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# Income, Employment and Expenditure Patterns in a Timber-Based Economy: Douglas County, Oregon 1975

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#### ABSTRACT

Almost one third of the employment in Douglas County, Oregon, is directly related to the forest products industries. With a decline in timber output anticipated, this research endeavors to estimate the impact of two alternative forest policy and management potentials on the employment and family income in the county. The report describes the 1975 employment, income and expenditure pattern of families in Douglas County. Briefly, incomes were below national averages; about 43 percent of families reported incomes below \$10,000 per year. Families spent most of their money in the county. After accounting for state and federal taxes, the average family annually spent only about \$1,000 out of \$12,500 outside the county. More than 90 percent of expenditures for most retail goods and services were in the county, illustrating the link between timber employment and income with local business.

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INCOME, EMPLOYMENT AND EXPENDITURE PATTERNS IN A TIMBER-BASED ECONOMY:  
DOUGLAS COUNTY, OREGON, 1975  
Paul Flacco and Russell Youmans

The Douglas County economy has been the focus of several recent research efforts which identify the characteristics of a timber-based economy and the economic effects of changes in the timber resource base (Youmans et al., 1973; Darr and Fight, 1974). In addition to the research benefits derived by Douglas County, the example can serve as a model for the analysis of problems in other timber-dependent economies in the Pacific Northwest.

Douglas County reportedly has the highest timber production of any county in the nation. Coupled with the relatively moderate size of the county's population (80,400 as of July 1, 1975), this magnitude of timber output suggests a high level of timber dependency in the county's economy. As an example, in a 1969 study of the Douglas-fir-region (Schallau, Maki and Beuter), the Roseburg timbershed, essentially Douglas County, ranked highest in the Pacific Northwest region in the level of dependency upon timber-based employment.

There are some major economic concerns for the County in the future. Timber supply projections indicate significant declines in the timber resource base of the Douglas-fir-region over the next 20 years (Beuter et al., 1976; Maclean, 1976). The impact of timber decline described by Beuter is being translated into the economic effects implied for the Douglas County economy in an ongoing research project. One step in this process involved the collection of survey data on employment, income and expenditures from a sample of 543 households in Douglas County.

The purpose of this report is to provide a description, from data collected, of the patterns of employment, income and expenditures that characterized the Douglas County economy in 1975. The data are sufficiently disaggregated to allow comparisons of the different areas in the county. Also, the size of the sample is large enough to provide reasonably good estimates of employment, income, and expenditure patterns for the entire populations for the subregions sampled, and, through aggregation, for the population of the county as a whole.

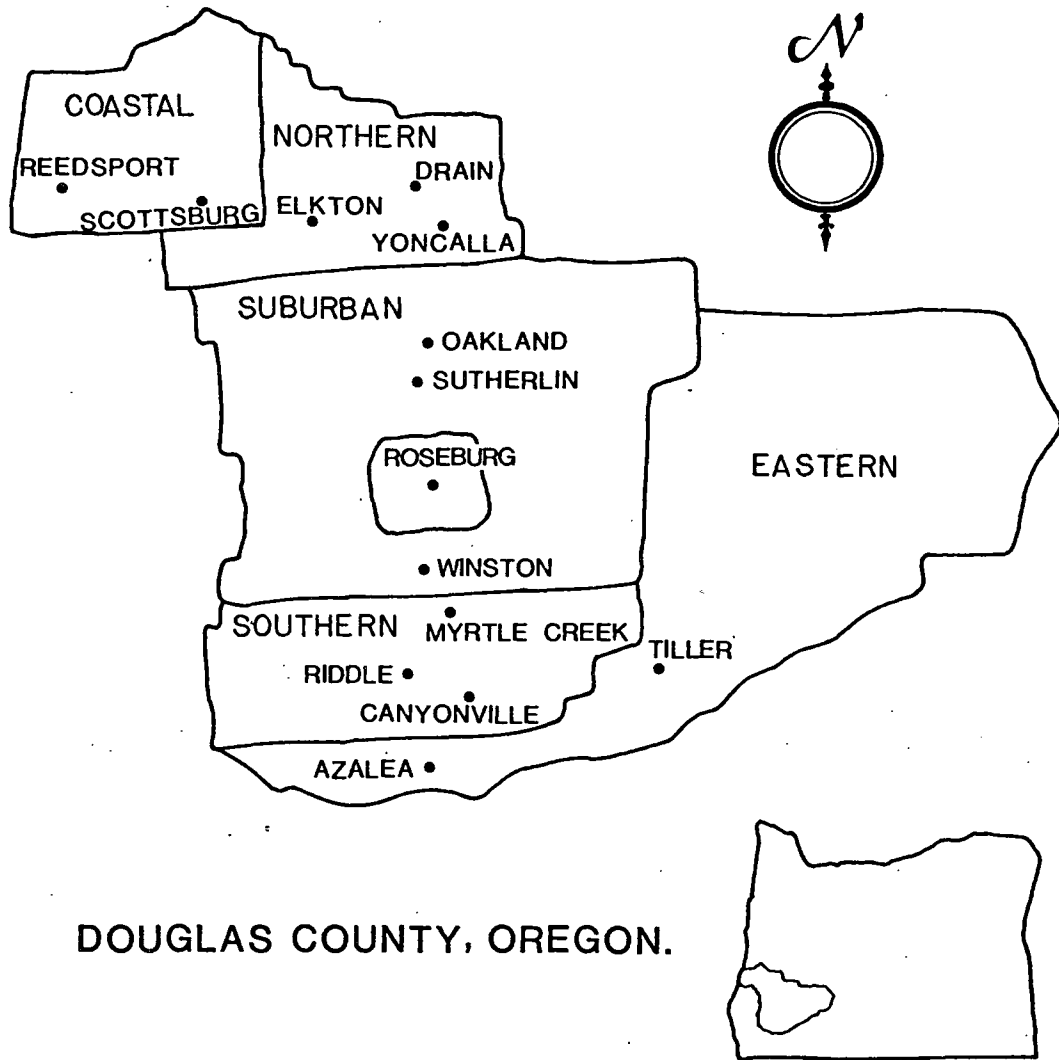
#### GEOGRAPHICAL NATURE OF THE SAMPLE

To provide data, the county was divided into six geographical regions. The availability of specific data to describe each of the six relatively homogenous regions allows comparisons among the regions.

Regional divisions used for the sample are shown in Figure 1. The size of the sample taken in each region varies according to the density of population. Table 1 gives the size of the sample in each of the six areas. The statistics to follow are presented in tabular form for each of the six regions sampled, and these are then aggregated to provide estimates for the population of the entire county.

#### HOUSEHOLD INCOME AND SOURCES OF INCOME

Statistics on average household incomes and sources of income are given in Table 2. The mean or average income per household for each region, and for the county, is given in the first row of the table. Since income is not usually spread evenly through the population, the mean does not represent as meaningful a measure of income distribution as another



DOUGLAS COUNTY, OREGON.

Figure 1. Sampling stratification layout.

Table 1. Sample Size for Each of Six Regions in Douglas County, Oregon, 1976

Region	Sample Size of Households
Coastal	50
Northern	60
Suburban	154
Roseburg	191
Southern	68
Eastern	20
Douglas County	Total 543

type of average, the median. The median, in this case, is that income level which lies in the middle of the income distribution, in the sense that 50 percent of the households have incomes below this level, and 50 percent have incomes above it. Median income per household is given, by region, in the second row of Table 2.

A comparison of the two statistics, the mean and the median, for a given region yields a rough measure of the degree of non-symmetry of the distribution. An example of non-symmetry would be 75 percent of families sharing 50 percent of the income, and the remaining 50 percent of income going to 25 percent of the families. If the distribution of income in a given region was completely symmetrical, the mean and the median would be equal. For all the regions in Table 2, however, the mean is larger than the median. This has resulted from the fact that, while most of the households in each region had relatively modest incomes, a few were observed which had incomes that were a great deal larger. This causes the means to be higher than the actual center of the distribution, and the magnitude of the difference between the mean and the median provides a rough indication of the degree of non-symmetry of the distribution.

The figures show that the highest median incomes occur in the Suburban and Roseburg areas, with \$11,538 and \$11,440 respectively. These can be compared to the median family income of \$13,798 for the entire U.S. in 1975. The Northern area has the next highest median income, \$10,456. The three remaining regions, Southern, Coastal and Eastern are fairly similar, with respective median incomes of \$8,800, \$8,833 and \$9,000. These are considerably below the national figure of \$13,798. Finally, the median family income for Douglas County as a whole has been given as

Table 2. Household Income and Sources of Income, Douglas County, Oregon, 1975

Mean and median household income for 1975							
	Coastal	Northern	Suburban	Roseburg	Southern	Eastern	Douglas County
Mean	\$11,798	\$11,991	\$13,070	\$13,420	\$9,950	\$9,250	\$12,446
Median	8,833	10,456	11,538	11,440	8,800	9,000	10,892

Percent of 1975 household income from each of eight sources <sup>1/</sup>							
Source							
Wages of principal earner	43.3	58.9	65.0	59.3	58.5	48.7	58.9
Wages of spouse	3.7	5.8	5.2	6.0	3.2	4.3	5.1
Income of other wage earners	1.6	1.5	2.3	2.7	1.8	5.4	2.4
Self employment	8.6	6.0	10.0	5.2	8.9	6.5	7.5
Unemployment compensation	2.3	2.8	0.9	2.4	0.3	4.6	1.8
Other government benefits <sup>2/</sup>	38.0	19.0	18.2	17.3	24.2	25.7	20.8
Other retirement benefits	2.2	3.4	1.7	2.9	3.7	6.9	2.8

Percent of 1975 household income from the timber industry							
Timber industry	24.8	38.5	30.6	30.4	24.2	21.9	29.7

<sup>1/</sup> The columns do not sum to 100% due to rounding and problems of using regional household income estimates to allocate to specific income sources.

<sup>2/</sup> Largely Social Security payments.



the last entry in the row, \$10,892.

Eight major sources of family income for the sampling regions in Douglas County also have been included in Table 2. The figures in this portion of the table represent the percentage of total income per household which was derived from each source for the given region. The last column contains the figures for the entire county.

Of particular interest to this study are the figures in the bottom row of this table. These data represent the percentage of total per household income in each region that is derived from wages and salaries directly from the timber industry. They provide a very direct measure of economic timber dependency in the county, and will be used in subsequent analysis to help determine the economic effects of various levels of timber harvest on household income in Douglas County. As the table shows, the figures range from 21.9 to 38.5 percent, with 29.7 percent of household income being derived from the timber industry in the county as a whole.

Returning to the percent figures in the middle of Table 2 which represent the households source for the income, the most important source is wages from the principal wage earner. Countywide, nearly 60 percent of family income was a result of this wage earner's efforts, the majority of timber income to households taking this form. It is interesting, however, to note the high impact of social security and other government payments in the "Other Government Benefits" category across the county. This source contributes more than 20 percent of family income countywide, but in the coastal area 38 percent of family income came from government transfers to families. This coastal difference may be related to higher concentrations of retired individuals.

### The Distribution of Household Income

The chart and table in this section provide estimates, for the county and for each of the six regions, of household income. These estimates were obtained from the sample data described in the previous section, and from Population Estimates: Oregon Counties and Incorporated Areas, July 1, 1975, and published by the Portland State University Center for Population Research and Census. It is important to keep in mind that these are estimates taken from the sample data, and then projected to the entire population of the county or subregion. Thus, if no households were observed to have a particular income level in some of the regions, this income level will not be listed on the diagram.

The diagram which follows indicates the nature of the distribution of household income in Douglas County. The income levels in Table 3 are repeated on the bottom of the diagram. The vertical bars above each income level indicate the number of households estimated to have that level of income. The number immediately above each vertical bar is the percentage of households in the county estimated to have that level of income.

Table 3 presents the information on percentage distribution for the county and the six subregions. The figures in Table 3 accumulate income level percentages until all families are counted. By looking across the table it is possible to determine the percentage of households having the indicated income level or lower. As an example, for the entire county, 31.6 percent of households have incomes of \$8,000 or less, but 44.7 percent of the families in the coastal area have incomes estimated to be below \$8,000.

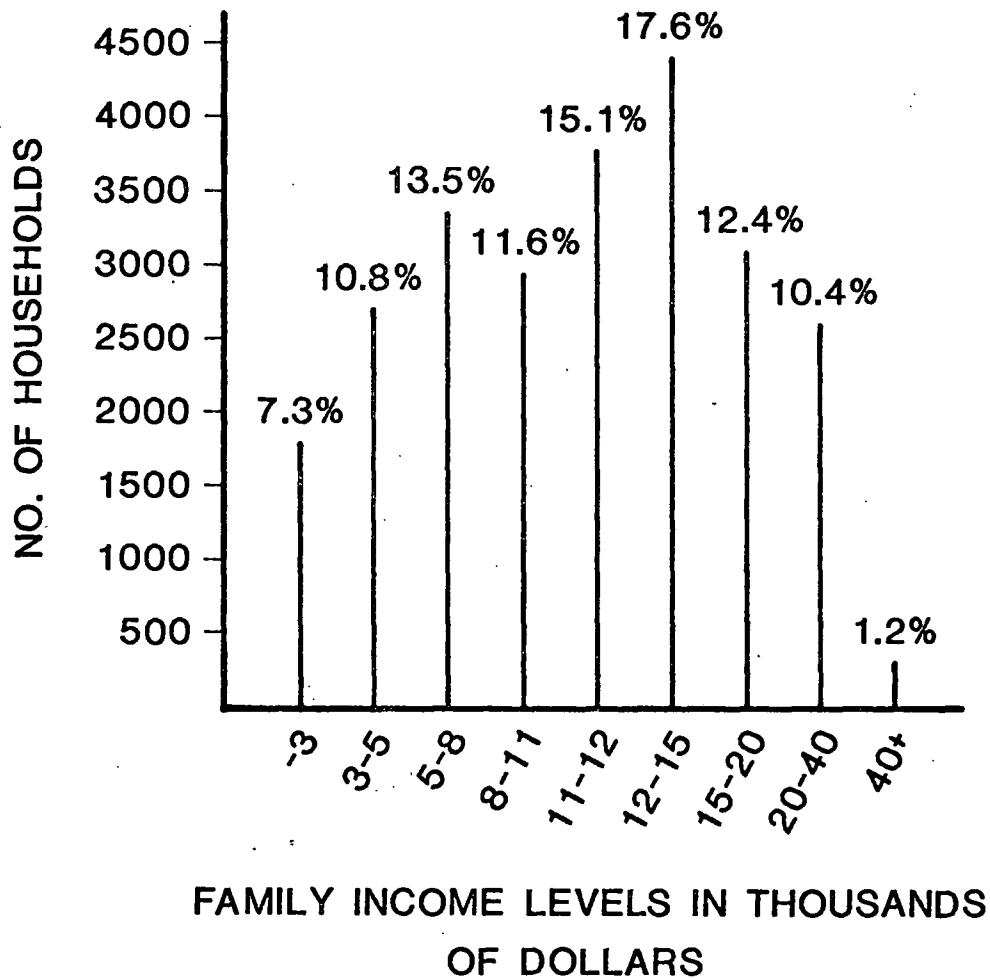


Figure 2. Distribution of household income in Douglas County, Oregon, 1975.\*

\*The numbers above each column represent the percentage of households with that specific income.

Table 3. Cumulative Percentage Distribution of Income Received by Households, Douglas County, Oregon, 1975

Family Income	Entire County	<u>Coastal</u>	<u>Northern</u>	<u>Suburban</u>	<u>Roseburg</u>	<u>Southern</u>	<u>Eastern</u>
		Cumulative percentage of households					
Less than \$3,000	7.3	14.9	10.9	4.4	5.7	8.3	12.5
\$3,000 to \$4,999	18.2	25.5	21.8	14.7	13.1	28.3	31.3
\$5,000 to \$7,999	31.6	44.7	32.7	25.7	26.1	46.7	43.8
\$8,000 to \$9,999	43.3	57.4	45.5	35.3	39.8	55.0	56.3
\$10,000 to \$11,999	58.4	61.7	65.5	54.4	54.0	65.0	81.3
\$12,000 to \$14,999	75.9	74.5	80.0	75.7	72.2	80.0	93.8
\$15,000 to \$19,999	83.4	87.2	85.5	88.2	86.4	96.7	100.0
\$20,000 to \$39,999	98.8	97.9	100.0	98.5	98.3	100.0	100.0
Above \$40,000	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Employment Patterns in Douglas County

The statistics in Table 2 indicate that the highest proportion of household income in Douglas County is attributable to the principal wage earner, with a county average of 58.9 percent. For the purposes of this study, the principal wage earner was defined as that person who earns the highest proportion of household income in wages or salaries, regardless of sex.<sup>1/</sup> Spouse was defined as the spouse of the principal wage earner. Table 2 shows that, as a county average, the percentage of household income attributable to spouse's wages was 5.1 percent while that attributable to wages from other household members was 2.4 percent. In light of these figures, it was decided to include employment statistics only on the principal wage earner.

Table 4 gives the percentage of employed persons who are employed by the 21 business sectors making up the Douglas County economy, but aggregated into 9 broader headings for each of the six regions in the county. Again, we focus on the timber industry. A large proportion of principal wage earners in Douglas County are employed by the timber industry, with a county figure of 39.1 percent. This refers to direct employment in timber operations: sawmills, timber harvesting and hauling, plywood, veneer, pulp, paper and particle board production. If all timber-based employment were included, for example, lumber yards, furniture producers, etc., the figure would be higher. These types of industries were included in the timber dependency measure cited in the introductory section.

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<sup>1/</sup> Self employed income was allocated to household rather than specific individuals within the household.

Table 4. Employment of Principal Wage Earners in Major Economic Sectors, Douglas County, Oregon, 1975

	Percentage of principal wage earners						
	Coastal	Northern	Suburban	Roseburg	Southern	Eastern <sup>1/</sup>	County wide
Timber and wood products	51.7	48.8	40.7	35.1	36.4	16.7	39.1
Retail services and trade	3.4	7.3	15.8	17.0	15.9	<u>2/</u>	13.9
Local government including education	6.9	14.7	11.6	11.9	18.2	33.3	13.2
Construction, communication and transportation	10.3	12.2	10.6	15.7	6.8	<u>2/</u>	11.8
Professional	10.3	2.4	8.8	8.2	<u>2/</u>	<u>2/</u>	6.7
Manufacturing	6.9	4.9	1.8	1.5	11.4	16.7	4.0
Auto and service stations	<u>2/</u>	2.4	5.3	2.9	4.6	16.7	4.0
USFS, BLM, state and federal government	3.4	<u>2/</u>	2.7	5.2	4.6	8.3	3.7
Agriculture	6.9	7.3	2.7	2.2	2.3	8.3	2.1

1/ Very small sample and cannot be taken as representing the situation existing for the area.

2/ None reported in sample.

Subsequent analysis reported in later publications will estimate the employment that is indirectly related to forestry, such as professionals in the community and the main street business.

#### Household Expenditure Patterns

The final set of statistics included in this report deal with the allocation of household expenditures for each of the sampling regions made in Douglas County. Table 5 serves to round out the economic picture of the county, and may prove useful to certain readers, especially main street business operators. It gives the percentage of average annual household expenditures for each sampling region in 21 business sectors of the county for 1975. The figures in the table represent, in percentage amounts, the proportion of household expenditures which occurred within Douglas County. The remaining expenditures were made outside the county.

Data in Table 5 indicate that coastal households, compared to households in other areas, spend a smaller proportion of their income within the county, 58 percent. But for retail and wholesale trade, the coastal families spend 80 percent within the county. Countywide retail trade secures 9 percent of the families' expenditures for this sector. This would indicate limited potential for expanding business by mounting a campaign to increase local purchases. Similarly, local retail services claimed 9 percent of county household expenditures. It appears Douglas County households are loyal purchasers of both retail products and services.

Overall, 76 percent of household expenditures were made within

Table 5. Percentage of Douglas County Household Expenditures Made in Douglas County, Oregon, 1975

Selling sectors	<u>Proportion of household expenditures made in the county</u>							Douglas County average total household ex- penditures in 1975 dollars
	<u>Location of households within the county by trade areas</u>							
	Coastal	Northern	Suburban	Roseburg	Southern	Eastern*	Douglas County	
Cafes and taverns	66	76	84	82	87	43	80	349
Service stations	76	91	93	80	91	97	87	771
Auto sales and service	73	56	81	86	66	60	78	873
Retail and wholesale trade	80	87	98	98	88	75	94	3,513
Financial services	40	57	94	92	68	44	86	972
Retail services and organizations	73	87	98	96	84	100	92	725
Households	100	93	100	89	98	0	94	269
Professional services	52	83	94	99	94	66	83	539
Communication and transportation	30	95	94	87	98	80	84	292
Lodging--motel, hotel, apts.	40	58	51	56	69	62	54	101
Construction	53	98	92	100	100	100	96	411
Ranches--livestock	48	100	98	96	100	68	85	116
Farms--horticulture	82	100	100	90	100	94	95	20
Commercial fishing	100	0	6	87	33	0	40	2
Manufacturing	78	82	100	100	100	90	96	50
Wood products	100	100	100	96	100	89	98	49
USFS	65	45	48	32	76	100	37	6
BLM	33	100	100	87	100	42	87	2
Douglas County property tax	100	100	100	100	100	100	100	383
State and federal income tax	0	0	0	0	0	0	0	1,684
Payments to local government	100	100	100	100	100	100	100	86
Percent of total expenditures made in country	58	70	83	77	75	69	76	\$11,214
Expenditures as a percent of average income	88	83	92	93	80	103	90	\$12,446

\*The sample size was small for this sparsely settled area and hence may not fully be representative of the area.



Douglas County. In fact, the major outside expenditure was the \$1,684 average state and federal taxes. This leaves an average of about \$1,000 of Douglas County household expenditures made outside the county on an annual basis.

#### CONCLUSION

The collection of a set of sample survey data in Douglas County (a portion has been presented in this report) represents a step in the process of a research effort undertaken by the authors to identify the economic effects of possible changes in the level of timber harvest in the county.

Several conclusions are summarized as follows:

1. Income per household in Douglas County was found to be 20 percent below the U.S. average, with a county median income of \$10,892 compared to a U.S. median of \$13,798. (The median household income for Oregon was not available at the time of publication.)
2. In the average household the second wage earner provides relatively little income, only 5.1 percent of household income coming from the spouse of the principal wage earner.
3. Government transfer payments provide, other than unemployment compensation, 20.8 percent of all household income. In the coastal area of the county this source accounts for 38 percent of household income.
4. Timber employment directly contributes almost 30 percent of total county household income. In the northern section of the county this is 38.5 percent.

5. The distribution of income among households within the county is not even, and the distribution varies among regions in the county. Household income was less than \$12,000 annually for 58 percent of the county families in 1975, but in northern Douglas County the portion earning less than \$12,000 (was more than 65 percent). In the suburban area, about 54 percent earned less than this income level.

6. Countywide timber provides direct employment for almost 40 percent of the principal wage earners.

7. Douglas County families make 75 percent of their household expenditures within the county. In fact, only about \$1,000 of family expenditures are made outside Douglas County after accounting for state and federal taxes paid outside the county.

8. Douglas County local businesses, particularly main street businesses, receive more than 90 percent of the household expenditures for retail products and services. Local professional services expenditures by households are 83 percent local. The Douglas County households appear to be very loyal local customers.

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