MARKETING WEST VIRGINIA LUMBER

to manufacturers in other states

by Gary R. Lindell

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Problems In Marketing

LUMBER producers in West Virginia have some common problems in marketing the lumber they produce: what type of lumber to produce; where to sell it, and when, and how. Their marketing problem is complicated by the fact that most of the lumber they produce is sold to wood-products manufacturers in other states. And this lumber — most of it hardwood — is put to a variety of uses that require a wide range of qualities.

In recent years some studies have been made of lumber-marketing in attempts to aid the lumber producers.[1] These studies have described the lumber-marketing system in West Virginia and the Northeast from the viewpoint of the lumber manufacturer, and have defined the alternative methods of lumber production and marketing that are open to the producer in West Virginia.

To supplement these studies, the Forest Products Marketing Laboratory of the Northeastern Forest Experiment Station has turned its attention to the buyer, to determine his needs so that the West Virginia lumber producer can improve his marketing position by producing lumber that is designed to fit the needs of the buyer.

This study was designed to describe the lumber-purchasing activities of lumber users in selected areas of Virginia, North Carolina, and Ohio — states that contain important lumber markets for West Virginia lumber but were not included in the previous studies.

The area selected for study was delineated to include the Virginia cities relatively close to the West Virginia boundary such as Winchester, Roanoke, Pulaski, Bluefield, and Marion;

[1] Christensen, Wallace W., Henry H. Webster, Gregory Baker, and others. MARKETING OF LUMBER PRODUCED BY SAWMILLS IN THE NORTHEAST — PHASE I. W. Va. Agr. Expt. Sta. Bull. 478, 32 pp., illus., 1962.

Whitmore, Roy A., Perry R. Hagenstein, William H. Reid, and Donald E. Nelson. MARKETING OF LUMBER IN THE NORTHEAST, PHASE II — LUMBER PURCHASES BY WOOD PRODUCTS MANUFACTURERS. Vt. Agr. Expt. Sta. Bull. 635, 38 pp., illus., 1963.

the North Carolina furniture centers such as High Point, Hickory, Thomasville, and Drexel; and Cincinnati, Columbus, and Cleveland and the cities in eastern Ohio (fig. 1).

Six lumber-using industries that provide the major lumber market outlets were selected for study: dimension and flooring, millwork, prefabricated structures, wooden containers, furniture and fixtures, and pallets.[2] Individual firms in each industry were selected for sampling, and managers were interviewed[3] about their lumber-purchasing activities for the year 1960. The data obtained for each industry were then expanded, based on sample percentages, to represent the whole of the industry in the study area.

This report describes the lumber-purchasing activities of these industries in the selected portions of the three-state area. It is directed primarily to the questions: (1) What type of lumber do they buy? and (2) How do they buy it? Although primarily of a descriptive nature, the report also identifies structural deficiencies in the marketing chain for lumber that need improvement or further research. This information is necessary to evaluate corrective actions by the lumber seller and/or buyer. And such information should help the lumber manufacturer to recognize the needs of the lumber user and to produce a product designed to fit these needs.

The Lumber

The value and specifications of the products manufactured by the six industries covered in the study differ considerably.

The products of the dimension-and-flooring, millwork, and furniture-and-fixtures industries are generally high-value products, reflecting the large amount of labor required in their production and the considerable change in form that the lumber undergoes during manufacture. Factors such as correct size and moisture content of the wood are critical in the final products of this group of industries.

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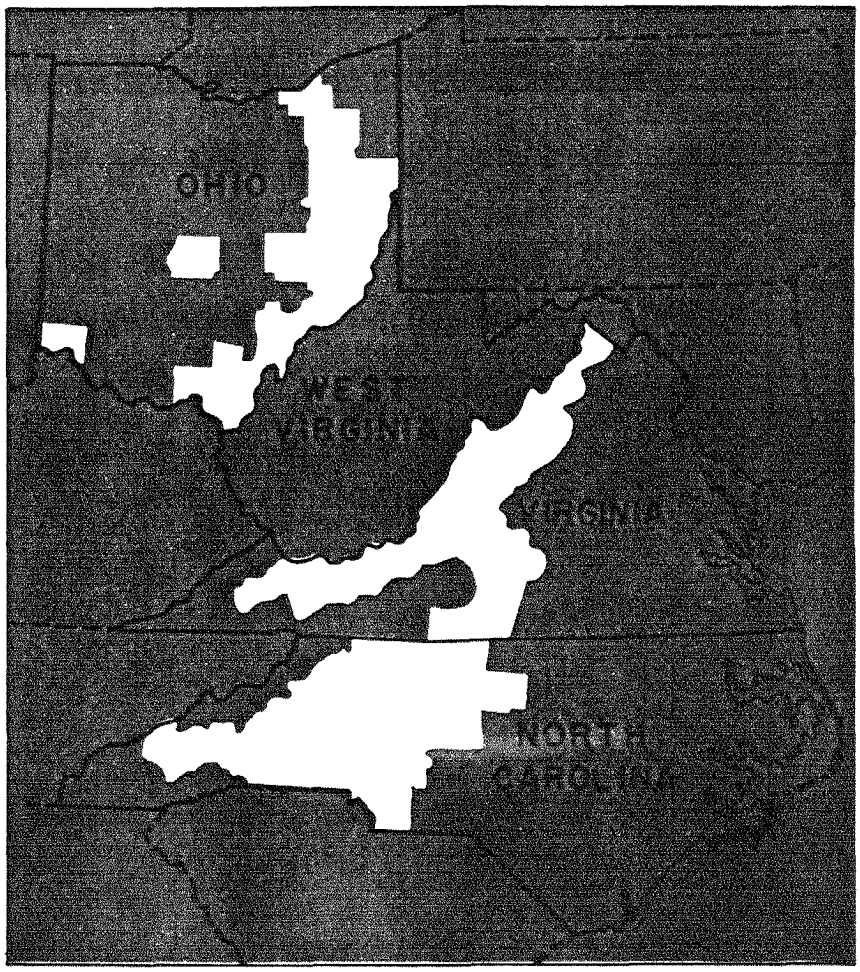
[2] The firms contacted in this group are classified under *Wood products, not elsewhere classified* in the Standard Industrial Classification. However, since nearly all of these firms interviewed in this study produced pallets as their major product, for convenience the industry will be referred to in the remainder of this report as the pallet industry.

[3] The interviews were conducted by William H. Reid, formerly with the West Virginia Agricultural Experiment Station, now with the Forest Products Requirements Branch, Division of Forest Economics Research, Forest Service, U. S. Department of Agriculture.

Figure 1.—The study area. Unshaded zones delineate areas of important markets for West Virginia lumber.



The manufacturers of wooden containers and pallets deal with low-value products, which are manufactured with a minimum number of operations. Correct size and moisture content of wood are important, but are not so critical in these products as in those mentioned above.

The prefabricated-house components manufactured by the prefabricated-structures industry are high-value products, yet are manufactured under capital-intensive processes. The manufacture of house components utilizes primarily the structural grades of

softwood lumber in the standard sizes and condition, and this raw material undergoes relatively little change during the manufacturing process.

The variation of capital inputs among these three groups is reflected in the volumes of lumber processed annually per employee. The dimension-and-flooring, millwork, and furniture-and-fixtures industries were found to process 25,000 board feet of lumber per employee annually, while the wooden-container and the pallet industries utilized 42,000 board feet of lumber per employee annually. The prefabricated-structure industry was the most labor extensive-capital intensive industry: it processed 53,000 board feet of lumber annually per employee.

All together these six industry groups in the study area utilized approximately 1.6 billion board feet of lumber in 1960. Of this, 1.5 billion board feet (89 percent) was purchased from lumber manufacturers or lumber distributors. The remaining 171 million board feet (11 percent) was obtained from company-owned or contract sawmills.

Of the 1.5 billion board feet of purchased lumber, 1.4 billion board feet was purchased for remanufacture into the finished product. The rest was purchased for shipping containers and blocking for use in transporting the product. The furniture industry was the only user of lumber for such shipping purposes, a

Table 1. — *Hardwood and softwood lumber purchased for production use by industry in study area, 1960*[1]

Industry	Hardwood lumber		Softwood lumber		Total hardwood & softwood	
	Million bd. ft.	*Percent*	*Million bd. ft.*	*Percent*	*Million bd. ft.*	*Percent*
Dimension and flooring	117	10	3	1	120	9
Millwork	100	9	150	65	250	18
Prefabricated structures	10	11	54	23	64	5
Wooden container	52	4	5	2	57	4
Furniture and fixtures	875	76	18	8	894	64
Pallet	2	(2)	2	1	4	(2)
Total	1156	100	232	100	1390	100

[1] Data may not add to totals because of rounding.
[2] Less than 0.5 percent.

Table 2. — *Percentage of lumber purchased, by State and industry in study area*

Industry	Ohio	North Carolina	Virginia
	Percent	*Percent*	*Percent*
Dimension and flooring	7	38	55
Millwork	11	8	81
Prefabricated structures	12	0	88
Wooden container	65	([1])	35
Furniture and fixtures	2	61	37
Pallet	13	87	0
All industries	7	45	48

[1] Less than 0.5 percent.

reflection of the relatively high value and form of the finished product.

The furniture-and-fixtures industry represented the most important market outlet for lumber: it accounted for nearly two-thirds of the total volume of hardwood and softwood lumber purchased for production use (table 1).

However, the furniture industry is not as important in the wood-products-manufacturing complex as the figures seem to indicate. For example, in West Virginia, furniture and fixtures accounted for only 10 percent of the lumber manufactured into wood products.[4] Nationally, about 21 percent of the lumber used in manufactured products in 1960 was processed into furniture.[5]

The millwork industry was the most important market outlet for softwood lumber in the study area. It accounted for nearly two-thirds of the softwood lumber purchases. However, less than 20 percent of the lumber purchased for production use in the study area was of the softwood species.

The dimension-and-flooring, millwork, and prefabricated-structures industries are concentrated primarily in Virginia (table 2). North Carolina is the main area of market concentration for the furniture-and-fixtures industries and the pallet industry, and Ohio for the wooden-container industry.

[4] Reid, W. H., W. W. Christensen, and N. D. Jackson. MARKETING OF LUMBER PRODUCED BY SAWMILLS IN WEST VIRGINIA. W. Va. Agr. Expt. Sta. Interim Rpt., 20 pp., illus., (n.d.).

[5] Gill, Thomas G. WOOD USED IN MANUFACTURING INDUSTRIES. U. S. Forest Serv. Statis. Bul. 353, 121 pp., illus., 1965.

Although the data were collected and tabulated on the basis of firm size (number of employees), there was no apparent correlation between size of firm and procurement activities. The firm size classes were as follows:

I	1 - 50 employees
II	51 - 100 employees
III	Over 100 employees

With increasing firm size, there was an increase in the number of suppliers from whom they purchased lumber.

Purchasing Activities

The following sections are concerned with the 1.4 billion board feet of lumber purchased for remanufacture into finished product, specifically in relation to: (1) the physical characteristics of the lumber purchased by each industry; (2) the source of the lumber; (3) the conditions under which each industry purchased its lumber; (4) the difficulties the various industries have experienced in purchasing lumber; and (5) solutions found helpful in overcoming these difficulties.

Lumber Requirements

Species. — The lumber used by manufacturers was classified only as hardwood or softwood species. Major differences were found between industries in the relative amounts of hardwood and softwood lumber they utilized for different products.

The dimension-and-flooring, wooden-container, and furniture-and-fixtures industries are predominately users of hardwood lumber. The prefabricated-structures and millwork industries utilize mainly the softwood species. The pallet industry utilizes comparable volumes of both hardwood and softwood species. In the study area, over four-fifths of the lumber purchased was hardwood, the remaining one-fifth softwood (table 3).

Grade. — Lumber purchased on a standard-grade basis was classified in the study only as high quality or low quality — class 1 or class 2. High-quality lumber was considered to be No. 1 common and better for hardwood lumber and No. 2 common and better, sterling, or standard for softwood lumber. The low-quality lumber was designated as No. 2 common and poorer for hardwood lumber and No. 3 common and poorer, construction, or utility grades for softwood lumber.

Table 3. — *Percentage of hardwood and softwood lumber purchased, by industry in study area*

Industry	Hardwood lumber	Softwood lumber
Dimension and flooring	97	3
Millwork	40	60
Prefabricated structures	16	84
Wooden container	91	9
Furniture and fixtures	98	2
Pallet	51	49
All industries	83	17

Several firms in the prefabricated-structures and furniture-and-fixtures industries indicated that they purchased portions of their softwood lumber requirements on a private grade basis. These grades evidently reflected the needs of the user and cannot be specified as representing either the higher or lower grades of lumber to any marked degree.

The grades of hardwood and softwood lumber utilized predominately by the various industries are presented in the following tabulation:

Industry	*Hardwood lumber (grade)*	*Softwood lumber (grade)*
Dimension and flooring	Low	High
Millwork	High	High
Prefabricated structures	Low	(*)
Wooden container	Low	Low
Furniture and fixtures	High-low	(*)
Pallet	Low	Low

* Undefinable from the data.

Data for the dimension-and-flooring industry are somewhat confounded by the way in which these two large lumber users are grouped together in the Standard Industrial Classification. The production of dimension stock and the production of flooring require different grades and species of lumber. In our study, the low-grade hardwood lumber was purchased primarily by the flooring industry while the high-grade softwood lumber was used primarily by the dimension industry.

Overall, four-fifths of the hardwood lumber used by plants in the study area was purchased on a standard grade basis.

Table 4. — *Percentage of hardwood and softwood lumber purchased on a standard grade, private grade, or ungraded basis, by industry in study area*

Industry and species	Standard grades		Private grades	Ungraded
	Class 1	Class 2		
Dimension and floooring:				
Hardwood	33	67	0	0
Softwood	65	16	0	19
Millwork:				
Hardwood	62	19	0	19
Softwood	90	10	0	0
Prefabricated structures:				
Hardwood	0	100	0	0
Softwood	11	31	58	0
Wooden container:				
Hardwood	43	54	0	3
Softwood	23	70	0	7
Furniture and fixtures:				
Hardwood	35	41	0	24
Softwood	37	0	63	([1])
Pallet:				
Hardwood	0	66	0	34
Softwood	0	100	0	0
All industries:				
Hardwood	38	42	0	20
Softwood	65	16	18	1

[1] Less than 0.5 percent.

Approximately two-fifths was in the class 1 category and two-fifths was class 2. The remaining one-fifth was purchased ungraded (table 4).

Softwood lumber was purchased in a variety of grades. Some 65 percent was class 1 and 16 percent was class 2. The remaining 18 percent was purchased under private grades. Less than 1 percent was purchased as ungraded lumber.

Condition. — The condition of lumber at the time of purchase was classified as (1) green or dry and (2) rough or finished. The condition of the bulk of the hardwood and softwood lumber purchased by each industry was determined to be as follows:

Industry	*Hardwood*	*Softwood*
Dimension and flooring	Green-rough	Dry-finished
Millwork	Dry-rough	Dry-rough
Prefabricated structures	Green-rough	Green-rough
Wooden container	Green-rough	Green-rough
Furniture and fixtures	Dry-rough	Green-rough
Pallet	Green-finished	Dry-finished

Overall, two-thirds of the hardwood and four-fifths of the softwood lumber was purchased in a dry condition (either air-dried or kiln-dried). Approximately nine-tenths of the hardwood and four-fifths of the softwood lumber was purchased rough (table 5).

Table 5. — ***Condition of hardwood and softwood lumber purchased by industry in study area***

Industry and species	Condition			
	Green	Dry[1]	Rough	Finished
	Percent	*Percent*	*Percent*	*Percent*
Dimension and flooring:				
Hardwood	76	24	100	0
Softwood	23	77	35	65
Millwork:				
Hardwood	38	62	100	([2])
Softwood	0	100	90	10
Prefabricated structures:				
Hardwood	100	0	100	0
Softwood	53	47	53	47
Wooden container:				
Hardwood	53	47	52	48
Softwood	79	21	72	28
Furniture and fixtures:				
Hardwood	24	76	93	7
Softwood	63	37	63	37
Pallet:				
Hardwood	100	0	35	65
Softwood	11	89	0	100
All industries:				
Hardwood	32	68	93	7
Softwood	20	80	78	22

[1] Less than 25 percent moisture content.
[2] Less than 0.5 percent.

The condition of the lumber when purchased by each industry is mainly a reflection of the product requirements. Since hardwood lumber is commonly remanufactured and is significantly changed in form in the final product, the bulk of the hardwood lumber was purchased in a rough condition.

Lumber in a rough condition is suitable for the manufacture of shipping containers, consequently the wooden-container industry also purchased the bulk of its lumber in a rough condition. Pallets generally require smooth surfaces; so surfaced lumber was usually purchased for their manufacture.

Since one-third of the hardwood lumber was purchased green and much of the dry lumber was merely air-dried, it is apparent that the secondary industries have absorbed much of the drying function. Green lumber is acceptable only for portions of the products of the wooden-container and the pallet industries. The large amount of lumber purchased green or in a dry condition, especially by the furniture industry, was usually dried more thoroughly in kilns at the plant. This permitted the plant to exert closer control over drying and over the quality and condition of the lumber used in their manufacturing operations.

Sources of Lumber

The lumber source was investigated to determine both the geographical source and market source of the purchased lumber. The geographical source refers to the state or region in which the lumber was manufactured. The market source was further classified as a lumber manufacturer or intermediate market agent (commission men, brokers and wholesalers), depending on whether the lumber was shipped directly from the sawmill to the consumer or through a distributor.

Except in Ohio, the industries studied generally purchased their lumber from in-state sources. Industries in Ohio purchased the bulk of their hardwood lumber from Ohio sources, but nearly all of their softwood lumber came from out-of-state sources, mainly from the West Coast.

Although West Virginia ranked fourth in volume as a supplier of lumber, it contributed less than 10 percent of the lumber purchased by firms in the study area (table 6). It is worth noting that more than half of the lumber used by plants covered in the study area originated in Virginia and North Carolina, and that these two states and the other Southeastern States produced two-thirds of the lumber used in the study area.

The study showed that three-fifths of the hardwood and soft-

Table 6. — *Geographical source of hardwood and softwood lumber for the study area*

Geographical source	Hardwood lumber		Softwood lumber		All lumber	
	Million bd. ft.	*Percent*	*Million bd. ft.*	*Percent*	*Million bd. ft.*	*Percent*
Virginia	361,199	31.3	80,698	34.7	441,897	31.8
North Carolina	285,945	24.7	53,700	23.1	339,645	24.5
Southeastern States	108,800	9.4	4,822	2.1	113,622	8.2
West Virginia	102,530	8.9	84	(1)	102,614	7.4
Gulf States	84,938	7.3	315	.1	85,253	6.1
West Coast	0	—	82,906	35.7	82,906	6.0
Lake States	53,460	4.6	0	—	53,460	3.8
Ohio	42,261	3.7	2,910	1.3	45,171	3.3
Pennsylvania	43,589	3.8	0	—	43,589	3.1
Foreign	18,906	1.6	250	.1	19,156	1.4
Maryland	14,658	1.3	0	—	14,658	1.1
Kentucky	13,683	1.2	14	(1)	13,697	1.0
New York	12,660	1.1	0	—	12,660	.9
Arkansas	4,176	.4	6,094	2.6	10,270	.7
Tennessee	3,677	.3	565	.2	4,242	.3
Missouri	3,828	.3	0	—	3,828	.3
Other	1,546	.1	112	.1	1,658	.1
Total	1,155,856	100.0	232,470	100.0	1,388,326	100.0

[1] Less than 0.05 percent.

Table 7. — *Percent of hardwood and softwood lumber obtained from lumber manufacturers and/or market intermediaries by industry in study area*

Industry	Hardwood		Softwood	
	Lumber manu-facturers	Market inter-mediaries	Lumber manu-facturers	Market inter-mediaries
Dimension and flooring	90	10	35	65
Millwork	76	24	56	44
Prefabricated structures	100	0	63	37
Wooden container	99	1	89	11
Furniture and fixtures	50	50	98	2
Pallet	99	1	100	0
All industries	59	41	62	38

wood lumber used by the industries sampled was purchased directly from lumber manufacturers and two-fifths from intermediaries such as brokers and wholesalers (table 7). One might expect that the industries that utilize primarily the higher grades of lumber would purchase a greater amount of lumber from intermediate market agents. This tendency was not evident from the data.

Conditions of Purchase

As an indication of the efficiency of the existing marketing system for lumber, each firm was asked to specify the transaction conditions, such as delivery method, ordering method, pricing point, method of payment, and the existence of business ties between the firms and their suppliers.

Transaction conditions. — The results showed that lumber was transported from the supplier to the lumber-using firms mainly by truck. Three-fourths of the hardwood lumber and three-fifths of the softwood lumber was delivered by truck (table 8).

The mode of transportation was affected by the geographical source of the lumber. For example, the millwork and the wooden-container industries purchased the bulk of their hardwood lumber from out-of-state sources. Consequently, as a matter of economics, they were the primary recipients of rail-delivered hardwood lumber. And proportionately, more softwood lumber was purchased from out-of-state sources than hardwood lumber. Accordingly, a larger proportion of the softwood lumber was also rail-delivered since rail transportation is more economical for

Table 8. — *Percentage of hardwood and softwood lumber delivered by rail or truck, to industry in study area*

Industry	Hardwood		Softwood	
	Rail	Truck	Rail	Truck
Dimension and flooring	6	94	72	28
Millwork	56	44	50	50
Prefabricated structures	0	100	24	76
Wooden container	48	52	25	75
Furniture and fixtures	22	78	36	64
Pallet	0	100	78	22
All industries	24	76	43	57

Table 9. — *Ordering method for hardwood and softwood lumber, by industry in study area*

Industry	Hardwood			Softwood		
	Order sent to supplier	Supplier calls	Other	Order sent to supplier	Supplier calls	Other
Dimension and flooring	45	35	20	72	28	0
Millwork	67	18	15	98	2	0
Prefabricated structures	20	80	0	44	56	0
Wooden container	21	14	65	76	5	19
Furniture and fixtures	68	32	0	100	0	0
Pallet	22	78	0	78	22	0
All industries	63	30	7	85	15	(1)

[1] Less than 0.5 percent.

the longer haul. Undoubtedly firm preferences due to such factors as a lack of rail facilities adjacent to user's yards have had an effect on the mode of transportation, but our study was not designed to record and evaluate differences of this sort.

Simply phoning or sending an order to the lumber supplier was found to be the general ordering method by all industries covered in the study. More than three-fifths of the hardwood lumber and more than four-fifths of the softwood lumber was ordered in this fashion (table 9). But the ordering method was affected to a minor degree by the geographical source of the lumber; the close proximity of lumber suppliers to a number of the industries facilitated an occasional sales call in person by the lumber supplier. Sending the order to the supplier was more common for industries that had a variety of lumber sources.

More than 95 percent of all the lumber purchased was purchased at prices based on delivery to the buyer's plant. Evidently all of the industries were concerned only with the cost of lumber at their yard and preferred to leave the responsibility for transportation to the supplier.

Most of the lumber was purchased on a cash sale basis. This system commonly allows a 2-percent discount if payment is made within 10 days or payment in cash net within 30 to 60 days after receipt of the lumber. Less than 1 percent of the lumber was

purchased on credit advanced by the seller, and none of the lumber was purchased on an advance-payment basis.

Relationships with lumber suppliers. — The number of lumber suppliers selling lumber to each firm varied in relation to the size of firms (number of employees) and between firms in different industries. This was a reflection of the greater volume of lumber required by larger firms and the greater variety of types of lumber required by certain industries. The average number of suppliers per firm ranged from 10 in the millwork industry to 37 in the prefabricated-structures industry; this corresponded with the increasing average size of firm. The millwork industry commonly requires fewer types of lumber to meet the needs of a relatively narrow market. The prefabricated-structures industry, on the other hand, commonly requires a greater variety of types of lumber as found in residential construction. An average of 22 lumber suppliers served each firm.

Lumber users had dealt with each of their lumber suppliers for an average of 6 years in the pallet industry to 9 years in the wooden-container industry. The average length of time for all firms covered in the study was 7 years. One-half of the firms indicated that it was primarily the seller's initiative through sales calls and/or correspondence that brought their firm and a potential lumber supplier together. Approximately one-fourth of the lumber-buying firms reported that they were forced to take the initiative in locating a potential lumber supplier; the other one-fourth of the firms felt that it was a mutual buyer-seller effort.

Only 1 percent of the firms, primarily in the millwork and the wooden-container industries, indicated that they negotiated for contractual arrangements between their firm and a lumber supplier. These contracts ranged from 6 months to 3 years in duration. Only one of these firms indicated that they paid a premium price to their contractor. All other firms indicated that these contracts were on a market-price basis.

A number of lumber-using firms in each industry indicated that they were engaged in other business dealings with their lumber suppliers. Most commonly these dealings included the purchase of other materials or services. Fourteen percent of the total number of firms indicated dealings of this sort with their lumber supplier. A few firms, particularly in the pallet industry, indicated that they were jointly engaged in other businesses with their lumber supplier or suppliers. Fewer than 1 percent of the firms indicated having business dealings of this sort with their lumber suppliers.

Lumber-Purchasing Difficulties

Lumber-purchasing firms were asked a number of questions about lumber-procurement problems. They were also asked to segregate their present procurement problems from past (since 1955) procurement problems. And they were asked to indicate any geographical aspects of their lumber-purchasing difficulties.

Twenty-eight percent of the firms indicated that they were currently having lumber-procurement difficulties (table 10). And 34 percent of the firms indicated that they have had lumber-procurement difficulties in the past. Because of the different lengths of time taken for a base for present and past difficulties, however, this does not mean there has been a reduction in lumber-procurement difficulties, or any change at all.

The occurrence of current lumber-procurement problems was most evident in the furniture- and fixtures-industry: more than one-third of the firms mentioned such difficulties. This was a marked increase over the number of firms that expressed procurement difficulties in the past.

Firms that indicated having present or past lumber-procurement problems were asked to specify the nature of these problems and to rank these problems as constituting a major or relatively minor difficulty. Their responses were as follows:

PRESENT DIFFICULTIES

Industry	*Major difficulty*	*Minor difficulty*
Dimension and flooring	Correct size	Correct size
Millwork	Proper seasoning	Delivery assurance
Prefab structures	None	None
Wooden container	Delivery assurance	Correct size
Furniture and fixtures	Proper grade	Correct size
Pallet	None	None

PAST DIFFICULTIES

Industry	*Major difficulty*	*Minor difficulty*
Dimension and flooring	Correct size	Proper species
Millwork	Proper seasoning	Delivery speed
Prefab structures	None	Proper seasoning
Wooden container	Delivery assurance	Correct size
Furniture and fixtures	Proper grade	Correct size
Pallet	Delivery assurance	Delivery assurance

The prefabricated-structures industry and the pallet industry indicated that they were not experiencing any current lumber-procurement difficulties. Both of these industries utilize primarily

Table 10. — *Number and percent of firms expressing present or past procurement problems, by industry in study area*

Industry	Present difficulties		Past difficulties	
	No.	*Percent*	*No.*	*Percent*
Dimension and flooring	7	21	20	59
Millwork	10	6	71	45
Prefabricated structures	0	—	5	56
Wooden container	6	22	6	22
Furniture and fixtures	155	39	110	27
Pallet	0	—	2	50
All industries	178	28	214	34

the lower grades of lumber, indicating that problems dealing with the proper grades of lumber are of primary importance. This was generally the case, as 44 percent of the firms reporting current lumber-procurement difficulties of major importance indicated that non-conformance to lumber grade specifications was their most important problem (table 11). More than one-half of the firms that expressed present difficulties also indicated that they were having difficulty obtaining properly sized lumber, but this was generally felt to be a relatively minor problem.

Table 11. — *Present major and minor lumber-procurement difficulties for all industries in study area*

Form of difficulty	Major difficulty		Minor difficulty	
	No. of firms	*Percent*	*No. of firms*	*Percent*
1. Speed of delivery	0	0	7	4
2. Assurance of delivery	14	10	20	12
3. Conformance to specifications	131	90	124	74
Grade	64	44	6	4
Size (accuracy of manufacture)	2	1	92	55
Species	2	1	15	9
Condition (seasoning)	3	2	5	3
4. Other	1[1]	([2])	16[3]	10
Total	146	100	167	100

[1] Shortage of lumber.
[2] Less than 1 percent.
[3] Need for mixed grades in carload shipments; excessive price; lengths too short.

The major problem most often indicated as a past difficulty was also nonconformance to specifications of the lumber, particularly grade specifications (table 12). Of those past problems indicated as relatively minor, size or accuracy of manufacture of the lumber was most often mentioned.

Table 12. — *Past major and minor lumber-procurement difficulties for all industries in study area*

Form of difficulty	Major difficulty		Minor difficulty	
	No. of firms	*Percent*	*No. of firms*	*Percent*
1. Speed of delivery	0	0	64	25
2. Assurance of delivery	17	15	18	7
3. Conformance to specifications	97	83	151	59
Grade	25	21	7	3
Size (accuracy of manufacture)	2	2	93	36
Species	2	2	16	6
Condition (seasoning)	15	13	19	7
Quantity	0	—	1	1
4. Other	3[1]	2	23[2]	9
Total	117	100	256	100

[1] Species shortage.
[2] Species shortage; need for mixed grades in carload shipments.

The problem of mismanufactured and improperly processed lumber assumes much more extensive proportions. This accounted for 90 percent of the current major difficulties. The minor difficulties most often indicated were also concerned with conformance to specifications.

Only 10 percent of the firms indicated that they were experiencing difficulties between geographic areas in terms of purchasing difficulties. The greatest difficulty expressed was with lumber shipments from Pennsylvania and New York. Cause of this is not known.

The majority of the firms that indicated that they were having less trouble with shipments from a particular area reported that West Virginia lumber shipments gave them the least difficulty. Pennsylvania was also mentioned in this regard, however, indi-

cating that the degree of satisfaction obtained varies within a state or region and, most likely, among individual lumber suppliers.

Solutions for Overcoming Difficulties

Lumber-buying firms were queried as to the actions they had found most helpful in overcoming lumber-purchasing difficulties and to indicate what they considered was a major action and which was a relatively minor action. Each firm was also asked to specify what major factors as well as any other relatively minor factors they considered in choosing a lumber supplier.

More than three-fourths of the firms taking major actions reported that they switched to other suppliers (table 13). Most of the remaining firms turned to intermediate market agents, and only 1 percent of the firms offered a premium price for prompt delivery and well-manufactured and well-seasoned lumber.

Switching suppliers was also most often indicated as a relatively minor action taken by the lumber-buying firms. Approximately one-fourth of the firms indicated that they paid a premium price for properly manufactured and processed lumber and good service, but that they generally considered this to be a relatively minor action.

Conformance to specifications of the lumber was most often indicated by the firms as the major factor influencing their choice

Table 13. — *Actions taken by industries in study area to overcome lumber-procurement difficulties*

Action	Major action		Minor action	
	No. of firms	*Percent*	*No. of firms*	*Percent*
Used market intermediaries	18	12	0	—
Rejected lumber that did not conform with specifications	12	8	10	5
Paid premium price	2	1	56	27
Switched suppliers	120	78	58	28
Switched supply area	0	—	28	13
Switched to dimension stock	0	—	48	23
Other	2[1]	1	8[2]	4
Total	154	100	208	100

[1] Attempt to acquaint supplier with lumber needs.
[2] Increase inventory, switch species.

Table 14. — *Factors influencing choice of lumber suppliers for all industries in study area*

Factor	Major factor		Minor factor	
	No. of firms	*Percent*	*No. of firms*	*Percent*
Only supplier available	0	—	1	(1)
Price	5	1	81	15
Delivery speed	92	16	2	(1)
Delivery assurance	154	27	253	48
Size of purchases	0	—	24	5
Conformance to specifications	267	46	159	30
Reputation of supplier	41	7	3	1
Species requirements	8	1	4	1
Other	11[2]	2	2[3]	(1)
Total	578	100	529	100

[1] Less than 0.5 percent.
[2] Social ties between buyer and seller.
[3] Local supplier; odd sizes.

of a lumber supplier, indicating the importance of properly manufactured and processed lumber. Nearly one-half of the firms considered this as a major factor (table 14). Delivery assurance and delivery speed were considered major determining factors by another 43 percent of the firms. Only 1 percent of the firms felt that price was the major factor influencing their choice of a lumber supplier.

Of the relatively minor factors, assurance of prompt delivery was most often mentioned. More than three-fourths of the firms considered delivery assurance and conformance to specifications as factors in choosing a lumber supplier.

Discussion

Our study of the leading industrial markets for lumber from the southern Appalachian region, and in particular, lumber from West Virginia, suggests some areas that need further research.

One factor emphasized is the large extent to which the marketing functions and even the lumber-processing functions have been absorbed by the lumber user. At present approximately three-fifths of the lumber moves directly from the lumber manufacturer to the lumber user. Contractual arrangements or financial ties

between the lumber supplier and user were notably lacking, resulting generally in a buyer's market.

Research is needed to determine what effect the intermediate agent has on the lumber-distribution system at present, and how much more or less of an active role he should be encouraged to play. Perhaps the intermediate market agent rather than the lumber manufacturer or lumber user is in a better market position to offer the marketing functions of information, exchange, physical supply, and financial service. In addition, the intermediate stage between producer and user may be a more favorable time for some of the lumber-processing functions that are now often passed on to the lumber user, such as drying. Analyses of the present and prospective roles of the intermediate market agent ought to be made in terms of marketing efficiency.

Another point evident from the data is the continuing problem of mismanufactured lumber. Manufacturing firms apparently have no difficulty in procuring the quantity of lumber needed, but they do experience difficulties with the quality of lumber that is available on the market. When many suppliers are available, lumber users are not forced to offer a premium price for quality lumber, but usually try to solve their problems by switching to other suppliers. Thus the average firm's main concern in choosing a lumber supplier is not price or delivery speed but the supplier's adherence to quality specifications.

Much of the value of hardwood lumber is determined in the logging and sawing processes. Mistakes made at this stage usually cannot be easily or economically remedied later. Thus research and extension efforts directed at the woods and the mill, to produce a more satisfactory product, might improve the later marketing situation.

An analysis of the prospective costs and returns of a program of quality control for the individual sawmill might also be helpful. Such a program, of course, implies added costs to the lumber manufacturer. And there is no evidence that the lumber user will recognize these added costs in terms of higher prices or an expanded demand for the lumber. Yet mismanufactured lumber seems to be contributing to the conversion to substitute materials and the resulting dwindling lumber markets. Results of our study suggest that research in this area should have top priority, at least from the lumber purchaser's point of view. The result could be a more satisfactory product for the lumber user and an expanded demand for lumber.

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