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Chapter 17

Forest Products

THE forest products group encompasses all industries engaged in the manufacture of lumber and lumber products, and certain related industries, notably turpentine and rosin. The wood-distillation industries are classified in the chemical products group; and the wood pulp industry is grouped with paper products.

The relative importance of the forest products group declined almost without interruption from 1899 to 1937. In the first year it contributed more to the value added by all manufacturing industries than any other group but one, textile products. In contrast, its contribution to total value added in 1937 was smaller than that of each of seven other groups.

TRENDS IN THE PHYSICAL OUTPUT OF THE FOREST PRODUCTS INDUSTRIES

For the entire period 1899–1937 we have data on physical output for only two of the forest products industries (Table 50 and Chart 19). One of these, lumber-mill products, is the dominant industry in the group.

Lumber-Mill Products. This classification includes logging camps, merchant sawmills, combined sawmills and planing mills, veneer mills, and cooperage-stock mills. Planing mills and box factories not operated in conjunction with sawmills are classified with other industries in the group. The physical output of the lumber-mill products industry fell by 32 percent between 1899 and 1937. During the first three decades output fluctuated about a fairly horizontal trend. The decade

	Lumber-Mill Products, n.e.c.[c]	Planing-Mill Products, n.e.m.[d]	Boxes, Wooden, Cigar	Cooperage	Caskets and Coffins	Excelsior	Turpentine and Rosin	Total	
								Unadjusted	adjusted
YEAR				INDEX OF PHYSICAL OUTPUT (1929: 100)					
1899	107	..	..	..	..	..	119	108	82
1904	96	..	..	..	..	..	97	96	76
1909	105	..	..	..	..	..	90	104	83
1914	96	..	..	..	..	..	82	95	82
1919	97	..	..	..	..	..	76	96	79
1921	80	..	..	..	..	..	74	80	83
1923	99	..	..	..	..	..	88	98	91
1925	106	119	..	..	..	99	91	108	103
1927	97	97	98	98	77	97	107	97	99
1929	100	100	100	100	100	100	100	100	100
1931	51	55	84	68	89	63	78	55	63
1933	40	32	65	56	..	51	82	40	46
1935	55	46	64	60	97	60	78	55	59
1937	72	64	83	63	104	70	81	72	76
PERIOD				NET PERCENTAGE CHANGE IN PHYSICAL OUTPUT					
1899–1937	−32	..	..	..	..	..	−32	−33	−7
1899–1909	−2	..	..	..	..	..	−24	−3	+1
1909–1919	−7	..	..	..	..	..	−16	−8	−5
1919–1929	+3	..	..	..	..	..	+32	+4	+27
1929–1937	−28	−36	−17	−37	+4	−30	−19	−28	−24

[a] Industries for which there are no adequate quantity data for any of the periods listed above are: window and door screens; wood turned and shaped; baskets; boxes, wooden, other; furniture; billiard tables; mirror and picture frames; cork products; lasts; matches; and wood preserving. These industries are covered by the adjusted total.

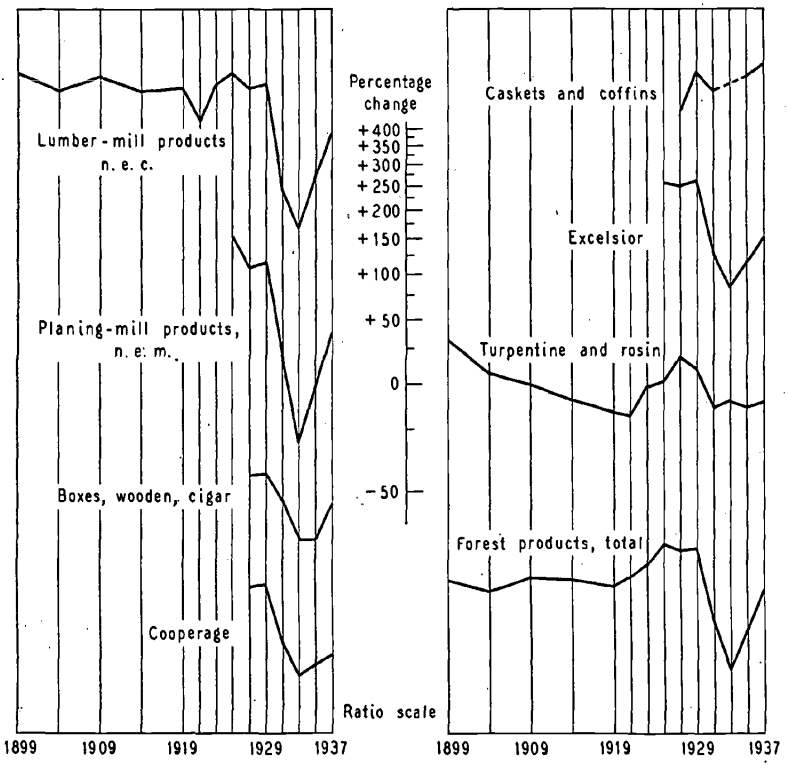
[b] The indexes have been constructed from basic data in the U.S. Census of Manufactures and other sources, by methods described briefly in Chapter 2 and in detail in Appendix A. Appendix B presents these data, together with the indexes derived from them. The indexes cited here for individual industries have been adjusted to take account of changes in the coverage of the respective samples, except when such adjustment was impossible.

The percentage changes are not always entirely consistent with the indexes given above because the changes were computed from the indexes in Appendix B, which are carried to one decimal place.

[c] N.e.c. denotes not elsewhere classified.

[d] N.e.m. denotes not elsewhere made.

Chart 19
FOREST PRODUCTS
Indexes of Physical Output



changes were −2, −7, and +3 percent, respectively.[1] From 1929 to 1937, however, output fell 28 percent. The industry's product was largest in 1899, although the level in that year was only slightly greater than that reached in 1909 or 1925.

Of the four lumber-mill products for which we have detailed data from 1899 onward, softwood lumber declined least. Its output in 1899 was 26 billion feet (board measure),

[1] The 1914 index is unadjusted and therefore may contain some error attributable to changes in the coverage of the sample. See the coverage percentages for other years, given in Appendix B.

and in 1937, 22 billion. Hardwood lumber output fell from 9 billion feet to 4 billion. The production of lath dropped more than 65 percent, from 2.5 billion feet in 1899 to 0.8 billion in 1937. Shingles declined more drastically: from 15 million squares in 1899 to 6 million in 1937. For the period beginning with 1925 we have more detailed data:

Product	*Unit*	*Quantity* 1925	1937	*Percentage Change*
Rough lumber sold	Bil. ft.	17.2	11.3	−34
Lath	Bil.	3.1	0.8	−74
Shingles	Mil. sq.	9.2	5.6	−39
Dressed lumber	Bil. ft.	14.3	11.6	−19
Doors	Mil.	8.0	2.4	−70
Sash	Mil.	7.2	1.6	−78
Window and door frames	Mil.	2.0	0.5	−75

The declines in lath, doors, sash, and frames made in the industry were particularly severe.

Despite the drop in its output, lumber has improved in quality with the passage of time, thanks to better methods of manufacture and drying. Kiln-drying, for example, has made lumber stronger, lighter, and less subject to sap stains, and has reduced spoilage resulting from air seasoning.[2]

The enormous declines we have found in the output of building materials made in the lumber-mill products industry tell only half the story, for they relate to the quantities of the products made in this industry alone, and not to total production.

Planing-Mill Products, another industry that manufactures some of these commodities, is covered by data beginning with 1925. Its output dropped 16 percent from that year to 1929, and then another 36 percent from 1929 to 1937. There were sharp declines between 1925 and 1937 in the output of all the individual products for which we have data:

[2] A. J. Van Tassel, *Mechanization in the Lumber Industry* (National Research Project, March 1940), p. 25.

Product	Unit	Quantity 1925	Quantity 1937	Percentage Change
Dressed lumber	Bil. ft.	4.8	2.4	−50
Doors	Mil.	15.1	9.1	−40
Sash	Mil.	40.7	29.6	−27
Window and door frames	Mil.	10.8	5.3	−51

The output of the last three products listed fell less in this industry than in the lumber-mill products industry. Only the first product, dressed lumber, declined more sharply.

Turpentine and Rosin. This industry differs from the wood-distillation products industry in that its products are derived through distillation of the resinous exudation of the pine, rather than by distillation of the wood itself. The industry has been a declining one, in contrast to the growing wood-distillation industry. Between 1899 and 1919 the output of turpentine and rosin fell steadily.[3] After 1919 there was an increase which brought output in 1927 to a point higher than that of any other year except 1899. There was a decline of 7 percent from 1927 to 1929, and then another decline, from 1929 to 1937, of 19 percent. The net loss from 1899 to 1937 was 32 percent.

Summary. The unadjusted group average follows closely the index for lumber-mill products. For the important planing-mill products industry data are available for the most recent period only; and for the important furniture industry no satisfactory quantity data are available at all. If we take into account these and the other industries omitted, the group index is greatly affected, particularly for the post-war decade. The net decline of 33 percent between 1899 and 1937 changes to a decline of only 7 percent.[4] Gauged by either index, how-

[3] The 1899–1909 indexes are not as precise as the indexes for later years because they could not be adjusted for change in coverage.

[4] The adjustment for industries omitted from the unadjusted index is especially drastic for 1919–21. The unadjusted index fell between these two years, while the adjusted index rose. The cause of this variation is the large drop in 1919–21 in value added by lumber-mill products and by turpentine and rosin, in relation to the value added by the group as a whole. The adjustment therefore causes the index of physical output to rise. This is not

ever, the group's output has grown slowly, both absolutely and in relation to the output of other manufacturing groups so far studied and to the change in population. The peak in the adjusted index appears in 1925.

The group total and all the individual industries for which we have data (with the exception of caskets and coffins) failed to increase as rapidly as total manufacturing in any of the four periods; and only in 1919–29 did the group total and turpentine and rosin rise more rapidly than population.

Presumably the relative position of the group reflects the displacement of lumber by other materials in construction and even in furniture manufacture. This displacement resulted in part from the increasing pressure on our forest reserves; and in part from rapid technological developments in the industries producing substitutes for wood. The need for building materials that can be used in large structures, and the substitution of wood by more resistant and more handsome materials, have exerted a similar influence upon the course of the forest products industries.

CHANGES IN THE INDUSTRIAL PATTERN OF FOREST PRODUCTS MANUFACTURE

The major change in the composition of the physical output of the forest products group is attributable to the decline in the output of the lumber-mill products industry. The industrial pattern of the group's production in selected years is shown in terms of relative contributions in Table 51. Lumber-

necessarily an incorrect result: the post-war building boom began before 1921; and a decline in the output of lumber need not be associated with a decline in the output of industries using lumber, since stocks can be drawn upon. Interestingly enough, the NRP index of the output of planing-mill products rose between 1919 and 1921 (see Appendix D).

We may secure an alternative adjusted index of output for the group by utilizing, in addition to the indexes listed, the NRP index of furniture output (obtained by deflation of the value of furniture production by an index of furniture prices—see Appendix D). This alternative index also shows a rise of 27 percent between 1919 and 1929.

mill products contributed almost three fifths of the entire output of the group in 1899, but only about two fifths in 1937. Most of the decline occurred in the third decade. The decline in the relative contribution of turpentine and rosin was of minor importance because of the small size of the industry.

No data are available on the physical output of the individual industries grouped together as "other forest products,"

TABLE 51

FOREST PRODUCTS

Relative Contributions of Component Industries to the Physical Output of the Entire Group[a]

Industry	*Percentage Distribution, Comparable Pairs of Years*									
	1899	1937	1899	1909	1909	1919	1919	1929	1929	1937
Lumber-mill products, n.e.c.[b]	59.1	42.8	55.7	53.8	53.5	52.4	52.4	42.4	43.0	40.7
Turpentine and rosin	2.0	1.4	3.0	2.3	2.6	2.3	1.8	1.9	1.3	1.4
Planing-mill products, n.e.m.[c]									13.3	11.2
Boxes, wooden, cigar									0.4	0.4
Cooperage									1.4	1.2
Caskets and coffins	38.9	55.8	41.2	43.9	43.9	45.4	45.8	55.7	2.4	3.3
Excelsior									0.1	0.1
Other forest products									38.1	41.7
TOTAL[d]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

[a] Derived from Table 50. For an explanation of the derivation of the measurements see footnote 10, Chapter 4.
[b] N.e.c. denotes not elsewhere classified.
[c] N.e.m. denotes not elsewhere made.
[d] The columns do not add up to 100.0 in every instance because they contain rounded percentages.

but the figures on value added presented in Table 52 afford a clue to their relative contributions. The decline in the contribution of the planing-mill products industry indicates that the drop in lumber-mill products was not merely the result of a separation of planing mills from sawmills. The most im-

portant industry in the "other forest products" group shown in Table 51, furniture, accounted for almost the entire gain in the relative contribution of that group. Furniture's contribution increased from 14 percent of the total in 1899 to 29 in 1937. Minor rises occurred also in the contributions of wood preserving and caskets and coffins.

The increase in furniture and the decrease in lumber-mill

TABLE 52

FOREST PRODUCTS

Relative Contributions of Component Industries to the Value Added by the Entire Group[a]

Industry	*Percentage Distribution*						
	1899	1909		1919		1929	1937
		Comparable with 1899	1919	1909	Comparable with later years		
Lumber-mill products, n.e.c.[b]	56.2	53.7	53.6	52.3	51.9	43.0	40.8
Planing-mill products, n.e.m.[c]	13.4	15.4	15.4	12.0	12.0	13.3	11.2
Window and door screens				0.4	0.4	0.7	0.6
Wood turned and shaped	2.1	2.2	2.2	1.8	1.8	2.1	3.0
Baskets	0.5	0.4	0.4	0.4	0.4	0.7	0.8
Boxes, wooden, cigar	0.6	0.5	0.5	0.4	0.4	0.4	0.4
Boxes, wooden, other	3.0	3.4	3.4	4.4	4.5	3.2	3.3
Cooperage	3.2	2.1	2.1	1.8	1.8	1.2	1.4
Furniture	14.2	15.2	15.2	18.7	18.9	27.0	28.6
Billiard tables	0.2	0.3	0.3	0.6	0.6	0.3	0.3
Mirror and picture frames	1.2	0.9	0.9	0.7	0.7	0.7	0.6
Caskets and coffins	1.4	1.5	1.5	2.0	2.0	2.5	3.1
Cork products	0.4	0.3	0.3	0.4	0.4	0.5	0.7
Excelsior		[d]	0.1	0.1	0.1	0.1	0.1
Lasts	0.3	0.3	0.3	0.5	0.5	0.3	0.3
Matches	0.5	0.8	0.8	0.7	0.7	0.4	0.9
Turpentine and rosin	2.8	2.4	2.4	2.3	2.3	1.3	1.3
Wood preserving	0.1	0.6	0.6	0.6	0.6	2.2	2.6
TOTAL[e]	100.0	100.0	100.0	100.0	100.0	100.0	100.0

[a] Basic data are given in Appendix C.
[b] N.e.c. denotes not elsewhere classified.
[c] N.e.m. denotes not elsewhere made.
[d] Included in artificial leather.
[e] The columns do not add up to 100.0 in every instance because they contain rounded percentages.

and planing-mill products are apparently inconsistent developments. We may note, however, that more than half the lumber produced is used in industries other than furniture. In 1929, for example, the entire cost of all materials consumed in the furniture industry was 426 million dollars, while the value of goods turned out by the lumber-mill products industry alone equaled 1,273 million. Again, a large and increasing fraction of all furniture manufactured is made from metal rather than from wood. The proportion of metal furniture was as high as 12 percent in 1925 (the earliest Census year for which information is available), and had reached 27 percent by 1937.