	42.82	.37
Communication & transportation	25.04	24.92	.12
Professional services	11.51	11.40	.11
Financial services	25.32	25.16	.16
Construction	24.61	24.49	.12
Retail and wholesale trade	83.02	82.41	.61
Retail service & organizations	28.31	27.83	.48
U.S. Forest Service	25.36	25.36	-
Bureau of Land Management	25.00	25.00	-
Local government services	30.71	30.67	.04
Incorporated cities	3.98	3.96	.02
Households	158.11	157.54	.57
Visitors	18.85	16.94	1.91
Total ^{b/}	\$848.84	\$843.44	5.40

^{a/} Several sectors are aggregated for convenience of presentation.

^{b/} May not add due to rounding.

are not included. Neither are impacts from the construction, operation, and maintenance of these facilities included.

The estimated economic impact on the Douglas County economy of visitor expenditures attributed to public investments in the study area in small-boat facilities and in county and state parks is approximately \$5.4 million annually. Those impacts accrue to most business sectors of the economy. Timber, commercial fishing, agriculture, U.S. Forest Service, and Bureau of Land Management sectors are not appreciably affected by visitor expenditures as they make only a few direct sales to visitors or have a limited business relationship with recreational or tourist businesses. The county's business sectors most affected by visitor expenditures attributed to public investments in the Lower Umpqua River area include retail and wholesale trade, retail services and organizations, households, service stations, and automotive sales and service sectors. Possibly the most important impact recorded in the table appears in the household sector as household sales represent wages and salaries of the county's employed population. Economic impact estimates indicate that about \$570,000 of the county's total gross wages and salaries are attributed to public investments in the Lower Umpqua River area. Although that impact represents only a small percentage of the county's household income, the magnitude of the impact is significant.

Study Implications

Business and visitor survey data collected in the Lower Umpqua River area suggest that the economic activity of many of the area's businesses depend on visitor expenditures. Further analysis, by input-output methods, indicate that visitor expenditures in the Lower Umpqua River area have a significant impact on the economic activity of Douglas County. As a result of these economic ties, residents of the Lower Umpqua River area as well as residents of the rest of Douglas County have a vested interest in planning and investment decisions which influence the number of visitors in the Lower Umpqua River area. Visitor survey data also indicates that the type of visitor the area attracts is of importance because there are some

significant characteristics and expenditure differences among visitors (refer to Table 2). For example, fishermen tend to stay longer in the Lower Umpqua River area and spend more per-visitor-day than nonfishermen.

The study indicates that a significant portion of visitor expenditures in the study area are attributed to public investment in the area in small-boat facilities and in county and state parks. Although this estimate is a gross estimate of impact and identifies the order of magnitude of impact within the community, it could prove useful, in the absence of more explicit data, to the various public agencies and residents of the area of Douglas County in evaluating these or other proposed investments.

Input-output analysis also indicated that the economic impact, as measured at the county level, of visitor expenditures in the study area accrue to most businesses of the county. However, they accrue primarily to retail and wholesale trade, retail services and organizations, service stations, and automotive sales and service businesses and their employees, and surely have the greatest impact on the county businesses in or near the coast but do extend into the western portion as that area provides supporting goods and services. The distribution of these impacts, no doubt, influence the economic community's attitude about public harbor, park, and day-use facility investments. These impacts, regardless of their incidence of occurrence should not be ignored in evaluating the feasibility of these or other proposed investments.

The usefulness of input-output analyses in evaluating the economic impact resulting from actual or proposed investments and/or changes in resource development policies is illustrated in this study. The accuracy of the impact estimate derived by input-output methods is dependent upon data sources and procedures used to estimate the direct economic impact of the policy or investment of concern. The estimation of direct impacts warrants careful consideration particularly when evaluating public investments since direct economic impacts are difficult to isolate. Because of these difficulties

the impact estimates of the study are order of magnitude rather than precise estimates. To improve impact estimates, additional resources will have to be devoted to collecting more detailed direct economic impact data and having the opportunities to do some before-after studies to better establish cause-effect relationships.

APPENDIX A

BUSINESS SURVEY QUESTIONNAIRES

Hello, I'm _____, and I'm conducting an economic survey for Oregon State University. I would like to ask you a few questions about your business. The information you give is strictly confidential, and the results of this interview and others are tabulated for Douglas County as a whole - not for any one person or business.

1. From the sale of what products or services do you derive the major part of your income?
- _____

2. - \$ _____ What were your total sales of merchandise and services during 1972?

3. What was the approximate amount (or percentage) of your sales to:

_____ Visitors
 _____ Non-visitors
 _____ Businesses outside Douglas County
 _____ Businesses within Douglas County

(INTERVIEWER: Sum of above must equal the amount in #2, or total 100%)

4. With respect to sales you made to businesses within Douglas County during 1972, will you please tell me the amount or percentage of your sales, if any, which you made to the following types of business:

_____ Timber harvesting and hauling
 _____ Sawmills
 _____ Plywood and veneer mills
 _____ Pulp, paper, particle board plants
 _____ Commercial fishing
 _____ Horticulture
 _____ Livestock
 _____ Manufacturing
 _____ Lodging
 _____ Cafes and taverns
 _____ Service stations and bulk plants
 _____ Automotive sales and services

-more-

_____ Communications and transportation
 _____ Professional services
 _____ Financial
 _____ Construction
 _____ Wholesale and retail trade
 _____ Retail services and organizations
 _____ Others (specify) _____

(INTERVIEWER: Sum of above must equal sales to business within Douglas County in #3, or total 100%)

5. During 1972, did you sell any merchandise or services to any local, state, or federal government agency?

_____ Yes _____ No

(INTERVIEWER: If NO, go to #6)

_____ What was the amount or percentage of your sales to all units of the federal government? Include both local and non-local units or agencies.

_____ What was the amount or percentage of your sales to all agencies of the state government of Oregon? Include both local and non-local units or agencies.

_____ What was the amount or percentage of your sales to all agencies of the local government? Include all city governments in the county, as well as county governments.

_____ What was the amount or percentage of your sales to any other governments other than those already mentioned? Include city governments not located in Douglas County, other county governments, other state governments, and foreign governments.

(INTERVIEWER: Ask only if they sold goods or services to the federal government):

_____ With respect to sales to units of the federal government, what amount or percentage of these sales were to local units of the U.S. Forest Service?

_____ To local units of the Bureau of Land Management?

6. Now, I will ask you questions about purchases made during 1972.

\$ _____ How much was paid in wages to employees and owners of the business who lived in Douglas County during 1972? Include money drawn by owner(s) as wages.

\$ _____ How much was paid in wages to employees and owner(s) who lived outside of Douglas County during 1972?

7. Did this business buy any new equipment, machinery, buildings, or other capital items during 1972?

_____ Yes _____ No

(IF YES): \$ _____ What was the total amount of these purchases?
(IF NO, go to #9)

8. With respect to purchases of capital items during 1972, will you please tell me the amount or percentage of purchases, if any, which you made from the following type of businesses?

WITHIN DOUGLAS COUNTY:

- _____ Individuals
- _____ Government - city and county
- _____ Timber harvesting and hauling
- _____ Sawmills
- _____ Plywood and veneer mills
- _____ Pulp, paper, particle board plants
- _____ Commercial fishing
- _____ Horticulture
- _____ Livestock
- _____ Manufacturing
- _____ Lodging
- _____ Cafes and taverns
- _____ Service stations and bulk plants
- _____ Automotive sales and services
- _____ Communications and transportation

-more-

76

_____ Professional services
 _____ Financial
 _____ Construction
 _____ Wholesale and retail trade
 _____ Retail services and organizations
 _____ Other (specify) _____

OUTSIDE DOUGLAS COUNTY:

_____ Individuals
 _____ Businesses
 _____ Government (federal, state, and others)

(INTERVIEWER: Sum of above must equal total purchases in #7 or total 100%)

9. \$ _____ FEDERAL - What is the approximate amount of taxes which your firm paid to the federal government in 1972?
- \$ _____ STATE - How much in taxes did your firm pay to the State of Oregon in 1972? Include taxes on wages the owner(s) drew from the business.
- \$ _____ CITY OR COUNTY - What was the approximate amount of taxes which your firm paid to this county and to cities within the county in 1972?

10. \$ _____ Did your firm pay any taxes to states outside of Oregon in 1972? If YES, how much?
- \$ _____ Did your firm pay any taxes to city and county governments outside Douglas County in 1972? If YES, how much?

11. Did the firm purchase any goods and services in 1972? Include purchases of raw materials that were used as inputs in the firm's production process.
- (If YES, continue) _____ Yes _____ No
- (If NO, go to #13)

12. With respect to these other purchases during 1972, will you please tell me the amount or percentage of purchases, if any, which you made from the following type of businesses?

WITHIN DOUGLAS COUNTY:

_____ Individuals
 _____ Government - city and county
 _____ Timber harvesting and hauling
 _____ Sawmills
 _____ Plywood and veneer mills
 _____ Pulp, paper, particle board plants
 _____ Commercial fishing
 _____ Horticulture
 _____ Livestock
 _____ Manufacturing
 _____ Lodging
 _____ Cafes and taverns
 _____ Service stations and bulk plants
 _____ Automotive sales and services
 _____ Communications and transportation
 _____ Professional services
 _____ Financial
 _____ Construction
 _____ Wholesale and retail trade
 _____ Retail services and organizations
 _____ Other (specify) _____

OUTSIDE DOUGLAS COUNTY:

_____ Individuals
 _____ Businesses
 _____ Government (federal, state, and other)

(INTERVIEWER: Sum of above must equal firm purchases in #11, or total 100%)

13. Did your firm receive any interest, rent, royalties, or dividends during 1972?

_____ Yes _____ No

(INTERVIEWER: If YES, continue. If NO, go to #16)

14. \$ _____ What was your firm's total receipts from interest, rent, royalties, or dividends during 1972?

15. With respect to these receipts, would you please tell me the amount or percentage received from the following type of businesses:

WITHIN DOUGLAS COUNTY:

_____ Individuals
 _____ Government - city and county
 _____ Timber harvesting and hauling
 _____ Sawmills
 _____ Plywood and veneer mills
 _____ Pulp, paper, particle board plants
 _____ Commercial fishing
 _____ Horticulture
 _____ Livestock
 _____ Manufacturing
 _____ Lodging
 _____ Cafes and taverns
 _____ Service stations and bulk plants
 _____ Automotive sales and services
 _____ Communication and transportation
 _____ Professional services
 _____ Financial
 _____ Construction
 _____ Wholesale and retail trade
 _____ Retail services and organizations
 _____ Other (specify) _____

OUTSIDE DOUGLAS COUNTY:

_____ Individuals
 _____ Businesses
 _____ Government (federal, state, and other)

(INTERVIEWER: Sum of above must equal firm's total receipts in #13 or total 100%)

-
16. \$ _____ What was the total amount of depreciation taken by your firm in 1972?
-

APPENDIX B

VISITOR SURVEY QUESTIONNAIRE

Winchester Bay-Reedsport Area
Visitor Survey
September 1973

Hello, I'm working on a recreational survey for Oregon State University. I would like to ask you a few questions.

1. What is the purpose of your visit to this area? (I.e., fishing, camping, vacation, visit friends, etc.) _____

If other than recreational purposes, thank them for their response.
END CONTACT.

2. How many days have you been in this area during this visit?
_____ days.
3. How many additional days do you plan in this area during this visit?
_____ days.
4. During the past 12 months and prior to this trip, how many times have you visited this area? _____

Visits	No. of days/visit (average)
_____ deep sea fishing	_____
_____ inland fishing	_____
_____ recreational boating	_____
_____ camping	_____
_____ vacation	_____
_____ other (specify)	_____

5. If additional marine facilities were to be developed in the area, would you visit this area more often?
Yes _____ No _____
6. Since you said yes, how much more time (days) would you spend in the area annually? _____

We are also interested in expenditures you have made in this area during this trip.

7. Where are you staying overnight? _____

8. What is the cost of lodging? _____

9. Since you have been in Winchester Bay-Reedsport, how many breakfasts, lunches, and dinners have you eaten in a restaurant?

Breakfast _____ Lunch _____ Dinner _____

10. What were your total expenditures? _____

11. Did you buy any food or drinks in this area which you prepared yourself?

Yes _____ No _____

12. What were your total expenditures for these items? _____

13. How much do you expect to spend on this trip in this area? _____

14. What other expenditures in this area did you make while on this trip?

- _____ Boat rental
- _____ Fishing tackle rental or purchase
- _____ Bait
- _____ Boat launching and storage
- _____ Gasoline and oil for boat
- _____ Boat equipment (life preservers, fire extinguishers, etc.)
- _____ Motor or boat maintenance or repair
- _____ Charter services
- _____ Gasoline and oil for car
- _____ Car repair and maintenance
- _____ Clothing
- _____ Souvenirs
- _____ Photo equipment and supplies
- _____ Camping equipment

_____ Telephone and telegraph
 _____ Entertainment
 _____ Other (specify) _____

14. In addition to yourself, how many people were included for these expenditures? _____

_____ Adults
 _____ Young adults 13-19 years old
 _____ Children

15. Which of the following types of recreational equipment are you using during this visit? If you own the item would you tell me the approximate purchase price and year purchased?

	Own or Rent (O-if own) (R-if rent)	Year Purchased	Approximate Cost
Boat			
Van Camper			
Truck Camper			
Trailer Camper			
Tent Trailer			
Tent			

16. As I list the following total family income ranges, would you please stop me when I mention the range which best fits your total family income for last year.

Check approximate range

- _____ Under \$6,000
- _____ \$6,000 - 7,999
- _____ \$8,000 - 9,999
- _____ \$10,000 - 11,999
- _____ \$12,000 - 13,999
- _____ \$14,000 - 15,999
- _____ \$16,000 - 17,999
- _____ \$18,000 - 19,999
- _____ \$20,000 or over

44

17. Age and sex of respondent.

_____ Male	_____ Under 21 years of age
_____ Female	_____ 21 - 29
	_____ 30 - 39
	_____ 40 - 49
	_____ 50 - 59
	_____ 60 or over

Respondent's name, address, and telephone:

Name _____
Street _____
City _____ State _____
Telephone _____

THANK YOU

Point of Contact:

State Park _____ Harbor Area _____

Other (specify) _____

Date and time of interview _____

Interviewer's signature _____

mb
8/9/73

APPENDIX C

BUSINESS SECTOR DEFINITIONS

Appendix C. Aggregation of Businesses of Douglas County, Oregon

Sector No.	Sector	Business types
1	Timber harvesting & hauling	Logging and log hauling operations.
2	Sawmills	Largest portion of sales come from sale of sawmill lumber and products.
3	Plywood and veneer mills	Largest portion of sales from plywood and veneer products.
4	Pulp, paper, particle board plants	Largest portion of sales from pulp, paper, or particle board products.
5	Commercial fishing	Troller, trawlers, gill netters, commercial clammers, and crabbers.
6	Horticulture	Farms that receive the largest portion of their gross sales from the sale of crops.
7	Livestock	Ranches that receive the largest portion of their sales from the sale of livestock.
8	Manufacturing	Food processors (including sea foods), soft drink bottling companies, meat & poultry processors, creameries, machine manufacturing, stone & clay processors, glass products, box products, canvas products, bio-products, ice cream, bakers, and foundaries.
9	Lodging	Hotels, motels, trailer parks, apartments, boarding houses, rooming houses.
10	Cafes & taverns	Restaurants, cafes, taverns, drive-ins, short order eating places, and ice cream parlors.
11	Service stations	All service stations and wholesale gasoline distributors.
12	Automotive sales & service	New & used auto & trailer sales, tire stores, parts & accessories, auto repair shops, towing, automotive body & paint shops, auto upholstery, boat dealers,

Appendix C -- Continued.

Sector No.	Sector	Business types
		trailer towing, tire recapping and farm implement dealers.
13	Communications & transportation	Trucking, railroads, airlines, buses, radio & television stations, telephone company, telegraphy, newspapers, television cable company, taxicabs, auto leasing, moving vans, trailer rentals, tugs & barge service.
14	Professional services	Hospitals, doctors, dentists, lawyers, accountants, bookkeepers, chiropractors, architects, surveyors, engineers, medical & dental laboratories, optometrists, funeral homes, veterinarians, ambulance service, nursing homes, & appraisers.
15	Financial services	Banks, savings & loan associations, stockbrokers, financial companies and credit bureaus.
16	Construction	Firms that contract for building, electrical, plumbing, road & highway, painting, heating, roofing, flooring, shipbuilders, sand & gravel operations, carpenters, asphalt paving companies, concrete manufacturers, excavators, land levelers, masonries, well drillers, cabinet makers, tile layers, sheet metal firms, plasterers, electrical & hardware stores, steel & pipe dealers, retail lumber yards, salvage companies, & commercial refrigeration contractors.
17	Retail & wholesale trade	Natural gas companies, fuel oil dealers, electric utilities, bottled gas suppliers, clothing stores, shoe stores, department stores, variety stores, furniture & appliance stores, jewelry stores, beer distributors, drug stores, office supply stores, milliners, state-owned liquor stores, music stores, flower shops, camera shops, paint stores, newsstands, gift shops, fisherman's supply stores, printing companies, cold storage & ice dealers, wholesale-retail groceries & supermarkets, and

Appendix C -- Continued.

Sector No.	Sector	Business types
		all wholesale dealers supplying the above stores if located in Douglas County.
18	Retail services & organizations	Privately owned kindergartens & child nurseries, photo studios, theaters, bowling lanes, & other recreational facilities, laundries & cleaners, tailors, barbers & beauty shops, upholstery, machine & welding shops, car wash, private business schools, music teachers, repair shops, unions, lodges, service organizations, building rental services, garbage collectors, insurance & real estate, churches, vending machine operators, private parking lots, trading stamp companies, private employment agencies, janitorial service, credit services, telephone answering service, security police.
19	U.S. Forest Service	All transactions of the U. S. Forest Service conducted from Douglas County.
20	Bureau of Land Management	All transactions of the Bureau of Land Management conducted from Douglas County.
21	Education	Includes all school districts in the county, Intermediate Education District (IED), the community college and the county superintendent of schools.
22	Law enforcement	Includes all transactions concerning the county sheriff's office including tax collection, all justices of the peace and district court.
23	County roads	Includes all transactions involved in construction and maintenance of county roads.
24	Social services	Includes all transactions of the county health department, welfare department, including federal, state, and local. Also all salaries, office supplies of employees of county welfare department.

Appendix C -- Continued.

Sector No.	Sector	Business types
25	Administration	All transactions of the following county departments: assessor, treasurer, county commissioners, elections, county clerk, county surveyor, courthouse maintenance, planning commission, land agent, humane officer and department, veterans service and current expense account.
26	Roseburg	All transactions conducted by the City of Roseburg.
27	Sutherlin	All transactions conducted by the City of Sutherlin.
28	Myrtle Creek	All transactions conducted by the City of Myrtle Creek.
29	Reedsport	All transactions conducted by the City of Reedsport.
30	Other incorporated cities	All transactions conducted by the cities of Winston, Drain, Riddle & Canyonville.
31	Households	Transactions by private individuals who are Douglas County residents.
32	Visitors	Purchases made by individuals not identified by the business operation as a county resident. This should include a major share of tourists and recreationists visiting the county.