

Financial Characteristics of the Lumber and Paper Industries, 1980

By Nathan F. Shaifer and George A. Myles*

The beginning of the 1980's saw a dramatic plunge in corporate profits for the Lumber and Wood Products industry, from \$3.3 billion in 1979 to \$1 billion for 1980 (Figure A) [1]. The momentum of a contracting economy carried industry sales (business receipts) downward from an all-time high of \$52.2 billion in 1979 to \$50.6 billion for 1980, while the continued inflation contributed to the growth of expenses (total deductions) from \$52.7 billion to \$53.3 billion.

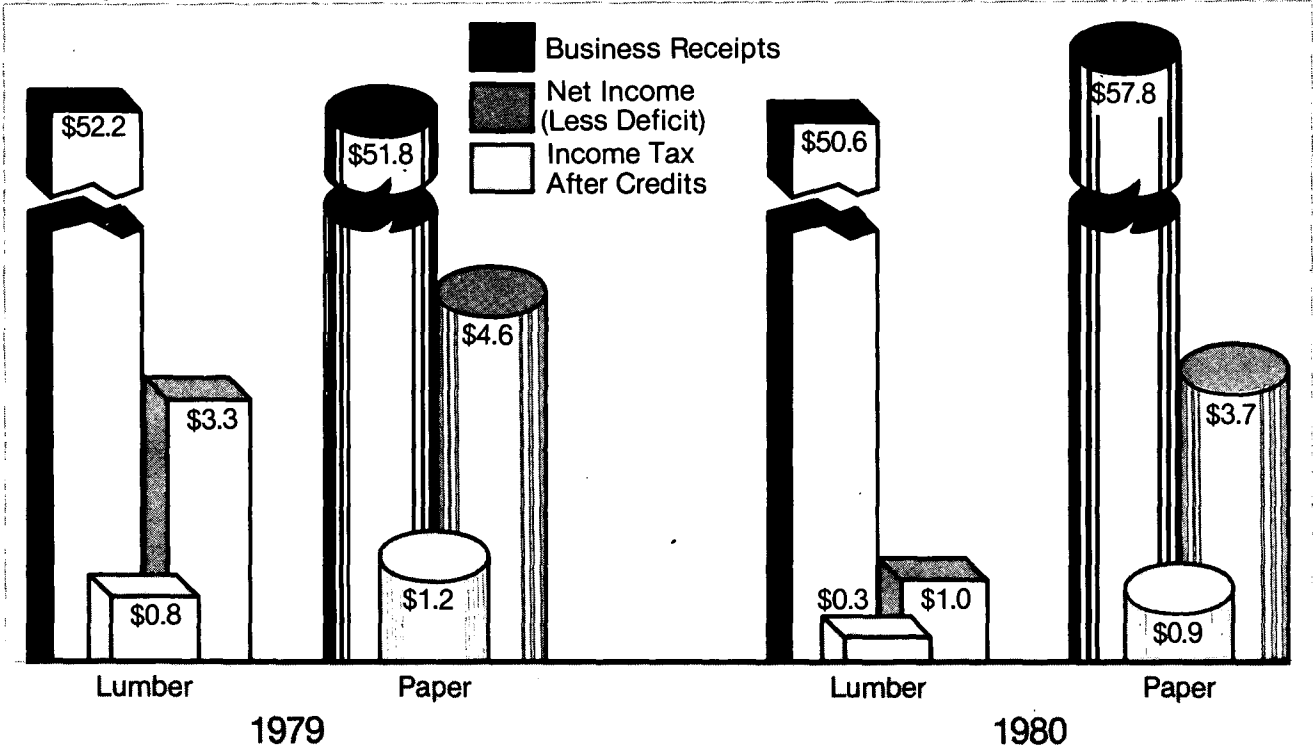
As a consequence of the drop in profits for the Lumber industry, tax liability before credits declined 53 percent from \$1.2 billion for 1979 to just under \$543 million for 1980. (In this article,

discussion of tax liability is before credits. Figure A, however, depicts income tax liability after credits.) This decline was much more severe than for other industries where the overall tax liability before credits dropped only 12.6 percent for 1980.

While the health of the Lumber industry was on a pronounced downswing at the beginning of the 1980's, the picture for the Paper industry was not as bleak. The slide which occurred in the Lumber industry because of the slump in housing did not occur to the same extent due to the relative stability enjoyed by the Paper industry. The market for paper and paper products is more diverse and apparently somewhat more stable than is the overall market for lumber. The

Figure A — Business Receipts, Net Income and Income Tax After Credits, Lumber and Wood Products, Paper and Allied Products, 1979 and 1980

(Money amounts are in Billions of dollars)



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profit rate as indicated by the ratio of net income (less deficit) to sales for the paper industry remained fairly high at 6 percent, down from 9 percent for 1979. While expenses increased 13.6 percent for the paper industry from 50.7 billion to 57.6 billion, sales rose only 12 percent from \$51.8 billion to \$57.8 billion. This resulted in a decrease of 21 percent in profits before tax.

As Figure B shows, the Lumber industry group (Lumber and wood products) includes data for the individual industries:

- (1) Logging, sawmills, and planing mills;
- (2) Millwork, plywood and related products; and,
- (3) Other wood products including wood buildings and mobile homes.

The Paper industry (Paper and allied products) includes:

- (1) Pulp, paper, and board mills, and
- (2) Other paper products.

Due to diversification of activities among corporations and the filing of consolidated returns for affiliated groups of corporations, the Lumber and

Paper industries data are not "pure" and may reflect non-Lumber and non-Paper industry activities [2]. For the same reason, data for many Lumber and Paper corporations will be reflected in other industry classifications because of their inclusion in consolidated returns which are classified in non-Lumber and non-Paper industries. Also certain types of Lumber and Paper activities are not included in the Lumber or Paper categories but are classified in more specific categories such as Furniture and fixtures, Musical instruments, and Photographic equipment and supplies [3].

The rapid deterioration in the profit picture of the Lumber industry reflected the double-barreled effect of high interest rates and inflation. While inflation continued to contribute to increased expenses, sales (business receipts in the statistics) decreased, at least partly, as a result of the effect of high interest rates on construction activity, which traditionally accounts for a large proportion of the consumption of lumber.

The profit rate of the Lumber corporations for 1980, as indicated by the ratio of net income (less deficit) to sales, was 2 percent. This was substantially below the 4 percent for all corporations and the 5 percent

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Figure B.--The Lumber and Paper Industries: Selected Balance Sheet and Income Statement Data, 1980

[All figures are estimates based on samples--money amounts are in millions of dollars]

Industry	Number of returns	Assets			
		Total	Depreciable assets (less accumulated depreciation)	Depletable assets (less accumulated depletion)	Land
	(1)	(2)	(3)	(4)	(5)
All corporations, total.....	2,710,538	7,617,238	1,339,186	52,332	92,932
Lumber and paper industries, total.....	16,558	88,939	34,884	5,556	2,078
Lumber and wood products, total.....	13,567	43,232	15,903	3,678	703
Logging, sawmills, and planing mills....	5,692	19,985	7,555	1,885	386
Millwork, plywood and related products..	4,126	15,363	6,195	1,719	186
Other wood products, including wood buildings and mobile homes.....	3,750	7,885	2,153	73	131
Paper and allied products, total.....	2,991	45,707	18,981	1,878	1,375
Pulp, paper, and board mills.....	246	31,974	13,928	1,809	1,192
Other paper products.....	2,746	13,733	5,052	*70	184

Industry	Total receipts	Total deductions	Net income (less deficit)	Income tax after credits
	(6)	(7)	(8)	(9)
All corporations, total.....	6,361,284	6,125,365	239,007	62,975
Lumber and paper industries, total.....	115,243	110,951	4,677	1,242
Lumber and wood products, total.....	54,263	53,336	986	338
Logging, sawmills, and planing mills.....	22,033	21,687	384	114
Millwork, plywood and related products.....	19,850	19,591	270	108
Other wood products, including wood buildings and mobile homes.....	12,381	12,058	332	115
Paper and allied products, total.....	60,980	57,615	3,691	904
Pulp, paper, and board mills.....	37,927	36,231	1,852	347
Other paper products.....	23,054	21,384	1,839	558

*This estimate should be used with caution because of the small number of sample returns on which it was based.
NOTE: Detail may not add to total due to rounding.

for the Manufacturing corporations. (Of the 58 major industry categories used in Statistics of Income, the Lumber industry was fiftieth in profit rate.)

Other statistics [4], not included in this presentation, show that although the beginning of the recession hit proprietorships in the Lumber industry almost as hard (there was a 36 percent increase in deficits from \$84 million for 1979 to \$114 million for 1980), there was an overall increase of 2.9 percent in profits (net income less deficit). This increase reflected a growth in sales of 17.5 percent from \$3.6 billion to \$4.2 billion. Expenses rose 19 percent from \$3.2 billion to nearly \$3.9 billion for 1980. The profit rate for proprietorships in Lumber, while higher than for the Lumber corporations at 9 percent, was low in comparison with proprietorships in other industries. The average for all proprietorships was 11.0 percent and for Manufacturing proprietorships, 11.3 percent.

Historical Perspective 1970-1980

Between 1970 and 1980 the total number of corporate income tax returns filed rose every year, from 1,665,477 for 1970 to 2,710,538 in 1980, an increase of 63 percent. The increase for the Lumber and Paper industries did not match the growth of the general corporate population. The data in Tables 1 and 2 show that the number of corporate returns for the Lumber industry increased by nearly 34 percent from 10,145 to 13,567, while the number of returns in the Paper industry actually decreased by 16 percent from 3,565 for 1970 to 2,991 for 1980 [5][6].

The number of proprietorship businesses in the Lumber industry increased during the decade of the 1970's by 37 percent from 48,597 for 1970 to 66,559 for 1979. In addition, there was an 11 percent increase to 73,976 businesses for 1980 [4][7].

Total assets for corporations in the Lumber and Paper industries increased by about 170 percent from \$32.9 billion for 1970 to \$88.9 billion for 1980. The greatest increase in assets in both rate and dollar amount occurred in the Lumber industry. For 1970, Lumber industry assets were \$11.7 billion and for 1980, \$43.2 billion, an increase of 269 percent. In contrast, assets for the Paper industry increased 116 percent from \$21.2 billion to \$45.7 billion. These trends compare with the 192 percent growth in assets for all corporations from \$2.6 trillion for 1970 to \$7.6 trillion for 1980. Much of this increase was a reflection of a rate of inflation of around 165 percent on new purchases of depreciable assets (or plant and equipment) over the period [8].

The largest single component of assets for the Lumber and Paper industries was plant and equipment (less accumulated depreciation) at 39 percent of the total. This was more than twice the ratio for all corporations at 18 percent. This component increased 161 percent over the period from \$13.4 billion for 1970 to \$34.9 billion for 1980.

Depending on the industry, timber may be valued separately from land and, if so, would be includable as depletable assets. For forest-based industries, depletable assets (less accumulated depletion) can therefore be assumed to consist largely of timber. The proportion of depletable assets to total assets for the Lumber and Paper industries is significant and may reflect a strong desire on the part of large corporations to be relatively self-sufficient in

these assets [9]. For 1980, depletable assets accounted for over 6 percent of all assets compared to less than 1 percent for all industries.

The Lumber industry owned more timber, or, which is more likely because of the quality of the wood required, more valuable timber at \$3.7 billion than did the Paper industry at \$1.9 billion. It also reported a larger proportion of its assets in depletable assets at 8.9 percent than did the Paper industry at 4.8 percent. For the Lumber and Paper industries combined, timber increased nearly 182 percent from nearly \$2 billion for 1970 to 5.6 billion for 1980. The greatest increase occurred among the Lumber corporations at 196 percent while the increase in depletable assets for the Paper companies was only 157 percent.

Because of the investment in timber, land would be expected to be a significant portion of the assets of Lumber and Paper companies. Land, however, totaled only 1.6 percent of the assets of the Lumber industry and 3 percent of the assets of the Paper industry indicating the significance of timber leasing. (A recent survey [10] shows that most of the timber land in the United States is not in the hands of the industry, but is owned by either the U.S. government at 20.6 percent of the U.S. total or by farmers and other private sources with 57.6 percent of the U.S. total. The "Timber" industry as defined by the survey possessed only 14.2 percent of the U.S. total.) As shown in Tables 1 and 2, there was a gradual increase in the value of land reported by the Lumber and Paper industries. Land holdings increased from \$675 million in 1970 to over \$2 billion for 1980, an increase of nearly 208 percent. Virtually all of the increase occurred in the Paper industry where the land held rose in value from \$406 million to \$1.4 billion, a change of over 238 percent. Part of these increases may reflect additional purchases of land in satisfaction of the desire of the Lumber and Paper corporations for insurance against material shortages and short-term price fluctuations [11] [12].

The pattern of land and timber ownership is dramatically different between the Lumber and Paper industries. One percent of the Paper industry corporations (the 30 largest corporations) owned 82.4 percent of the land and 92.4 percent of the timber. In that industry, the giant corporations clearly dominate both land and timber ownership. On the other hand, it is interesting to note that while 0.6 percent of the Lumber corporations (the 21 largest) owned nearly 64.8 percent of the timber, they held only 19.3 percent of the total land value of the industry.

During the period 1970 to 1980, sales for the Lumber and Paper industries rose from \$34.7 billion to \$108.4 billion. During this same period profits jumped from \$1.4 billion to nearly \$4.7 billion. The two recessions, one in 1975 and the other in 1980, disrupted this growth trend in different ways. Receipts dropped between 1974 and 1975, from \$63.4 billion to \$61.4 billion, a result of decreases in both industries. For 1980 however, receipts actually increased from \$104 for 1979 billion to \$108.4 billion for the combined industries due to a substantial increase of \$6.1 billion in the Paper industry, despite the 3.2 percent decline in sales for the Lumber industry. Clearly the Lumber industry is the more volatile of the two.

SUMMARY

Strong dependence on a single basic market, housing, and a high reliance on outside financing have spelled

hard times for the Lumber industry during past recessions and, especially so, during the recession which began in 1980, with its combination of inflation and high interest rates. In strong contrast, although sharing many things in common with the Lumber industry, the Paper industry weathered the first year of the 1980 recession with greater stamina due, in large measure, to a diverse and relatively inelastic market which consumes vast amounts of paper in good times or bad.

The 53 percent decrease in tax liability (before credits) from 1979 highlights the fragility of the Lumber industry during periods of stress [13]. The number of profit making corporations declined by 25.7 percent, and the number of corporations with deficits increased by 69.6 percent.

Tax liabilities (before credits) for the Paper industry also declined, but by 15 percent. In sharp contrast, however, the number of corporations with profits actually rose by 8.1 percent, while the number of corporations reporting deficits decreased by a substantial 56 percent. It is not clear why Paper corporations as a group have such a mixed picture. One possible factor to consider is that the statistics show a 7 percent decrease in the total number of returns. This could imply an accelerated rate of consolidation or merger for 1980 over 1979. Also, some firms, especially those that were in a deficit condition in 1979, may have ceased operations prior to the 1980 Tax Year.

DATA SOURCES AND LIMITATIONS

Sample Selection

The statistics for the 1980 Income Year were estimated from a stratified probability sample of about 85,000 corporation income tax returns selected after revenue processing but before audit.

A description of the sample selection procedures for corporate returns is presented in the complete report, Statistics of Income--1980, Corporation Income Tax Returns, beginning on page 9.

The sample rates for returns in the Lumber and Wood Products industry ranged from 0.25 percent to 100 percent. Selection probabilities were based primarily on size of total assets and net income (or deficit). Returns of the largest corporations are generally in the sample from year to year.

Limitations

Because the data presented in this article are estimates based upon a sample, they are subject to sampling error. To use the data properly, the magnitude of the sampling error should be known. Coefficients of variation (CV's) are used to measure that magnitude.

The table below presents approximated CV's for frequency estimates. The approximate CV's shown here are intended only as a general indication of the reliability of the data. For numbers of corporations other than those shown below, the corresponding CV's can be estimated by interpolation.

<u>Estimated Number of Returns</u>	<u>Approximated Coefficient of Variation</u>
1,000,000	.02
160,000	.03
40,000	.10
10,000	.20
4,500	.30
3,300	.35
1,600	.50

The reliability of estimates based on samples and the use of CV's for evaluating the precision of sample estimates are discussed in the Appendix.

Some caution is required in the comparison of tax and other financial data for the Lumber and Paper industries with similar data for other industries. Tax law requires special treatment for timber sales which comprise a small portion of the receipts for this industry. Receipts from the sale of timber, which are accorded capital gains treatment, are required to be reported when the timber is cut rather than when the money is actually received. The effect of this requirement may result in a slight overstatement or understatement of the actual receipts for any particular year.

Time Period Covered

The 1980 estimates are based on data from returns with accounting periods that coincided with Calendar Year 1980 (these returns accounted for the bulk of the financial data) as well as returns with accounting periods that were for fiscal years ending any time from July 1980 through June 1981. In addition to returns filed for 12-month accounting periods, the statistics also include data from so-called part-year returns. These returns, which were filed for less than a 12-month period; were for corporations that changed accounting periods, and for new, merging, and liquidating corporations.

Definitions and Changes in Law

Definitions of terms, changes in law, a comprehensive description of data limitations, and additional detailed statistics are available in the following publications:

- (1) Statistics of Income--1970, Corporation Income Tax Returns
- (2) Statistics of Income--1980, Corporation Income Tax Returns
- (3) Corporation Source Book of Statistics of Income--1980.

NOTES AND REFERENCES

- [1] Profit as used in this article is the amount computed under the Internal Revenue Code and is not necessarily the same as the profits that corporations report on their books of account. Book profit, which is not discussed in this article, may be a more accurate estimate of economic health. Data for prior years show that book profits are generally higher than the profits computed for tax purposes. Another indicator of economic health could be cash distributions made by corporations, which, for

the Lumber industry, increased from \$612 million in 1979 to \$718 million in 1980 and are more closely related to book profits.

- [2] Internal Revenue Service, Statistics of Income--1978-1979, Corporation Income Tax Returns, U.S. Government Printing Office, 1982, p. 18.
- [3] Internal Revenue Service, Corporation Source Book of Statistics of Income--1980, Statistics of Income Division.
- [4] Internal Revenue Service, Statistics of Income, 1979-1980, Sole Proprietorship Returns, U.S. Government Printing Office.
- [5] Internal Revenue Service, Statistics of Income--1970, Corporation Income Tax Returns, U.S. Government Printing Office.
- [6] Internal Revenue Service, Statistics of Income--1980, Corporation Income Tax Returns, U.S. Government Printing Office.
- [7] Internal Revenue Service, Statistics of Income--1970, Business Income Tax Returns, U.S. Government Printing Office.
- [8] Economic Report of the President, U.S. Government Printing Office, 1983, P. 163.
- [9] Thomas P. Clephane, "Timberland Investment Increasing as a Means of Improving Profitability," Pulp and Paper, November 1980.
- [10] USDA Forest Service, "An Analysis of the Timber Situation in the United States, 1952-2030," Forest Resource Report No. 23, P. 121.
- [11] Jay O. Laughlin and Paul V. Ellefson, "Strategies for Corporate Timberland Ownership and Management," Journal of Forestry, December 1982, Vol. 80, No. 12.
- [12] Thomas P. Clephane, "Timber Ownership, Valuation and Consumption Analysis for 87 Forest Products, Paper, and Diversified Companies," a Morgan Stanley Investment Research Paper.
- [13] Although the number of corporations increased from 1979, the number of corporations reporting a tax liability actually decreased. The increase was due, in part, to the number of corporations which elected to be taxed at the stockholder level rather than at the corporate level and which filed on Form 1120-S.

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Table 1.—Lumber and Wood Products: Selected Balance Sheet, Income Statement, and Tax Items, 1970-1980

[All figures are estimates based on samples—money amounts are in millions of dollars]

Item	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Number of returns.....	10,145	10,660	10,942	11,191	13,508	13,051	13,154	13,923	12,823	13,475	13,567
With net income.....	5,410	6,797	7,240	8,409	8,087	7,904	9,180	9,763	10,549	9,739	7,232
With deficit.....	4,735	3,863	3,702	2,782	5,421	5,147	3,974	4,160	2,274	3,736	6,335
Total assets.....	11,714	12,938	14,503	18,243	24,550	24,558	26,750	29,862	33,684	39,483	43,232
Inventories.....	1,995	2,136	2,368	3,125	4,154	3,943	4,543	4,987	5,495	6,252	6,319
Depreciable assets.....	7,573	8,153	8,635	10,381	13,898	15,087	16,129	18,419	20,391	24,445	27,445
Less: Accumulated depreciation.....	3,432	3,707	3,804	4,503	5,615	6,415	6,907	7,864	8,521	10,243	11,542
Depletable assets.....	1,302	1,319	1,176	1,660	2,036	2,075	2,220	2,209	2,537	3,302	3,850
Less: Accumulated depletion.....	59	54	65	60	69	73	90	74	126	142	173
Land.....	269	299	334	388	541	564	419	512	507	547	703
Total liabilities.....	5,963	6,653	7,829	9,818	14,107	13,589	14,464	15,905	17,702	20,538	23,215
Short-term debt ¹	1,103	1,057	1,234	1,594	2,297	2,484	2,341	2,408	2,604	3,313	3,593
Long-term debt ¹	2,653	2,973	3,595	4,096	5,515	5,983	6,105	6,585	6,491	8,636	10,087
Net worth.....	5,751	6,285	6,674	8,425	10,443	10,969	12,286	13,957	15,982	18,945	20,017
Total receipts.....	13,936	16,170	19,790	27,443	31,409	29,568	36,730	43,738	49,680	55,839	54,263
Business receipts.....	13,270	15,458	18,917	25,734	28,989	27,754	34,739	41,492	47,028	52,249	50,568
Net long-term capital gain reduced by net short-term capital loss.....	402	376	539	1,195	1,459	1,133	1,151	1,326	1,724	2,329	2,106
Total deductions.....	13,607	15,448	18,581	25,238	30,110	28,853	34,881	41,204	46,381	52,658	53,336
Cost of sales and operations.....	10,057	11,517	14,020	18,936	22,033	21,033	25,994	31,106	35,208	39,526	39,234
Depletion.....	451	470	610	1,076	1,376	1,109	1,264	1,351	1,673	1,969	2,051
Net income (less deficit).....	331	731	1,209	2,211	1,325	720	1,899	2,575	3,338	3,295	986
Income subject to tax.....	499	758	1,212	2,185	1,784	980	1,916	2,650	3,178	3,409	1,527
Income tax before credits.....	180	291	476	827	625	367	707	1,009	1,192	1,159	543
Tax credits, total.....	13	49	52	74	110	89	172	241	283	403	206
Investment credits.....	8	33	45	63	72	79	134	182	212	278	128
Income tax after credits.....	167	242	424	753	515	278	535	768	909	770	338
Distributions to stockholders, except in own stock.....	194	194	238	292	357	346	446	498	593	615	718

¹Short-term debt is the abbreviated title given to mortgages, notes and bonds payable in less than 1 year. Long-term debt is the abbreviated title given to mortgages, notes and bonds payable in 1 year or more.

NOTE: Detail may not add to total because of rounding. Tax Law changes have affected the comparability of the data. See the appropriate *Statistics of Income* reports for a description of those changes.

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Table 2.—Paper and Allied Products: Selected Balance Sheet, Income Statement, and Tax Items, 1970-1980

[All figures are estimates based on samples—money amounts are in millions of dollars]

Item	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Number of returns.....	3,565	3,473	3,437	3,532	3,765	3,565	3,409	3,496	3,318	3,209	2,991
With net income.....	2,615	2,330	2,602	2,829	2,887	2,665	2,820	2,811	2,630	2,467	2,667
With deficit.....	950	1,143	835	703	878	900	589	685	688	742	324
Total assets.....	21,151	21,959	23,710	25,930	25,333	27,908	31,205	34,307	38,723	40,208	45,707
Inventories.....	2,995	2,985	3,143	3,627	4,240	4,105	4,612	5,182	5,943	5,502	6,077
Depreciable assets.....	16,703	17,266	18,234	19,769	20,172	20,984	23,981	26,052	28,536	29,046	33,733
Less: Accumulated depreciation.....	7,454	7,914	8,529	9,352	9,606	9,342	11,110	12,046	13,106	13,321	14,753
Depletable assets.....	897	876	872	1,019	1,264	1,879	2,054	2,386	2,580	1,945	2,187
Less: Accumulated depletion.....	167	178	188	217	269	346	407	453	539	297	309
Land.....	406	398	426	497	729	865	917	918	961	1,340	1,375
Total liabilities.....	10,091	10,810	11,586	12,678	12,087	13,232	14,473	16,429	19,405	18,614	21,792
Short-term debt ¹	1,117	1,047	882	1,057	984	1,059	1,038	1,440	1,370	1,576	2,187
Long-term debt ¹	4,659	4,866	5,199	5,447	5,277	6,539	6,920	7,737	8,886	8,148	9,678
Net worth.....	11,060	11,148	12,124	13,252	13,246	14,676	16,732	17,878	19,318	21,594	23,915
Total receipts.....	22,133	23,094	27,327	32,200	35,684	34,857	41,741	45,279	51,168	55,135	60,980
Business receipts.....	21,388	22,305	26,437	30,800	34,413	33,653	40,334	43,596	49,190	51,761	57,816
Long-term capital gain reduced by net short-term capital loss.....	287	275	361	696	577	466	540	669	789	1,775	1,152
Total deductions.....	21,082	22,110	25,910	29,821	32,591	32,641	38,933	42,600	47,999	50,709	57,615
Cost of sales and operations.....	14,887	15,735	18,435	21,310	23,636	23,101	27,938	30,635	34,526	36,247	41,429
Depletion.....	128	129	172	275	224	201	258	380	374	504	471
Net income (less deficit).....	1,080	1,037	1,454	2,450	3,176	2,293	2,924	2,780	3,321	4,647	3,691
Income subject to tax.....	1,144	1,090	1,492	2,381	3,146	2,333	2,951	2,885	3,447	4,671	3,733
Income tax before credits.....	503	475	653	1,014	1,398	1,024	1,313	1,262	1,505	1,851	1,573
Tax credits, total.....	87	102	138	181	241	270	342	344	452	617	669
Investment credits.....	32	27	66	86	103	159	187	195	231	321	290
Income tax after credits.....	415	373	515	833	1,157	754	971	918	1,053	1,234	904
Distributions to stockholders, except in own stock.....	495	482	511	598	644	709	880	860	929	1,112	1,328

¹Short-term debt is the abbreviated title given to mortgages, notes and bonds payable in less than 1 year. Long-term debt is the abbreviated title given to mortgages, notes and bonds payable in 1 year or more.

NOTE: Detail may not add to total because of rounding. Tax Law changes have affected the comparability of the data. See the appropriate *Statistics of Income* reports for a description of those changes.