

**Use of
HARDWOOD DIMENSION STOCK
by the Southern
FURNITURE INDUSTRY**

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DIMENSION STOCK—timber cut into specified thicknesses, widths, and lengths—is used widely in the furniture industry. This industry is the main market for the manufacturer of dimension stock.

To help the manufacturer of dimension stock supply this market effectively and profitably, we have made a study of the southern furniture industry. We concluded that the independent manufacturer of dimension stock may find it hard to increase his share of this market in the future, because most furniture plants are now making much of their own dimension stock.

THE STUDY

Furniture firms were studied in the 16 states comprising the three southern regions established by the United States Department of Commerce (fig. 1). All firms manufacturing some form of wooden furniture were included in the study. However, it is significant that firms manufacturing wood household furniture—not upholstered furniture—accounted for about 85 percent of the hardwood lumber and parts consumed by the United States furniture industry in 1960 (2).

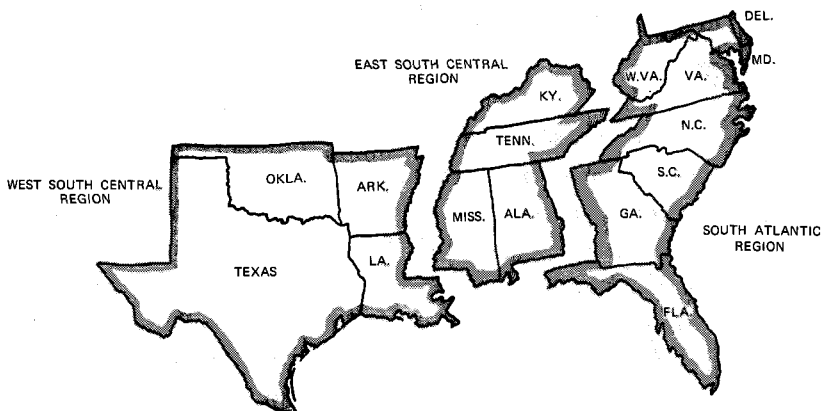


Figure 1.—The survey region.

A list of 2,175 furniture-manufacturing firms was compiled for the study area. The firms were classed by number of employees and by geographic location (appendix, table 1).

A questionnaire was mailed to each firm to determine the attitudes of the furniture manufacturers toward purchasing dimension stock. Information was obtained about the characteristics of each firm, including: employment; product diversification; lumber use; type, value, and frequency of dimension parts purchased; factors considered in purchasing; reasons for purchasing or not purchasing; and plans for future purchase of dimension stock. Information was also obtained about the dimension stock produced by the furniture manufacturers.

Three separate mailings were made over a 7-week period. A follow-up survey by telephone was made of a subsample of firms that did not respond, to determine if their opinions and attitudes differed in any way from those firms that did respond to the mailed questionnaire. The questions asked in the telephone survey were the same as those in the mailed questionnaire; although the survey was less comprehensive. No significant differences were found between those firms that did respond and those that did not.

CHARACTERISTICS OF RESPONDING FIRMS

Employment

The 635 firms who returned a usable questionnaire employed 94,673 full-time production workers in 1967. The average number of employees per firm was 149 (appendix, table 3). Over 58 percent of the responding firms were located in the South Atlantic Region; and their average number of employees was 157. Approximately 26 percent of the responding firms were located in the East South Central Region, and their average number of employees was 174. The remaining 16 percent of the responding firms were located

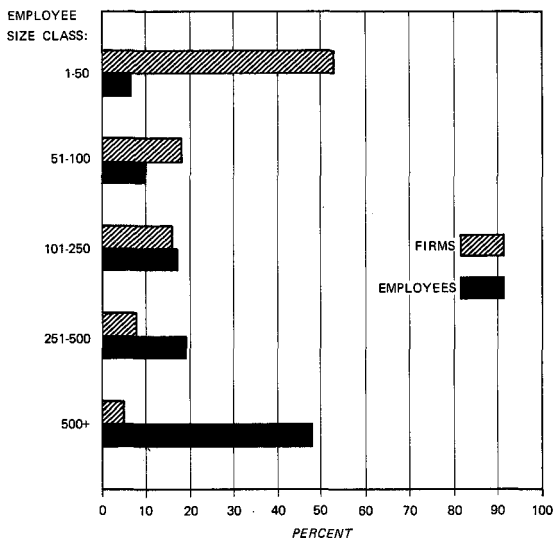


Figure 2.—Firm and employee distribution, by employee size classes.

in the West South Central Region, and they had an average of 103 employees.

Only 5 percent of the firms surveyed employed 500 or more production workers, while 53 percent of the firms employed fewer than 50 (fig. 2). However, the firms in the largest employee size class employed 48 percent of the total production workers, while the firms in the smallest employee size class employed only 7 percent.

Lumber Use

Almost 86 percent of the 635 firms used hardwood lumber or dimension stock in their plants (appendix, table 4). These 544 firms used 797 million board feet of hardwood lumber in 1967, for an average of 1.465 million board feet per firm. Sixty-nine percent of the firms used less than 1 million board feet of hardwood lumber (fig. 3). Those firms (6 percent of the total) with 500 or more employees used over 360 million board feet (45 percent of the total), an average of 10.64 million board feet of lumber per firm.

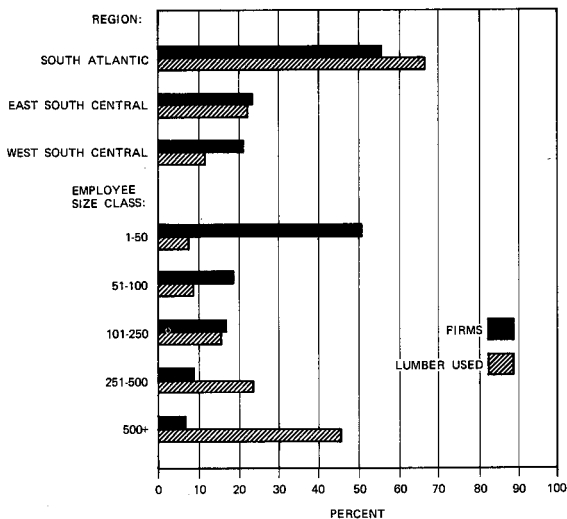


Figure 3.—Use of hardwood lumber by region and employee size class.

Dimension Purchased

Of the 544 firms that used hardwood lumber or dimension stock, 68 percent (372 firms) said that they purchase hardwood dimension. The types of dimensions stock most frequently purchased were:

<i>Type of dimension</i>	<i>Firms purchasing (No.)</i>
Turnings and carvings	173
Rough flat stock	142
Partially machined stock	116
Squares	107
Fully machined parts	78
Molding and trim	73

The 776 responses (appendix, table 5), from the 372 firms indicated that each firm purchases more than one type of dimension.

An analysis of the types of dimension stock purchased was made for furniture manufacturers who made only one type of furniture. Of the 544 firms that use hardwood lumber or dimension, 375 are single-product manufacturers. The close correspondence between the percent of single-product firms

that use the different types of dimension (appendix, table 6) and the percentages obtained from the 544 firm sample (appendix, table 5) justifies the conclusion that the analysis by type of furniture is representative of the total industry.

Turnings and carvings are used in 27 percent of the firms. Of the 12 types of furniture listed, the firms that produce upholstered and nonupholstered living room, dining room, radio and television cabinets, juvenile, and other furniture, purchase turnings and carvings more frequently than any other type of dimension.

Rough flat stock is used by 18 percent of the firms. It is purchased more often than other types of dimension by the firms producing kitchen cabinets, church—school—other public building furniture, and office furniture.

Partially machined stock is used by 15 percent of the firms. It is purchased more often than other types by firms producing outdoor and unpainted furniture.

Squares are used by 12 percent of the firms. They are purchased more often than other types of dimension by firms producing bedroom furniture.

Value of Purchased Parts

The total value of hardwood parts purchased by the 544 firms in 1967 was \$60,390,382 (appendix, table 7). The average expenditure per firm in 1967 for purchased dimension was \$201,197.

When the value of purchased dimension is considered, a different order of importance is obtained for the types of dimension (fig. 4). In terms of dollars expended for parts, the most important types of dimension purchased were:

<i>Type of dimension</i>	<i>Expenditure</i>
Partially machined stock	\$13,147,102
Rough flat stock	12,839,249
Fully machined parts	11,442,328
Turnings and carvings	8,584,204
Squares	6,379,926

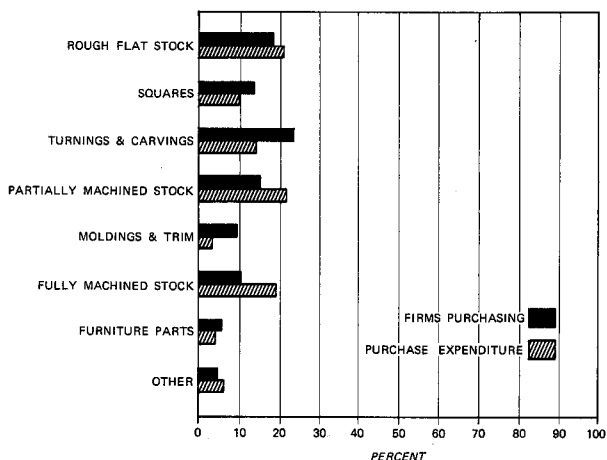


Figure 4.—Dimension part purchasing by furniture firms.

Firms in the South Atlantic Region accounted for over 50 percent of the total dollar value of hardwood dimension purchased.

North Carolina, Arkansas, and Mississippi, ranked in that order, had the largest dollar volume of hardwood dimension stock purchases and also had the largest dollar volume of hardwood dimension sales in 1967 (appendix, table 8). North Carolina had almost 25 percent of the total purchases and sales within the survey area, while the South Atlantic Region had 50.4 percent of the total purchases and 45.7 percent of the total sales. The purchases and sales for the three states listed above comprised over 55 percent of the total purchases and total sales (fig. 5).

Product Diversification

375 firms, or about 59 percent of the 635 respondents, indicated that they manufactured only one type of furniture (appendix, table 9). Generally, more of the smaller firms (those having fewer than 50 full-time production workers) produced a single type of furniture. In the sample of firms in the 1-50 employee size class, 60 percent produced a single type of furniture. In the 500-plus employee size class, 80

percent of the firms produced more than one type of furniture. The types of furniture produced by these single-product manufacturers, in order of importance, are:

<i>Type of furniture</i>	<i>Firms producing (No.)</i>
Upholstered living room	125
Kitchen cabinets	63
Miscellaneous furniture, not elsewhere classified (n.e.c.)	61
Church and institutional	34
Bedroom	29
Dining room	17
Nonupholstered living room	16

The producers of these types of furniture combined represent 92 percent of the single-product line manufacturers contacted in the survey.

The ranking above is true for the smaller firms; but 43 percent of the larger firms that produce single-product lines manufacture only radio and television cabinets.

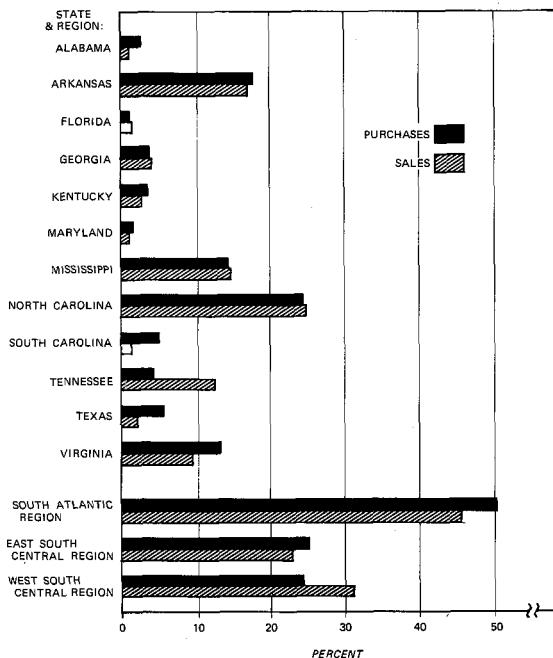


Figure 5.—Part purchases and sales, by state and region.

Ranking of firms by types of furniture produced differs when all firms in the survey area are considered (fig. 6). More than one type of furniture is produced by 260 of the 635 firms surveyed. Ranked by percent of firms that produce each type of furniture, the order of importance for each type is:

<i>Type of furniture</i>	<i>Firms producing (percent)</i>
Upholstered living room	19.0
Miscellaneous	13.0
Kitchen cabinets	12.5
Bedroom	11.5
Dining room	10.5
Church and institutional	10.0
Nonupholstered living room	8.0
Office	6.0
Radio and television cabinets	3.5
Outdoor and recreational	2.0
Juvenile	2.0
Mattress and bedspring frames	2.0
	100.0

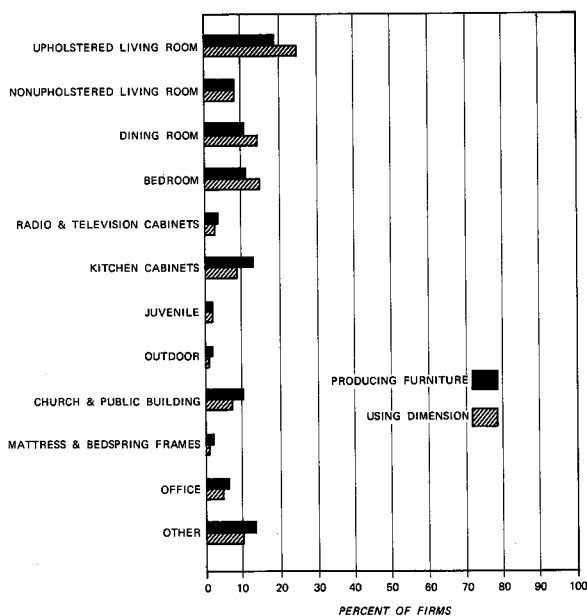


Figure 6.—Use of parts by furniture firms and by type of furniture produced.

Firms producing miscellaneous furniture (not elsewhere classified) ranked second in number and represented 13 percent of the 635 firms surveyed. Of the 635 firms, 526 indicated that they use hardwood dimension for a specific type of furniture (appendix, table 12). Ten percent of these firms produce miscellaneous furniture. A listing of the miscellaneous furniture products revealed three additional furniture industries that were not detailed on the survey questionnaire. Wood partitions, shelving, lockers, and office and store fixtures industry (SIC Code 2541) accounted for 59 percent of the products of firms producing miscellaneous furniture. The furniture and fixtures industry (not elsewhere classified; SIC Code 2599) accounted for 36 percent of the firms. Finally, the household furniture industry (not elsewhere classified; SIC Code 2519) made up the remaining 5 percent of the firms.

Within-Plant Manufacture

Most of the furniture firms produce in their own plants at least a majority of the hardwood parts they use. Only 33 percent of the respondents indicated that they did not manufacture any of the hardwood dimension they used. But 25 percent of the respondents indicated that all of the dimension parts they used were manufactured in their own plants. And 51 percent of the respondents manufactured over half of the hardwood dimension parts they used.

The proportion of hardwood dimension produced by furniture manufacturers should increase slightly after 1967. Almost 43 percent of the firms indicated that they planned to increase the proportion of hardwood dimension manufactured in their own plants (appendix, table 10). About 47 percent indicated that the proportion of within-plant production would stabilize; while 10 percent stated that the proportion would decrease.

Future Purchase of Dimension

The furniture manufacturers who indicated that they did not purchase dimension stock in 1967 were questioned about plans to purchase dimension in the future. Of the 256 firms, 63 percent planned not to purchase dimension within the next 3 years; 31 percent indicated that they did not have definite plans either way; and 6 percent indicated that they have definite plans for purchasing dimension in the next 3 years (appendix, table 11).

Of the 256 firms that were not purchasing hardwood parts, 65 percent do purchase hardwood lumber while the remaining 35 percent purchase neither lumber nor dimension.

Frequency of Use of Dimension

Furniture manufacturers were questioned to determine how many firms purchased dimension parts for the manufacture of the 12 types of furniture. The 372 firms that used dimension supplied 526 responses (appendix, table 12). The percent of firms purchasing dimension parts for each type furniture was:

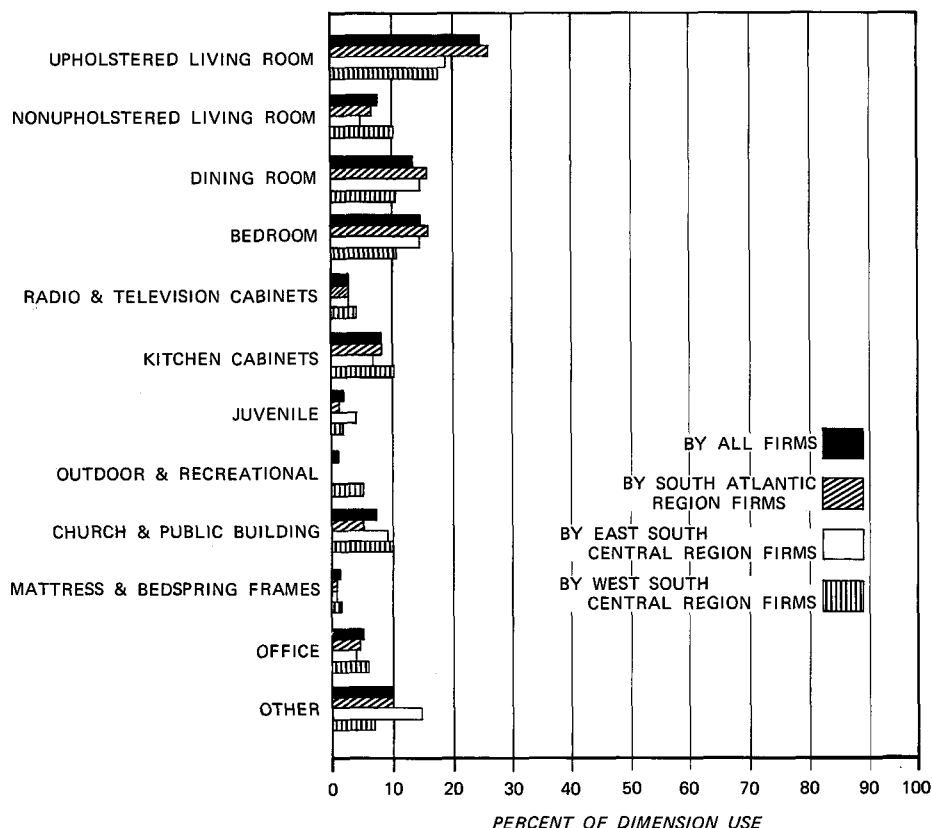
<i>Type of furniture</i>	<i>Purchased dimension (percent)</i>
Upholstered living room	25.0
Bedroom	15.0
Dining room	14.0
Miscellaneous	10.0
Kitchen cabinets	8.5
Nonupholstered living room	8.0
Church and institutional	7.5
Office	5.0
Radio and television cabinets	3.0
Juvenile	2.0
Outdoor and recreational	1.0
Mattress and bedspring frames	1.0
	100.0

The category of "other" furniture showed 55 firms (10 percent of the total) using purchased dimension. This category includes 32 firms (59 percent) producing partitions,

shelving and store fixtures; 20 firms (36 percent) producing furniture and fixtures, n.e.c.; and 3 firms (5 percent) producing household furniture, n.e.c.

The relative proportions of firms, purchasing dimension for manufacture of the different types of furniture, were essentially the same for all three regions (fig. 7). For example, the percent of firms purchasing dimension for the manufacture of upholstered living room furniture was: 26.5 percent of the firms in the South Atlantic Region; 24 percent of the firms in the East South Central Region; and 23 percent in the West South Central Region.

Figure 7.—Percent distribution of firms using purchased dimension, by type of furniture produced and by region.



Reasons for Purchase

The 372 furniture manufacturers who purchased hardwood dimension in 1967 were asked to rank their reasons for purchasing dimension. Ninety percent of the firms responded to the question. However, most firms ranked only those reasons that were pertinent to their operations (table 13).

Three methods were used for evaluating the importance of each reason for purchasing dimension. By considering only the number of firms that ranked each reason, an order of importance was obtained (column 9, table 13). By considering the number of firms that did not rank the question as the lowest order of ranking, and incorporating these as responses in the calculation of a rank value, the identical ordering was obtained (column 10, table 13).

In the third method we applied a factor to the rank values of the answers for the total number of firms (332). This method provided the same ranking as the other two methods except that reason No. 7 (other reasons) was ranked third instead of sixth (column 11, table 13). The reasons for purchasing were, in rank:

<i>Rank</i>	<i>Reason for Purchasing</i>
1	Furniture production capacity increased with little additional capital investment.
2	Premanufactured hardwood parts can be purchased for less cost than we can produce them for.
3	Allows better control of production costs.
4	Less space is needed for materials inventory.
5	Manufacturing waste is reduced.
6	Other reasons.
7	Lumber transportation costs are reduced.

Factors Considered in Purchasing

The factors considered most important when purchasing hardwood dimension were ranked by the 332 firms (table 14). Most firms ranked only those factors that were pertinent to their operations. The three methods for evaluating the importance of reasons for purchasing dimension were also used to evaluate the factors considered in purchasing. Analysis of the data resulted in the following ranking:

<i>Rank</i>	<i>Factors</i>
1	Price
2	On-time delivery
3	Species
4	Supplier's reputation
5	Machining tolerances
6	Lead time required
7	Moisture content
8	Grade specifications
9	Allowable amount of defective parts
10	Other

Reasons for Not Purchasing

The 256 firms who indicated that they did not purchase any hardwood parts in 1967 were asked to rank a series of choices indicating their reasons for not purchasing the parts. Eleven reasons were listed on the questionnaire. Ranking of these reasons is presented below:

<i>Firms ranked (No.)</i>	<i>Rank</i>	<i>Reason</i>
105	1	Manufacture own parts for less cost.
97	2	Have own production facilities and want to use them fully.
54	3	Quantities for furniture produced are too small to use purchased parts efficiently.
34	4	Manufacture some (or all) of listed hardwood parts for sales to others.
26	5	Listed parts are not used in our products.
9	6	Other.
12	7	Desired part sizes are not available.
9	8	Have not been solicited by dimension producers.
8	9	Hardwood parts of desired species not available.
7	10	Have been unable to obtain reliable delivery.
8	11	Parts that meet specifications not available.

CONCLUSION

Although the total use of hardwood dimension stock is expected to increase in the future, the independent dimension manufacturer will find it difficult to increase his share of the market to any substantial degree. The primary reason for this static market will be the increasing within-plant production of hardwood dimension parts by the furniture manufacturers. Over half of the furniture manufacturers already produce over half of their dimension requirements now in their own plants; and the ratio of furniture manufacturers planning increased within-plant dimension production versus those planning decreased production is higher than 4 to 1.

The attitudes of the furniture manufacturers toward the purchase of dimension stock appear to be based primarily upon cost factors. The primary reasons given for *not* purchasing hardwood dimension were also based on cost factors. Though cost of purchased parts—compared with cost of dimension parts produced within the plant—appears to be the main factor considered, other factors also were important, including (1) on-time delivery as opposed to time required for in-plant manufacture; (2) species of hardwood parts required; and (3) reputation of the supplier of dimension parts.

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APPENDIX

Table 1.—Employee size classification of strata

[Stratification of population]

Stratum No.	Employee size class	No. employees
SOUTH ATLANTIC REGION		
1	1	1-50
2	2	51-100
3	3	101-250
4	4	251-500
5	5	500+
EAST SOUTH CENTRAL REGION		
6	1	1-50
7	2	51-100
8	3	101-250
9	4	251-500
10	5	500+
WEST SOUTH CENTRAL REGION		
11	1	1-50
12	2	51-100
13	3	101-250
14	4	251-500
15	5	500+

Table 2.—Response to mailed questionnaires

Item	Questionnaires	Percent of total mailed
	No.	Pct.
Total mailed	2,175	—
Total not returned	894	41.1
Total returned	1,281	58.9
Out-of-business	171	7.9
Unknown address	129	5.9
No word used	221	10.2
Partially completed	81	3.7
Usable returns	679	31.2

Table 3.—Employment size

Stratum	Number of firms	Number employed	Mean employment
1	187	3,569	19
2	60	4,588	77
3	61	10,252	109
4	24	8,748	365
5	21	28,253	1,346
6	66	1,211	19
7	30	2,334	78
8	24	3,900	163
9	16	6,273	393
10	7	11,187	1,599
11	86	1,392	16
12	23	1,845	81
13	15	2,334	156
14	9	3,144	350
15	6	5,643	941
R1	353	55,410	157
R2	143	24,905	174
R3	139	14,358	103
EMP1	339	6,172	18
EMP2	113	8,767	77
EMP3	100	16,486	165
EMP4	49	18,165	370
EMP5	34	45,083	1,325
All strata	635	94,673	149

Table 4.—Use of hardwood lumber or parts

Employee size class	Number of firms that—				Lumber used	
	Use		Don't use		Volume	Average
	<i>No.</i>	<i>Pct.</i>	<i>No.</i>	<i>Pct.</i>	<i>Mbf.</i>	<i>Mbf.</i>
1	274	80.8	65	19.2	57,151	208.5
2	99	87.6	14	12.4	66,011	666.7
3	90	90.0	10	10.0	125,802	1,397.8
4	47	95.9	2	4.1	185,949	3,956.3
5	34	100.0	0	0.0	361,911	10,644.4
<i>Regions</i>						
1	304	86.1	49	13.9	527,115	1,733.9
2	126	88.1	17	11.9	178,666	1,417.9
3	114	82.0	25	18.0	91,043	798.6
<i>Stratum</i>						
1	152	81.3	35	18.7	34,291	225.6
2	51	85.0	9	15.0	25,725	504.4
3	57	93.4	4	6.6	83,089	1,457.7
4	23	95.8	1	4.2	100,177	4,355.5
5	21	100.0	0	0.0	283,833	13,515.9
6	54	81.8	12	18.2	12,776	236.6
7	28	93.3	2	6.7	25,452	909.0
8	22	91.7	2	8.3	26,063	1,184.7
9	15	93.7	1	6.3	65,843	4,389.5
10	7	100.0	0	0.0	48,532	6,933.2
11	68	79.1	18	20.9	10,084	148.3
12	20	86.9	3	13.1	14,834	741.7
13	11	73.3	4	26.7	16,650	1,513.6
14	9	100.0	0	0.0	19,929	2,214.3
15	6	100.0	0	0.0	29,546	4,924.3
All firms	544	85.7	91	14.3	796,824	1,464.7

Table 5.—Types of hardwood dimension stock purchased, by frequency of purchase

Stratum	Rough flat stock	Squares	Turnings and carvings	Partially machined	Mold and trim	Fully machined	Furniture parts	Other	Total response
1	42	11	49	22	24	15	14	13	190
2	15	6	24	9	2	7	4	2	60
3	17	23	24	17	6	11	2	4	104
4	3	11	7	4	2	2	1	0	30
5	4	10	9	6	4	5	1	3	42
6	12	3	4	3	4	3	1	3	33
7	4	5	14	5	4	3	2	1	38
8	6	8	11	11	4	7	4	0	51
9	4	5	4	4	2	1	0	4	24
10	6	6	4	4	3	5	4	0	32
11	18	4	14	12	10	6	3	3	70
12	2	3	6	6	5	5	2	1	30
13	3	4	5	3	2	3	4	0	24
14	4	4	5	6	1	4	1	0	25
15	2	4	3	4	0	1	0	0	14
R1	81	61	113	58	38	40	22	22	435
R2	32	27	37	27	17	19	11	8	178
R3	29	19	33	31	18	19	10	4	163
EMP1	72	18	67	37	38	24	18	19	293
EMP2	21	14	44	20	11	15	8	4	137
EMP3	26	35	40	31	12	21	10	4	179
EMP4	11	20	16	14	5	7	2	4	79
EMP5	12	20	16	14	7	11	5	3	88
All strata	142	107	183	116	73	78	43	34	776

Table 6.—Frequency of purchased dimension stock use, by kind of furniture produced, in percent

Type of furniture	Rough flat stock	Squares	Turnings and carvings	Partially machined stock	Moldings and trim	Fully machined stock	Furniture parts	Other
Upholstered living room	17	7	33	10	11	9	7	6
Nonupholstered living room	9	5	40	18	9	5	5	9
Dining room	10	23	29	20	6	6	6	0
Bedroom	12	25	23	13	4	15	4	4
Radio-television cabinets	15	15	37	11	11	11	0	0
Kitchen cabinets	33	0	3	24	22	9	0	9
Juvenile	9	9	28	18	18	9	9	0
Outdoor and/or unpainted	0	25	25	50	0	0	0	0
Church, school, or other public building	40	15	5	20	0	10	5	5
Mattresses and bedsprings	0	0	0	0	0	0	0	0
Office	43	14	14	29	0	0	0	0
Other	18	20	23	15	5	11	3	5
	18	12	27	15	9	9	5	5

Table 7.—Amount spent on hardwood parts in 1967

Stratum	Rough flat stock	Squares	Turnings and carvings	Partially machined stock	Moldings and trim	Fully machined parts	Furniture parts	Other	Total
1	\$ 575,275	\$ 75,670	\$ 328,184	\$ 441,325	\$ 84,276	\$ 576,130	\$ 319,064	\$ 374,930	\$ 2,774,854
2	578,400	80,550	249,761	814,990	39,240	451,100	319,262	49,750	2,583,053
3	2,638,048	805,284	1,425,499	3,192,995	573,249	2,731,400	251,400	141,168	11,759,043
4	1,838,000	1,080,052	677,992	1,461,756	162,000	56,500	82,500	000	5,358,800
5	1,671,300	1,412,540	963,156	799,500	38,131	828,108	000	2,632,698	8,345,433
6	160,360	23,850	23,600	71,000	240	790,850	700	000	1,070,600
7	265,800	22,300	536,100	874,700	197,300	27,300	23,700	70,000	2,017,200
8	968,250	282,410	660,360	490,160	54,760	578,410	385,500	000	3,419,850
9	629,288	714,000	87,231	219,088	39,500	150,000	000	000	1,839,107
10	1,507,280	234,100	2,156,500	414,000	476,120	1,127,800	40,300	000	5,956,100
11	172,448	51,050	174,872	194,766	62,329	643,980	29,095	38,675	1,367,215
12	67,800	114,320	139,449	139,622	56,531	186,750	601,655	44,000	1,350,127
13	292,500	580,000	139,500	143,500	13,500	620,000	141,000	210,000	2,140,000
14	721,500	383,000	870,000	3,447,500	180,000	2,410,000	60,000	205,000	8,277,000
15	753,000	520,800	152,000	442,200	000	264,000	000	000	2,132,000
R1	7,301,023	3,454,096	3,644,592	6,710,566	896,896	4,643,238	972,226	3,198,546	30,821,183
R2	3,530,978	1,276,660	3,463,791	2,068,948	767,920	2,674,360	450,200	70,000	14,302,857
R3	2,007,248	1,649,170	1,475,821	4,367,588	312,360	4,124,730	831,750	497,675	15,266,342
EMP1	908,083	150,570	526,656	707,091	146,845	2,010,960	348,859	413,605	5,581,549
EMP2	912,000	217,170	925,310	1,829,312	293,071	665,150	944,617	163,750	8,191,061
EMP3	3,898,798	1,667,694	2,225,359	3,826,655	641,509	3,929,810	777,900	351,168	17,318,896
EMP4	3,188,788	2,177,052	1,635,223	5,128,343	381,500	2,616,500	142,500	205,000	16,227,549
EMP5	3,931,580	2,167,440	3,271,656	1,655,699	514,251	2,219,907	40,300	2,632,698	16,633,535
All strata	\$12,839,249	\$6,379,926	\$8,584,204	\$13,147,102	\$1,977,176	\$11,442,328	\$2,254,176	\$3,766,221	\$60,390,382

Table 8.—Purchases and sales of dimension stock within survey region

Area	Purchases	Percent of total	Sales	Percent of total
		<i>Pct.</i>		<i>Pct.</i>
Alabama	\$ 1,461,000	2.65	\$ 650,900	1.18
Arkansas	9,739,500	17.67	9,469,500	17.19
Florida	688,300	1.24	718,300	1.30
Georgia	2,092,500	3.80	2,246,000	4.08
Kentucky	1,954,400	3.55	1,413,200	2.57
Maryland	1,022,000	1.85	695,700	1.26
Mississippi	8,038,100	14.59	8,183,200	14.85
North Carolina	13,629,000	24.74	13,757,800	24.97
South Carolina	2,790,900	5.07	792,700	1.44
Tennessee	2,372,300	4.31	7,004,600	12.71
Texas	3,293,900	5.98	1,238,200	2.25
Virginia	7,415,800	13.46	5,257,500	9.54
All other ¹	596,900	1.09	3,667,000	6.66
Total	\$55,094,600	—	\$55,094,600	—
South Atlantic Region	\$27,776,800	50.42	\$25,165,300	45.67
East South Central Region	13,825,800	25.09	17,251,900	23.02
West South Central Region	13,492,000	24.49	12,677,400	31.31

¹ This area includes the states of Delaware, Louisiana, Oklahoma, and West Virginia, which were combined to avoid disclosure of purchases and sales by individual firms.

Table 9.—Types of furniture produced, by single product manufacturers

Stratum	ULR	NLR	DIN	BER	RTV	KIT	JUV	OUT	CRH	MAT	OFF	OTH	Total
1	37	4	3	4	1	27	1	1	4	0	1	22	105
2	18	1	1	0	0	6	2	0	4	0	1	4	37
3	18	2	1	7	3	1	0	0	3	0	1	4	40
4	2	0	2	4	0	1	0	0	0	0	0	2	11
5	0	0	0	0	1	1	0	0	0	0	0	0	2
6	9	2	0	2	0	10	0	1	5	1	1	8	39
7	8	2	3	1	0	0	2	0	4	0	0	2	22
8	6	1	1	1	1	1	1	0	1	0	0	3	16
9	4	1	0	4	0	1	0	0	1	0	0	1	12
10	1	0	0	0	1	0	0	0	0	0	0	0	2
11	13	2	2	2	1	11	1	2	6	2	1	12	55
12	6	1	2	1	0	3	0	0	3	0	0	1	17
13	3	0	2	1	0	0	0	1	3	0	0	2	12
14	0	0	0	1	0	1	0	0	0	0	0	0	2
15	0	0	0	1	2	0	0	0	0	0	0	0	3
R1	75	7	7	15	5	36	3	1	11	0	3	32	195
R2	28	6	4	8	2	12	3	1	11	1	1	14	91
R3	22	3	6	6	3	15	1	3	12	2	1	15	89
EMP1	59	8	5	8	2	48	2	4	15	3	3	42	199
EMP2	32	4	6	2	0	9	4	0	11	0	1	7	76
EMP3	27	3	4	9	4	2	1	1	7	0	1	9	68
EMP4	6	1	2	9	0	3	0	0	1	0	0	3	25
EMP5	1	0	0	1	4	1	0	0	0	0	0	0	7
All strata	125	16	17	29	10	63	7	5	34	3	5	61	375

ULR = Upholstered living room
 NLR = Non upholstered living room
 DIN = Dining room
 BER = Bedroom
 RTV = Radio - TV cabinets
 KIT = Kitchen cabinets

JUV = Juvenile
 OUT = Outdoor & recreational
 CRH = Church & institutional
 MAT = Mattress & bedsprings
 OFF = Office
 OTH = Other

Table 10.—Plans for within-plant manufacture of dimension parts

Employee size class	Increase		Decrease		Stabilize	
	No.	Pct.	No.	Pct.	No.	Pct.
1	68	47.8	9	6.4	65	45.8
2	26	41.9	9	14.6	27	43.5
3	28	40.5	11	15.9	30	43.5
4	13	38.3	4	11.7	17	50.0
5	12	31.5	2	5.3	24	63.2
R1	83	42.1	20	10.1	94	47.8
R2	27	36.0	10	13.3	38	50.7
R3	37	50.7	5	6.8	31	42.5
<i>Stratum</i>						
1	40	48.2	4	4.8	39	47.0
2	13	41.9	5	16.1	13	41.9
3	18	40.9	7	15.9	19	43.2
4	6	46.2	2	15.4	5	38.5
5	6	37.5	2	12.5	18	50.0
6	9	42.9	2	9.5	10	47.6
7	7	38.9	3	16.7	8	44.4
8	4	23.5	4	23.5	9	52.9
9	3	25.0	1	8.3	8	66.7
10	4	57.1	0	.0	3	42.9
11	19	50.0	3	7.9	16	42.1
12	6	46.2	1	7.7	6	46.2
13	6	75.0	0	.0	2	25.0
14	4	44.4	1	11.1	4	44.4
15	2	40.0	0	.0	3	60.0
All classes	147	42.6	35	10.2	163	47.2

Table 11.—Firms planning to purchase hardwood parts

Stratum	Yes		No		Don't know		No response	Total respondents
	No.	Pct.	No.	Pct.	No.	Pct.	No.	No.
1	4	5.4	40	54.1	30	40.5	12	86
2	2	10.0	13	65.0	5	25.0	3	23
3	1	10.0	7	70.0	2	20.0	3	13
4	1	10.0	5	50.0	4	40.0	1	11
5	0	0.0	2	66.7	1	33.3	2	5
6	1	3.0	23	69.7	9	27.3	6	39
7	1	8.3	5	41.7	6	50.0	0	12
8	0	.0	4	80.0	1	20.0	1	6
9	0	.0	2	66.7	1	33.3	0	3
10	0	.0	0	.0	0	.0	0	0
11	2	5.3	27	71.1	9	23.6	5	43
12	0	.0	6	100.0	0	.0	1	7
13	1	14.3	5	71.4	1	14.3	0	7
14	0	.0	0	.0	0	.0	0	0
15	0	.0	1	100.0	0	.0	0	1
R1	8	6.8	67	57.3	42	35.9	21	138
R2	2	3.8	34	64.1	17	32.1	7	60
R3	3	5.8	39	75.0	10	19.2	6	58
EMP1	7	4.8	90	62.1	48	33.1	23	168
EMP2	3	7.9	24	63.2	11	28.9	4	42
EMP3	2	9.1	16	72.7	4	18.2	4	26
EMP4	1	7.7	7	53.8	5	38.5	1	14
EMP5	0	.0	3	75.0	1	25.0	2	6
All strata	13	5.9	140	63.0	69	31.1	34	256

Table 12.—Frequency of use of hardwood parts (for specific type of furniture)

Stratum	ULR	NLR	DIN	BED	RTV	KIT	JUV	OUT	CRH	MAT	OFF	OTH	Total responses
1	35	12	13	10	6	21	1	0	9	0	9	19	135
2	19	1	4	2	0	2	2	0	2	1	2	5	40
3	18	7	13	16	3	1	0	0	5	0	3	3	69
4	1	0	6	8	0	1	0	0	0	0	0	1	17
5	5	2	11	13	0	0	1	0	0	0	0	2	34
6	4	3	3	4	0	4	0	0	5	0	2	8	33
7	7	0	4	2	0	1	2	0	4	0	1	2	23
8	6	2	4	2	1	1	2	0	0	0	0	4	22
9	4	0	1	5	0	1	0	0	1	0	0	1	13
10	4	0	2	3	2	0	0	0	0	1	1	1	14
11	15	5	4	5	3	9	1	4	11	0	5	4	66
12	5	3	2	1	0	3	1	2	0	0	0	1	18
13	4	0	3	2	0	0	0	0	0	1	0	2	12
14	3	3	3	4	0	1	0	0	1	0	1	1	17
15	2	2	2	2	2	0	0	0	1	0	1	1	13
R1	78	22	47	49	9	25	4	0	16	1	14	30	295
R2	25	5	14	16	3	7	4	0	10	1	4	16	105
R3	29	13	14	14	5	13	2	6	13	1	7	9	126
EMP1	54	20	20	19	9	34	2	4	25	0	16	31	234
EMP2	31	4	10	5	0	6	5	2	6	1	3	8	81
EMP3	28	9	20	20	4	2	2	0	5	1	3	9	103
EMP4	8	3	10	17	0	3	0	0	2	0	1	3	47
EMP5	11	4	15	18	4	0	1	0	1	1	2	4	61
All strata	132	40	75	79	17	45	10	6	39	3	25	55	526

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Table 13.—Response frequency and rank of reasons for purchasing dimension

Reason ¹	Response frequency within each grade							No response	Total response	Rank method 2	Rank method 3	Overall order of importance
	1	2	3	4	5	6	7	8	9	10	11	12
1	127	53	15	3	3	1	0	130	202	3.8	2.5	1
2	123	43	16	7	1	3	0	139	193	4.3	2.7	2
3	25	34	35	20	8	2	0	208	124	6.0	7.1	4
4	30	38	34	15	7	1	0	207	125	5.9	6.6	3
5	35	19	20	20	20	1	0	217	115	6.2	8.0	5
6	14	12	11	7	10	17	1	260	72	7.0	16.5	7
7	61	8	4	2	1	1	1	252	80	6.5	6.3	6

¹ Reason

1. Furniture production capacity can be increased with little additional capital investment.
2. Premanufactured hardwood parts can be purchased for less cost than we can produce them.
3. Less space is needed for material inventory.
4. Allows better control of production costs.
5. Manufacturing waste is reduced.
6. Lumber transportation costs are reduced.
7. Other.

Table 14.—Response frequency and rank of factors influencing purchase of dimension

Factor ¹	Response frequency ² within each grade									No response	Total response	Rank method 2	Rank method 3	Overall order of importance
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	93	28	19	10	10	9	5	6	2	150	182	5.9	4.5	3
2	63	38	38	19	17	8	7	11	4	127	205	5.7	5.0	4
3	15	18	26	23	20	13	20	5	3	189	143	7.5	9.8	6
4	56	65	54	42	7	15	3	1	0	89	243	4.7	3.8	2
5	109	89	49	28	14	4	1	0	0	38	294	3.1	2.5	1
6	35	23	21	18	18	17	12	4	2	182	150	7.1	8.0	5
7	18	20	18	22	18	18	14	8	3	193	139	7.6	10.1	7
8	15	16	11	6	14	10	12	27	7	214	118	8.2	14.2	9
9	25	25	7	6	4	1	4	6	18	236	96	8.3	13.8	8
10	17	6	0	0	0	0	0	0	0	309	23	9.4	18.2	10

¹ Factors

1. Species.
2. Supplier's reputation.
3. Lead time required.
4. On-time delivery.
5. Price.
6. Machining tolerances.
7. Moisture content.
8. Allowable amount of defective parts.
9. Grade specifications.
10. Other.

² No factor was ranked lower than ninth; therefore the responses are shown only for the first through ninth ranks.



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